In Re:

SEC 2015-05 Joint Public Hearing of
Site Evaluation Committee Pursuant to RSA 162-H:10,I-c

Hudson, New Hampshire (Hillsborough County)
December 8, 2015

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STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

December 8, 2015 - 6:02 p.m.
Hudson Memorial School
Memorial Drive
Hudson, New Hampshire
(Hillsborough County)

IN RE: SEC DOCKET NO. 2015-05
SITE EVALUATION COMMITTEE:
Joint Application of New England Power Company d/b/a National Grid and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility.
(Public Hearing of the Subcommittee members held pursuant to RSA 162-H:10,I-c, for a Presentation by Eversource Energy and National Grid, followed by a Question-and-Answer Session, and comments received from the public.)

PRESENT:	SITE EVALUATION COMMITTEE:
F. Anne Ross, Esq. (Presiding as Presiding Officer)	Public Utilities Commission
Cmsr. Kathryn M. Bailey	Public Utilities Commission
Cmsr. Jeffrey Rose	Dept. of Resources & Economic Development
Dr. Richard Boisvert	DCR-Div. of Historical Res.
Michele Roberge	Dept. of Environmental Serv.
Patricia Weathersby	Public Member

Also Present: Michael J. Iacopino, Esq.(Brennan...)
Pamela G. Monroe, SEC Administrator

COURT REPORTER: Susan J. Robidas, NH LCR No. 44

ALSO NOTED AS PRESENT:

FOR THE APPLICANTS:

Reptg. Eversource Energy:	Barry Needleman, Esq. Adam Dumville, Esq. (McLane, Graf...)
Reptg. National Grid:	Mark Rielly, Esq.
COUNSEL FOR THE PUBLIC:	Christopher G. Aslin,Esq. Asst. Atty. General N.H. Dept. of Justice
DEPT. OF ENVIRONMENTAL SERVICES (DES):	Collis Adams, Admin Wetlands Bureau - DES

PRESENT ON BEHALF OF APPLICANTS:

Sherrie Trefry - VHB

Dr. William Bailey - Exponent

I N D E X

P R O C E E D I N G S

PRESIDING OFFICER ROSS: Good evening, ladies and gentlemen. Welcome to a public meeting of the New Hampshire Energy Facility Site Evaluation Committee. We have one docket for consideration on today's agenda, the joint application of New England Power Company, doing business as National Grid, and Public Service Company of New Hampshire, doing business as Eversource Energy, for a Certificate of Site and Facility, Docket 2015-05. I'm serving as chair of the Subcommittee. My name is Anne Ross. I'm going to ask the rest of the members of the Subcommittee to introduce themselves.

MS. ROBERGE: My name is Michele Roberge. I'm the state implementation program manager for the Department of Environmental Services, the Air Resources Division.

MR. BOISVERT: I'm Richard Boisvert, New Hampshire state archeologist and deputy state historical preservation officer with the New Hampshire Division of Historical Resources.

COMMISSIONER BAILEY: I'm Kate

Bailey, a commissioner at the Public Utilities Commission.

COMMISSIONER ROSE: Good evening. Jeff Rose. I serve as the Commissioner of the Department of Resources and Economic Development.

MS. WEATHERSBY: Patricia Weathersby, public member.

MS. MONROE: My name is Pam Monroe. I serve as the Administrator to the Site Evaluation Committee.

PRESIDING OFFICER ROSS: And sitting to my right is Attorney Iacopino, who serves as attorney to the Site Evaluation Committee. Also, we have some agencies, some state agency representatives here. If you could introduce yourselves.

MR. ADAMS: Good evening. My name is Collis Adams. I represent the Department of Environmental Services. I am the administrator of the Wetlands Bureau.

PRESIDING OFFICER ROSS: Thank you. Are there any other agencies represented?

(No verbal response)

PRESIDING OFFICER ROSS: Okay. Also tonight, Attorney Chris Aslin, with the Attorney General's Office, is serving as Counsel for the Public. Perhaps you could just stand so people know who you are.

MR. ASLIN: Good evening.

PRESIDING OFFICER ROSS: Chris will be handling -- if members of the public have any concerns or questions, you should certainly, in addition to putting them on the public record tonight, take a moment at some point to chat with Attorney Aslin.

All right. Docket 2015-05 is titled "Joint Application of New England Power Company, Doing Business As National Grid, and Public Service Company, Doing Business As Eversource Energy, For a Certificate of Site and Facility."

On August 5th, 2015, New England Power Company and Public Service Company, known as Eversource Energy, filed a joint application for a Certificate of Site and Facility with the Site Evaluation Committee. The application seeks the issuance of a

Certificate of Site and Facility, approving the siting and operation for a new 34 kV electric transmission line, known as "the Project." The proposed transmission line will be constructed in an existing, developed transmission line corridor between New England Power Company's Tewksbury 22A Substation in Tewksbury, Massachusetts, and PSNH's Scobie Pond 345 kV substation in Londonderry, New Hampshire. The pre-existing transmission line corridor traverses the towns of Pelham and Hudson in Hillsborough County, and Windham and Londonderry in Rockingham County.

On August 12th, 2015, the Committee designated a Subcommittee to review and address the Application in this docket. On September 1st, 2015, Attorney Christopher Aslin was designated to serve as Counsel for the Public in this docket. On October 5th, 2015, the Subcommittee found the Application was complete and accepted it. On October 8th, 2015, a procedural order was issued in this docket. In this order, the Subcommittee ordered the Applicant to conduct public

information sessions in Rockingham and Hillsborough Counties on October 29th and November 4th, accordingly. The Subcommittee also scheduled a prehearing conference for December 3rd, 2015, and ordered potential intervenors to file motions to intervene by November 13, 2015. On October 16, 2015, the Applicant supplemented the Application by filing its Shoreland Impact Permit that was issued by the Department of Environmental Services on October 1st, 2015. On October 29th and November 4th, pursuant to the subcommittee's procedural order, the Applicant conducted public information sessions in Rockingham and Hillsborough Counties. The Subcommittee received one motion to intervene in this docket. That motion was filed by Margaret Huard on November 5th, 2015. Ms. Huard's motion to intervene was granted on November 30th, 2015. A prehearing conference in this docket was held on December 3rd, 2015. As a result of the prehearing conference, a procedural schedule was issued. A final adjudicative hearing is scheduled for

June 2016.

We are here today for a joint public hearing in this docket. Under R.S.A. 162-H:10,I-c, within 90 days after acceptance of an Application for a Certificate, the Subcommittee is required to hold at least one public hearing in each county in which the proposed project is to be located. The public hearings are joint hearings with representatives of the agencies that have permitting or other regulatory authority of the subject matter and are deemed to satisfy all initial requirements for public hearings under statutes requiring permits relative to environmental impact. The hearings are also joint hearings with the other state agencies and are conducted in lieu of all hearings otherwise required by any of the other state agencies. Notice of this joint public hearing was served upon the public by publication in the New Hampshire Union Leader on November 16, 2015.

In this docket, we will proceed as follows: We will first hear a

presentation by the Applicant. Following that presentation, the Subcommittee members, agency representatives and Committee Staff will have the opportunity to pose questions to the Applicant. Thereafter, the public will be permitted to pose questions to the Applicant. If you ever a question for the Applicant, we ask that you please write your question down on a card and hand it to Counsel for the Committee, Mike Iacopino, sitting on my right, or the Committee's Administrator, Pamela Monroe, down on my left. We will try to organize all of the questions by subject matter and present them to the Applicant in an organized fashion. Once we have asked all the questions that the public may have, we will then take public statements or comments on the Application. Please make your public statements as succinct as possible, and please try not to be repetitive. You can sign up to make a public statement on the sheets provided at the door. Currently, I have one sheet here.

Now we will hear a presentation by the Applicant.

MR. HUDOCK: So I want to say, first of all, thank you everyone for your attendance this evening. And my name is Bryan Hudock. I'm here on behalf of National Grid to present this joint project between National Grid and Eversource on the Merrimack Valley Reliability Project.

Go ahead. Can everybody hear me okay? All right. Good.

Okay. So, I just wanted to start with -- is this better? Can you hear me now? Okay. That's fine. I can stand back.

So I'll just start by reiterating that at all of these presentations, we really want to foster open and regular communication on this project. We want to make sure that the public is educated and informed about what this project is and what we intend to do. We want to make sure that community issues are heard and addressed, and overall make sure that throughout the Project there's open channels for feedback.

So, just as a bit of background, when we're talking about this

project, this project is a transmission reliability project. And in terms of the overall electric system, when we look at it, electricity is produced at generating stations in various locations, where it's from a substation will be transmitted onto the transmission system. And that's like the highway or the backbone of the electric system. It allows large amounts of bulk power to be transmitted over long distances. At periodic locations, substations will tap into that transmission system and lower the voltage to a distribution voltage, where that provides the service that you receive in your homes and businesses here. So, just to reiterate, this project is a transmission project designed to reinforce the backbone of the electric system.

Okay. So, why did this project come about? This project began in a study by the Independent System Operator in New England. They're the independent organization that's in charge of moderating and maintaining the overall electric grid. And what they did is they studied and identified a number of

potential overloads on the system, both at current load levels and projected out in the future. And so they developed a solution that would address these needs. So the Merrimack Valley Reliability Project, which you can see the purple line towards the top of the graph there, is one of those projects.

So, this project, what is it? It's a new overhead 345 kilovolt transmission line. As was mentioned, it starts at a National Grid substation in Tewksbury, Massachusetts, runs northward about 24.5 miles on an exiting right-of-way and will end at an existing substation for Eversource, Scobie Pond in Londonderry. So we currently estimate an overall investment of around $123 million. We have the distances of about 18 miles in New Hampshire, 6.5 miles in Massachusetts. And we anticipate a construction start in the fall of 2016, with the overall goal to have this project in service by the end of 2017.

So, in terms of the benefits, I think, first and foremost, the Independent System Operator has identified a need for the

transmission system. So this project is going to ensure reliable transmission service for the whole region. That's something that benefits everybody, as far as strengthening of the electric grid. Additionally, for more local positive benefits, there will be a significant local investment. We estimate over $80 million will be invested in New Hampshire. So that will result in tax revenues for the municipalities that are affected. And then also the effects of the investment, in terms of jobs, both a direct result of the construction and indirect for the size of a project to be able to provide services for this project.

So, just a quick summary of where we are in the process. We started all the way up here towards the top, further back, obviously, soliciting community input. We had public information sessions back in May, and that was in support of soliciting and fostering that communication. As was mentioned, we filed our application in August and are currently in the process now. So we had the post-filing project information sessions at the end of

October and the beginning of November, and we are currently in the next step of the process in terms of these hearings tonight. So, overall, what we're looking at is continuing the process to get a positive decision in 2016.

So I'll end the way we end all our presentations here. Again, we can't emphasize enough the need for communication with the stakeholders on this project. So we have up here a couple ways that anyone can get in touch with us: The project web site, as well as a toll-free number that's available if anyone has any feedback now or in the future. So that information is there.

I think that's about it. So, thank you, everyone, for your attention this evening and coming back out. I'll turn it back over to the members of the SEC.

PRESIDING OFFICER ROSS: So, Committee members and agency representatives may now ask the Applicant questions.

(No verbal response)

PRESIDING OFFICER ROSS: I have a question. How do the height of the new towers

that you're going to be constructing in the corridor compare to the height of the existing towers?

MR. PLANTE: Good evening, ladies and gentlemen. My name's David Plante. I'm the manager of the transmission project management group for Eversource in New Hampshire. And I guess I'll take that first question. And I actually did have some statistics compiled here so I'd get it right.

The average existing height of the transmission structures in the corridor right now is approximately 79 feet in Londonderry, 78 feet in Hudson for Eversource; and for National Grid, it ranges from 55 feet to 125 feet because they have a much wider variety of voltages that they're constructed at. The proposed heights for these structures are, for Londonderry, approximately 90 feet, and Hudson, 86 feet for Eversource. So, probably, you know, 8, 9 feet taller than the existing structures. And in Hudson, Windham and Pelham, for National Grid, the average proposed heights are in the 75- to 80-foot

range, which is actually kind of in between what's there now.

PRESIDING OFFICER ROSS: On average, how many wires or cables will be hanging on each of the towers.

MR. PLANTE: Of the proposed structures?

PRESIDING OFFICER ROSS: Yes.

MR. PLANTE: Each structure will support two overhead lightning protection cables, as well as six phased conductors. It's a three-phase system, and each phase is consisting of two individual conductors. So there'll be two --

PRESIDING OFFICER ROSS: So, roughly eight cables, two and six?

MR. PLANTE: Exactly eight cables.

PRESIDING OFFICER ROSS: And what -- I think I noticed in the Application that there were some areas in the right-of-way where you had to clear additional trees to the width of the right-of-way; is that correct?

MR. PLANTE: That is correct.

PRESIDING OFFICER ROSS: About how much of the length of the right-of-way in New Hampshire is going to require clearing?

MR. PLANTE: Clearing will be required on most sections of the right-of-way. However, the widening is on approximately 4 miles of the corridor in Hudson and Londonderry.

PRESIDING OFFICER ROSS: But that's clearing of the brush in the existing right-of-way and not all trees.

MR. PLANTE: Yes. So there's some side trimming. And in the section of the right-of-way from Scobie Pond south toward Wiley Hill Road in Londonderry, there's actually a narrow strip of trees in the middle that will have to be removed in order to provide space for the proposed transmission line.

PRESIDING OFFICER ROSS: Thank you. I'm sorry. I don't mean to monopolize. Do other people have questions? I'm sorry.

MS. WEATHERSBY: Going back to the clearing for a minute. Will the right-of-way itself, the amount that's cleared, become wider?

MR. PLANTE: Yes, for the 4-mile

section between approximately David Drive in Hudson and Wiley Hill Road in Londonderry, the cleared width will now be approximately 85 feet greater than it is now. However, it's not a widening of our corridor, per se. It's just actually clearing the trees that have been in there for many, many years.

COMMISSIONER ROSE: I did have a question. It was referenced in Bryan's comments that this was identified as a need of ISO-New England to strengthen the electric grid. I was just hoping to try to get a little bit more information about what it is that they identified, in terms of, assuming the title of "reliability," that the ultimate objective was to try to strengthen the electric grid.

MR. PLANTE: Okay. You want it or me? All right. I'll take it.

Yeah. So, basically our mission as a public utility is to provide safe and reliable energy to every customer all the time. And ISO-New England is our planning body. They oversee the planning and operation of the entire transmission system in New

England. They've undertaken a study that's been going on for a very, very long time to determine the strengths and weaknesses of our system. And what they do is they look at tens of thousands of scenarios of transmission configurations to determine, under reasonably stressed conditions, can we provide energy to every customer all the time. So, those conditions would include, you know, storm conditions, obviously, because we do experience occasional storm issues. But there are also a variety of other things that affect or stress the system, including the availability of generation, what generators are on or off at any given time, and what types of maintenance are going on in the system at any given time. Certain lines could be out of service. Certain substation elements could be out of service for plant maintenance. And if something happens at that time, the planning entities have to look and understand whether the system can actually support all the load with that next element of service. So that's how the planning kind of works. I'm not sure if I'm heading in the

right direction for you.

COMMISSIONER ROSE: Yeah. I'm familiar with how the planning parcels work. I was just curious as to what it was they identified that was inadequate under the current scenario.

MR. PLANTE: Oh, so what they identified is that, under certain of these contingencies, there are thermal overloads on a variety of transmission elements, particularly the 345 kV and the underlying 115 kV and 230 kV systems under peak load conditions, even at the 2013 load levels. And also, there are voltage concerns, high voltage concerns under these same contingencies when the system is at a minimum load level. So, without enough load, the voltage rises to such a level that it can damage electrical equipment. So the proposed project addresses both those concerns.

COMMISSIONER ROSE: Thank you.

COMMISSIONER BAILEY: Mr. Plante, what happens if the project isn't built?

MR. PLANTE: If the project isn't built...

COMMISSIONER BAILEY: To the electrical system. I mean, is it going to fail?

MR. HUDOCK: I guess I'll take a stab at that one. Obviously, today the system isn't failing or anything like that. The whole idea around the study is that it investigates possibilities or contingencies; so, what would happen if certain things would happen? So what they did find in today's load level is that certain contingencies could cause failures of other components in the system or overloads of other components in the system. So the shorter answer is: Hopefully nothing will happen until this is built. But at the same time, there is a need with today's load levels to make sure these improvements are made.

COMMISSIONER BAILEY: So an overload condition on a peak day might cause a power outage.

MR. HUDOCK: Again, this is based not necessarily on the demand or how high it is, but also having certain contingencies in the system. As Dave mentioned, this could be generators that have to be out or certain lines

or components that are out of service. So it's more a matter of having the right combination of those things and the loading where you can see something happen. So, if that addresses your question...

COMMISSIONER BAILEY: Okay.

MS. WEATHERSBY: So is the electricity that's being transported between Tewksbury and Scobie Pond pretty much staying in that area and the smaller lines that go off of it, or is this basically just transporting power to the grid?

MR. HUDOCK: So the transmission system is designed to bring energy from where it's generated to where it's needed. And so it isn't necessarily restricted to, I would say the immediate areas of Scobie Pond or for Tewksbury 22A. There's further transmission lines from there that carry the electricity to other areas of the system -- so, Eastern Massachusetts and otherwise. The study identifies the specific components in the system. But the whole system is interconnected in terms of where the power is going. So it's not going to be a matter of power

coming from Scobie Pond, let's say, to Tewksbury and just really serving those residents there. It's going to go elsewhere.

MS. WEATHERSBY: One last question. What will be the cost to New Hampshire ratepayers?

MR. HUDOCK: So, the overall investment for New Hampshire, we currently estimate it at $82 million. And what we calculated is that, for the local residential ratepayer, that would equate to a little -- between $1 and $2 annually for their bill.

COMMISSIONER BAILEY: Do the other New England ratepayers share in the cost?

MR. HUDOCK: Yes, they do. This project falls under the portion of your bill that is basically funding the transmission system, which is a regional pool. So all the ratepayers of New England fund all of the transmission upgrades, regardless of where it is. And that percentage is based on a formula that's calculated based on the loads served by those customers. So I believe New Hampshire is 9 percent, I think, of the pool. So, no matter

where a transmission project is built, whether it's in New Hampshire, or it's partially in New Hampshire or Massachusetts, or even in Rhode Island, Massachusetts ratepayers will pay that 9 percent of the total transmission upgrade costs.

COMMISSIONER BAILEY: So is New Hampshire paying 9 percent of $82 million, or is $82 million 9 percent of the total project cost?

MR. HUDOCK: No, $82 million is the investment in New Hampshire for this project. So it's over half of the total investment. But in terms of the total funding, it would be 9 percent of $120 million would be the amount that New Hampshire ratepayers would be paying.

COMMISSIONER BAILEY: Because part of the cost is in Massachusetts and part is in New Hampshire, and the total cost is $120 million?

MR. HUDOCK: Correct.

COMMISSIONER BAILEY: So we would pay -- New Hampshire ratepayers would pay 9 percent of $120 million over time.

MR. HUDOCK: Yeah, the total

project costs a little more than $120 million. But yes, you have the concept exactly right.

COMMISSIONER BAILEY: Thank you.

MR. IACOPINO: I don't know which representative is best to answer this question. But we often hear about electric and magnetic fields, electrical fields coming from these high-tension wires. Can you tell us if this project will increase those fields in the local areas where it's being built, and is there a reason to be concerned about public safety from that?

MR. HUDOCK: Sure. So I think the best person to address that question is here tonight. We do have Dr. William Bailey, who we commissioned a study on just these matters. So I'll turn it over to him and let him speak to your concerns.

DR. BAILEY: Thank you. Yes, this project, like every other part of electric system will produce electromagnetic fields when it's in operation. So, whenever electricity is flowing, whether it's on a transmission line, a distribution line running outside your house,

appliance, the wiring in your home will be a source of these fields.

We did a comprehensive report at the request of the companies to determine what were the current levels of these fields along the project route, and to look how those levels would change as a result of the addition of a new transmission line. The results showed that, for the most part, the changes will be quite small. And part of this results from the fact that there are advantages taken in the fact that electromagnetic fields, unlike other things we measure in our environment, like the percent of oxygen in the air, have not only a magnitude you can quantify the strength of these, but they also have a direction. So if you have a magnetic field coming from one transmission line, and a magnetic field from another conductor or another transmission line is going in the opposite direction at the same time, the fields will tend to cancel. So as part of the analysis, we looked at how the phases of the new line could be arranged in such a way as to minimize the magnetic fields

at the edge of the right-of-way.

In addition, for a good part of the Project, the primary work that's taking place in addition to the new line is towards the center of the right-of-way, which means that there is a much greater distance to the edge of the right-of-way and properties away from the right-of-way, from the new line, for much of the route. So, the combination of these circumstances means that the Project will have a relatively small impact on the levels of electric and magnetic fields outside the right-of-way.

MR. IACOPINO: Will that small impact affect public safety at all?

DR. BAILEY: No. This is a topic that has been researched, and I've been heavily involved in this for the last 35 years. Today there's not a single national or international health agency that has determined that either electric or magnetic fields at the levels that we encounter in our environment, even directly underneath the conductors of the transmission line that exist today, or would

exist in the future with this project, is a cause of any adverse affect on health.

As you are probably aware, there have been studies looking at the question about whether exposure to these fields over a long period of time might influence chronic diseases like cancer or neurological diseases. And today, the World Health Organization and other agencies has examined all of this research. The most recent review of this research was just in 2015 and was published by an agency of the European Commission. And their conclusion, like the World Health Organization, is that exposure to these fields, so long as they're under the recognized guideline levels of international organizations, are without any known adverse effects on health. I would point out that calculations show both existing levels and after-construction levels of these fields will be a very small fraction of these recommended exposure guidelines.

PRESIDING OFFICER ROSS: Will there be any measurement to confirm that your

modeling is correct once the lines are in place?

DR. BAILEY: I don't know what the plan is. Sometimes that is the case. I can tell you from having done post-construction measurements for a project that we worked on in the past, we have found a very good agreement between the Projected levels of electromagnetic fields and those that we measured after construction.

MR. IACOPINO: One other question. Will there be any constructed along right-of-way between the two substations any new permanent access points?

MR. PLANTE: I think I'd like to have Sherrie address that question. She's the Director of Energy Services for VHB and the lead environmental consultant with the Project.

MS. TREFRY: Good evening. Sherrie Trefry with VHB.

So we have submitted Department of Transportation right-of-way permits to access the right-of-way during construction. So those have been filed. There's four locations where we have permanent

wetland crossing proposed for some permanent access ways in the National Grid portion. The reason for that is because there is a -- Pelham substation is in that area, and we have to routinely access that area for switching equipment. So there is some permanent access way proposed in that location.

MR. IACOPINO: And all of those have been the subject of the permits that you requested at the Department of Environmental Services?

MS. TREFRY: Yes.

MR. IACOPINO: Thank you.

MS. WEATHERSBY: What will be the effects of both the construction and the operating facility on wildlife?

MS. TREFRY: Sherrie Trefry from VHB answering that question.

We looked at the existing wildlife habitat cover, looked at what Fish and Game has mapped, and also field-verified the wildlife habitat in those areas, and looked at the clearing impacts that would be necessary for construction of the Project. And in our

analysis, the level of conversion for the amount of clearing that's required is not going to significantly impact the wildlife habitat in those areas. It's not generating a significant change in the landscape level of wildlife habitat that is out there. And in certain cases, the conversion of forested area to scrub-shrub area within the right-of-way does increase the habitat for some species, like the New England Cottontail, which is known to exist in the Londonderry area. And we're also performing some surveys for New England Cottontail this December and January when the snow falls to determine the presence of that species in the right-of-way.

PRESIDING OFFICER ROSS: All right. At this point I'm going to start the questions from the public. I have some written questions. Some of them are longer, so I will just read them.

The first is: What are the health risks from exposure to electromagnetic frequencies from high-voltage transmission lines, and what standards do you use?

DR. BAILEY: Bill Bailey again. As I said before, no agency has determined that there are health risks at the ordinary levels we encounter in our environment. However, like everything else in life, at sufficiently high intensity, almost any exposure can be harmful. So we have to distinguish between the likelihood of effects based upon the magnitude of the stimulus. So we know that for very strong electromagnetic fields, higher than even would be encountered by the workers at electric utilities who are working directly with energized equipment, at levels far higher than that, there can be stimulation of the nervous system that could cause electrical changes in the nervous system. But those levels are -- occur at levels that are literally hundreds of times to thousands of times higher than would be encountered in our everyday environment. So when the standards are set -- two organizations that have set guidelines for exposure to the general public and also for workers to electromagnetic fields, one is the International Commission on Non-ionizing Radiation Protection, which is affiliated with

the World Health Organization, and they have guidelines of 2000 milligauss for continuous exposure to the general public; the other organization has a guideline of 9,040. Now, these guidelines, their recommended exposure levels are not the level where if you go 5 percent over that level, that some harmful effect is going to occur. These levels are set so that they're roughly 50 times or more below the level where there would be any noticeable effect. So those are the standards that we have used as guidelines and are used in internationally to judge the likelihood of effects from these exposures.

PRESIDING OFFICER ROSS: How does your modeling compare to those standards for the level of magnitude of the electromagnetic field after the Project is completed?

DR. BAILEY: Well, if I recall, on the section that has the highest magnetic field today at the edge of the right-of-way, it's 28 milligauss as opposed to 2,000 and 9,000 milligauss. And on that section of the right-of-way, the field level I think decreases

after the Project by about 5 milligauss. So that section where it's highest will actually go down as a result of the Project.

PRESIDING OFFICER ROSS: Thank you.

MR. IACOPINO: Can I ask a question about that?

Sir, can I ask you one other question? I understand that you say that there's been no demonstration of any health effects from continuous exposure at the levels that are commonly seen. But are you aware of anything in the literature that talks about cancer clusters or things like that in the vicinity of high-voltage lines?

DR. BAILEY: Questions about clustering disease, such as cancer clusters, is a topic that state health agencies everywhere are called upon to address, where someone calls in and says there appears to be an excess of gastrointestinal illness in our area, maybe it's a suspected outbreak infectious disease; could be concerns about what appears to people to be an excess number of miscarriages; could be concerns

about cancer in a particular area. And so the state health agencies sometimes get dozens to hundreds of such questions raised to them each year. It's very hard, with the exception of certain types of complaints, to actually ascertain what the cause of a particular cluster is, because sometimes these clusterings can be just chance. So if I take a handful of my child's jacks and I throw them down on the floor, there's a random pattern. On some squares of the floor there are going to be no jacks and other places there are going to be two, sometimes three, maybe one. And so when you have common diseases in the population, their occurrence does not occur uniformly throughout the population. So when we want to answer a question about the cause of some particular outcome, such as cancer, we don't look at clusters, because it's notoriously difficult for certain types of questions, particularly diseases, take a long time to find out what those causes are and distinguish it from this random development of disease. So, to those kinds of studies, we look at human epidemiology studies in which we look at

large populations, sometimes of entire countries. As in the case of a number of EMF studies that have been done across Europe, countries that have involved all of Norway, all of Sweden, all of Denmark, all of the UK, and large states in the U.S., including California, we have looked to see is there a relationship between the occurrence of disease when you have a large population study and sources of exposure to electromagnetic fields, like transmission lines and distribution lines and substations. These studies as a whole have not found a relationship that any agency would suggest is a cause-and-effect relationship. In some cases, particularly in the earlier studies, we saw statistical correlations between estimates of exposure to these fields and certain types of cancer. What I mean by "estimates of exposure," it might be in the early days of counting the number of wires that were hanging on towers and judging the apparent thickness of the wires and looking at how close they were to residences. This is obviously a very crude way of estimating the exposure. Today we have much more sophisticated methods by which we can

mathematically model the exposure both currently and in the past at people's residences using methods like we have applied for estimating exposure from the current project. Or we can ask large populations of people to wear a recording magnetic field meter as they go about their business during the day and measure 24 hours a day what are the levels of magnetic fields they encounter while they're at home, whether at school or work, and how that relates to potential sources.

So all of these types of studies have been done with human subjects. And also, we also look at animal studies, because they're obviously -- the human population and our circumstances is very complex, and so it's hard to isolate out a particular factor. So we go to experimental studies in a laboratory where we can experimentally control the genetics of all the animals that participate in the experiments. So we know if we do see a difference between two groups, it can't be due to genetic differences, because all the animals were

genetically identical when they went into the experiments. And we can also control all of the factors -- the temperature, the humidity, the diet -- so if we do see a difference between the animals, at the end of the experiment we know what was the factor involved.

Now, Congress, in the 1990s, asked the National Institute of Environmental Health Sciences to do studies to find out if there was a supporting basis for the idea that exposure to electromagnetic fields from power lines or electrical appliances had adverse effects on health. So the National Institute of Environmental Health Sciences asked the internationally recognized national toxicology program to design a study to look at exposures of animals to these fields over their entire lifetime. So they looked at two species of animals at levels of 200, 2,000 milligauss, 10,000 milligauss. And then with the idea that maybe intermittent exposure might be different from the continuous exposure, they had the fields at 10,000 milligauss turned off every 15

minutes so that the fields were constantly being switched on and off. At the end of the lifetime, they analyzed 50 different tissues of these animals under a microscope and looked to see is the prevalence of cancer any different in these two populations, exposed and unexposed, and in particular, any relationship between the level of the magnetic field they were exposed to during their lifetime and the incidence of cancer. The National Toxicology Program determined, in fact, that there was no relationship. Similar studies have been done by scientists in Canada. And in Japan, the study went as high as 50,000 milligauss, and at the end of the experiment, they found no difference between the animals that had exposure to the magnetic fields or controlled conditions. So these are the main types of studies that we use to assess potential human health risk from any exposure in our environment, including electromagnetic fields.

MR. IACOPINO: I appreciate your answer contained a lot of helpful information, but my question was a little bit more limited.

It was, are you aware of any literature that demonstrates that there may be cancer clusters identified in areas where people are continuously exposed to high transmission lines.

DR. BAILEY: I'm sorry if I went on. I do not know of any confirmed cancer cluster. I know that there have been allegations of cancer clusters, but I don't know of a cancer cluster that a state health department has investigated and determined to be caused by power line.

MR. IACOPINO: My question only goes to the literature, not rumors or allegations, but in the literature.

DR. BAILEY: That's what I'm referring to. Those reports would be issued by state health departments.

MR. IACOPINO: Thank you.

MS. ROBERGE: I had a question. You referenced a model used to estimate the magnetic field; is that correct?

DR. BAILEY: That's correct.

MS. ROBERGE: Can you speak to the accuracy of the model, in terms of would you

say it's conservative or, you know -- and also, is the model site-specific? Does it take information specifically related to this project and -- can you speak a little bit to that?

DR. BAILEY: Certainly. The model, as we described it, is just a way to produce calculations of the electromagnetic fields. These follow the laws of physics. So if you know the exact location of the conductors in space, if you know exactly what the voltage is applied, and you know exactly what the current is, the laws of physics will give you an exact solution as to the magnetic field at any point in space around those conductors. The particular program that's used to input this data is one that was developed by an agency of the U.S. Department of Energy and has been tested over the decades. It is recommended by several states as the program to use for modeling exposures from transmission lines. And in our experience, and that of others, when you know those conditions that affect the outcome, such as the voltage, the current flow and so on, the results are quite accurate to within maybe 10 or 15 percent,

depending upon what the field conditions are.

MS. ROBERGE: And does the model take into account specific factors related to this project, or the proposed project -- for instance, transmission lines location and things like that? Is it relatively site-specific?

DR. BAILEY: Yes. The report that was presented divided the entire route into basically a dozen sections to account for differences in the configuration of the lines in each component of the route. And that takes into account which lines are on the right-of-way in that section, what the loading is on those transmission lines, what their spacing is, what their height above ground is, everything about the design layout of those facilities, and the factors that affect the calculations of fields was taken into account in those sections.

MS. WEATHERSBY: Are there practical measures of screening these EMFs; if so, do you plan to use them in areas where homes or intensive uses may be close by?

DR. BAILEY: Well, the term "EMF" that's commonly used consists of both

electric and magnetic fields. So, electric field is related to voltage, and that is -- electric fields are easily blocked by conductive materials, like fences, trees, shrubberies, buildings and so on. And so any intervening, conductive objects like that between the location where I'm standing and the transmission line would reduce or even totally block the electrical field.

Magnetic fields are not influenced by most materials. And so, therefore, if I take the magnetic field meter and I put it inside a block of wood or inside a stone structure, I will measure exactly the same magnetic field inside or outside. So the techniques that we described of increasing the distance of the new line from the edge of the right-of-way and also arranging the magnetic field so they tend to cancel are the recognized methods used to minimize magnetic fields, and that shielding is not really practical. In very small circumstances, like in a laboratory setup, where you have a very small source, one can design combinations of aluminum and steel

in such a way that will reduce or shun the magnetic field away from the location you'd like to lower. Obviously, in the case of a transmission line, this is not practical or economically feasible.

MS. WEATHERSBY: So, for the electric fields, then, are there plans to plant trees? The poles are quite high, so a fence wouldn't do it. Are there plans to screen in any way, or is that not necessary?

DR. BAILEY: Well, to date, despite over 30 years of research, scientists haven't found that electric fields at the levels, even without any screening, pose a health risk. So I don't know of any plans that the companies have made to do special plantings to reduce the electric field. In areas like this, there are many trees both on and off the right-of-way that potentially could, you know, reduce the electric fields below that of bare wires alone. But I don't know of any places that have specifically planned to plant trees in order to achieve such a reduction. I think perhaps it would be on the idea that there wasn't an expectation that doing

that would produce any kind of a health benefit.

PRESIDING OFFICER ROSS: All right. I'm going to read the next question. You'll have to be patient. It's fairly long.

Are you aware that the Project runs through a large watershed to one of Hudson, New Hampshire's finest pieces of conservation land, Robinson Pond? This watershed area falls within the area of the proposed project between David Drive, Lenny Lane and Kienia Road. The watershed also extends to a large area around the pond. There are two brooks at David and Kienia that feed into the pond. A piping system that collects runoff water also brings water down to the pond. The Project will cross both of these brooks. The brook at Kienia has been dammed by beavers quite some time ago and has turned into a large body of water more resembling a pond; therefore, a rather large crossing is needed and planned for this so-called "brook," including a 100-by-300-foot pulling pad and a massive transmission tower, 50 to 75 feet from the shoreline. There will also be a

considerable amount of woodland buffer removed. Robinson Pond is attached to Beaver Brook on the other end by a small tributary. Beaver Brook leads directly to the Merrimack River. This watershed also supplies water to the aquifers deep beneath the surface that is used for private drinking water. These facts did not appear to be stated in either the Project Application or the application to DES for permits. Please comment on the procedures that you propose to prevent deleterious impacts to this conservation land, the water bodies they feed into and the aquifers that we use for our drinking water.

MS. TREFRY: Sherrie Trefry, VHB, responding to that question. We looked at the wetland impacts within the right-of-way and the surface waters. The majority of the impacts for this project are temporary in nature and needed for construction access. All of our surface water impacts are temporary in nature, with the exception of one minor stream location that requires 17 linear feet of relocation for an intermittent stream around a pole location. So

the Project should not have any impact on a large-scale watershed like the Robinson Pond watershed. We have taken precautions to implement the sediment erosion control measures that is proposed on our wetland permitting plans. The sediment erosion control will address water quality concerns during construction.

PRESIDING OFFICER ROSS: Are you familiar with this 100-by-300-foot pulling pad, and what that's referring to in the Project?

MS. TREFRY: So there are, in certain areas within the right-of-way, there are 100-by-300-foot work areas called "pulling" sites. And those areas are designated areas for when they're actually pulling the cable between angled structures.

PRESIDING OFFICER ROSS: Okay. On Page 61 in the Project application, the possibility of using explosives to remove below-surface boulders as well as bedrock is noted. Please confirm whether this will occur, what the alternatives are, and how you will notify the area residents of the final decision.

MR. PLANTE: David Plante. The

intended methods of bedrock and ledge removal for this project consists primarily of the use of a core bore technique, using a large drill to establish the hole in the excavation to set the structures. And a secondary plan would be to use hole rams, basically an excavator with a hydraulic hammer that would chip away at the rock until they achieved the desired amount of removal. There could be situations or circumstances where, at least on the Eversource side of the Project, we may opt to use explosives to remove rock if for some reason the first two methods are proving particularly difficult or just ineffective. We don't expect that. It's been quite some time since we employed blasting as a method for pole installation. But we don't want to rule it out at this point. If the case does happen where we opt to use blasting as a method for ledge removal, we would follow all of the appropriate local and state rules for notifications and pre-blast surveys, post-blast surveys, that type of thing. So there are established procedures for that.

PRESIDING OFFICER ROSS: Are

those procedures local or state, or do you know?

MR. PLANTE: It's largely by the fire departments of most municipalities that govern blasting operations. We have -- both companies have outreach specialists who would assist with notifications to the abutters to each work site.

PRESIDING OFFICER ROSS: Would you be in touch with the state fire marshal for use of blasting?

MR. PLANTE: I'm not certain. I don't know if I could quite answer that one. I would assume that that's part of the notifications that would involve the state fire marshal, but I'm not absolutely sure.

PRESIDING OFFICER ROSS: Okay. On Page 62 in the Project's Application for this project, the possibility of using helicopters for wire stringing is noted. Please confirm whether this will occur, what the alternatives are, and how you will notify the area residents of the final decision.

MR. PLANTE: I'll take that one as well. Eversource often allows contractors to

utilize helicopters for construction activities. I believe at this point National Grid does not. We don't specifically dictate construction methods to contractors. We basically will issue a competitive bid for the work and allow the contractors to propose whichever methods they're most comfortable with and they feel will give them the most economical project. They do, however, have to propose to us the specific subcontractor who they would use for helicopter services, and that would have to be approved by our safety group based on past performance, particularly through safety. And we also do have a fairly formal process we use for notification of any of our helicopter activities. In fact, we had one today. We were doing an emergency patrol of a transmission line in the northern part of the state because we had a -- there was an unplanned operation. Something tripped out of service and went back into service. So we chose to do a helicopter patrol of that facility during the day today. As part of the process, we notified the municipalities who, you know, might see activity, so they'll know what's going on.

PRESIDING OFFICER ROSS: Thank you.

MR. IACOPINO: Do you own the helicopters?

MR. PLANTE: No, we do not.

PRESIDING OFFICER ROSS: On Page 64 of the product -- of the Project Application, power outages during the construction are noted. Please confirm whether this will occur and for how long.

MR. HUDOCK: This is Bryan Hudock. I'll answer that question. So, referring back to the presentation, this project is affecting the transmission system. And the way that system is managed, it's through the Independent System Operator. So they're constantly having people on duty to maintain the transmission system. And part of their process is to ensure that maintenance work can occur, such that it won't cause actual outages to customers. So, lines or components of the transmission system can be taken out of service only under certain conditions and with their permission in order to ensure that the remaining

system can have the redundancy it needs to provide the service in the end. So we will be taking a measurement with some outages and transmission components during construction, but they will be short in duration, and they will be carefully scheduled with the Independent System Operator so that those transmission system component outages won't have any effect to customers.

PRESIDING OFFICER ROSS: So, to distribution customers, the service will not be interrupted.

MR. HUDOCK: That's correct.

PRESIDING OFFICER ROSS: Thank you.

MR. IACOPINO: We have one more question, but this is one best answered by the Committee itself. The question is: Why don't you face the audience when you respond to the questions?

The reason why these witnesses are speaking directly to the Committee is because this is a joint public hearing. This is different than the public information

sessions that we had previously. Those public information sessions were designed to present information to the public. As you'll note at tonight's hearing, we have our Subcommittee here. And the purpose of this hearing and the one tomorrow night in Londonderry is for the Subcommittee to obtain information. So that's why we have the witnesses facing the Committee in these particular proceedings, because it's better, it's easier for the Committee to hear when you can see the person speaking. We apologize to anybody in the audience if they're having any difficulty in hearing or understanding the witnesses. But for this particular hearing and tomorrow night's hearing, that's the reason why they face the Committee itself.

PRESIDING OFFICER ROSS: Okay. Seeing no other questions from the Committee and having gone through the public questions, I have a few people who have indicated that they would like to make comments. The first is Gil Gilcreast. Am I pronouncing your name correctly?

MR. GILCREAST: Yeah. Thank

you.

Good evening. Gil Gilcreast. I live in Hudson, 38 Boyd Road. I just wanted to mention and make some comments that this will be the fifth power line in a row that's going to go by my house. This new one is 345,000 volts. There are three more that I'm not sure the voltage on those. One other is 345 [sic] volts. So we're going to have two lines running 345 [sic] volts together, parallel to each other. There is also a DC line that comes down from Quebec. So we're looking at five. So I don't know if there's an interaction in the magnetic field because two power lines at 345,000 volts will run together. I have personally been there in the rain and gotten out of my vehicle, and honestly, you can feel it on your feet. So I share the concerns about the effects, and I appreciate the questions that you asked about the effects on all of us.

And your question that you had -- I'm sorry, I don't remember your name -- about the clearing, if people hear the words

"it's on the right-of-way," well, they envision what they're seeing that's already there. There will be another 85 to possibly more, 100 feet or so, of woods that will be cut. They will be gone to put this new power line in.

And I want to mention something that probably no one wants to really hear about, but it does affect Public Service and National Grid. It is the pipeline. And there's a general terminology that's been used by Kinder Morgan and the SEC, Site Evaluation Committee -- which, by the way, are you folks related, or do you known this Committee? Are you part of that same Committee?

PRESIDING OFFICER ROSS: We are.

MR. GILCREAST: So you are part of that same Committee. So, I don't know. Is that a real conflict of interest going on here or what? Think about it. Think about what you're doing.

It's been publicly said by Kinder Morgan that the pipeline will co-locate with the power lines, in general terms. That's

what's been said. I was at a meeting in Milford last Thursday. Co-locate, co-locate, co-locate. To someone who's not in the know, or who's actually not involved in this, this looks like, what's the big deal. The pipeline's going under the power lines. That's not true. We know that. They can't. Even our governor wrote a statement in opposition to the pipeline. And in that letter she said it's going to lay along -- or lay with the existing utilities right-of-way, meaning the transmission line. So I feel that has been misleading the public, the general public, since the outset. And I'm not sure how it is that National Grid or Eversource has any authority at all to authorize anything to do with the gas line. I've read some of the deeds. I've gone back to 1929. If you read the deeds and the rights-of-way, in some cases -- I can't say all of them -- it clearly says that they have the right to erect an electrical transmission line to maintain these lines and so forth and so forth, all directly related to electrical transmission lines. So

I'm not sure how they can have that authority to even authorize anybody from Kinder Morgan to even be there or to even be part of it.

PRESIDING OFFICER ROSS: I'm going to interrupt you for just a moment.

MR. GILCREAST: Sure.

PRESIDING OFFICER ROSS: This right-of-way and this project that we're considering tonight does not propose to put any pipelines into the ground. This is purely -- this particular project is purely an electric transmission project. So I appreciate your comments, but I don't think they apply to this particular project. I think they apply more generally to another project that is not currently filed yet with the SEC.

MR. GILCREAST: I anticipated that you would probably feel that way because I know this is directly related to the transmission line. But they are related because the public, all the public, has been told since the beginning that this is a co--- if it's a co-located, then you are involved. You really are. Thank you.

PRESIDING OFFICER ROSS: Thank

you.

Debora Covino.

MS. COVINO: I live at 15B Lenny Lane. I also own 17A and B Lenny Lane, and I rent those out. That's going to be my only retirement income. And I just feel like with all the trees coming down, there's going to be less privacy and more noise. And if any of the wells are affected, I could lose tenants and everything I've invested. And that's my concern.

PRESIDING OFFICER ROSS: Thank you.

Are there any other members of the public who didn't fill out a paper but would like to make a statement? You can do that and then fill out the paper afterwards if you'd like. Yeah.

REP. ULERY: Representative Jordan Ulery, U-L-E-R-Y.

The question regarding the purpose of this transmission line was to increase reliability of the system. We got on the edge of this as to why it was necessary. Some comments were made regarding how it would

be a better literal distribution of the power that would decrease the cost -- or the heat generation and the degradation of the lines.

The question is: Would the people of the area be better served by upgrading the distribution lines as opposed -- the local distribution lines as opposed to the transmission lines? Would the same effect be done? And would the people, the ratepayers, receive better service by upgrading the distribution lines to do the same distribution, using different terminology meaning the same thing, of the current across a wider spectrum? Is that possible? Has that been considered, and is it even part of the consideration? Thank you.

PRESIDING OFFICER ROSS: Would you like to answer that since it seems to be posed as a question as opposed to a comment? Would you like to try to respond? Thank you.

MR. HUDOCK: Sure. This is Bryan Hudock from National Grid. And it's a very good question. And the response is that you really are talking about two parallel systems.

The transmission system is designed to carry large bulk quantities of electricity over large distances, and the distribution system taps off of that transmission system periodically over a much more local distance to provide the service to your homes and businesses. So, really, they're independent of each other, in terms of an upgrade to the transmission system is maintaining the reliability of the transmission system. Parallel or separate from that, upgrades can be made to the distribution system. But the only thing I would say is just that you cannot upgrade the distribution system to have the same effects or impacts that we're talking about with this project.

PRESIDING OFFICER ROSS: Thank you. I think that completes -- oh, I'm sorry. Yes, go ahead.

MR. BOISVERT: Richard Boisvert. I heard a couple questions about notifications in the case of blasting or use of helicopters. And as I replayed it in my mind, I really didn't hear an answer as to how or if people would be notified. I heard

reference to notifying municipalities in some locations, but I don't understand if that means notifying the fire chief, selectmen, or notifying specific individuals who live in the vicinity. I'd like to know, in the event of blasting, will the individual property owners within a certain distance be notified? Would it be the municipality or both? And the same for helicopters. How will a notification, if there's notification, be carried out, and specifically who will hear it?

MR. PLANTE: Good question. Sorry if I wasn't clear enough in my earlier response. But yes, absolutely, every abutter within the vicinity of any of these activities would receive notification either via e-mail or via public notification in the newspaper. The local fire, police and volunteer boards also get notifications through our outreach program. So we have a variety of methods that are used to ensure that all of the affected and interested stakeholders do get notified of what's going on.

MR. BOISVERT: So you say e-mail. But you don't necessarily put a notice

at the person's door or mail it to them?

MR. PLANTE: We use a variety of methods. Our application actually has a list of the types of notifications that we do use. I can't state here today that in every situation we would use this particular one. I think we rely on our outreach folks to understand the scope of what's going on and the particulars of each area along the Project to employ the appropriate outreach methods. We also require our contractors to employ certain outreach because they have some obligations. And particularly in the case of blasting, the contractor itself has some obligation to reach out to certain entities, as well as the local fire and police. Am I helping?

MR. BOISVERT: You say there are obligations. Am I to understand there are state regulations or just municipal regulations? You say they have an obligation. What is the basis of that obligation? Is it in the law or is it your company practice?

MR. PLANTE: I can't cite the specific state regulations that apply to

blasting. I can certainly do some research and get back to you, to the Committee on that.

MR. BOISVERT: Okay. Thank you.

PRESIDING OFFICER ROSS: I believe that completes our --

MS. WEATHERSBY: Can I follow-up on that?

PRESIDING OFFICER ROSS: I'm sorry.

MS. WEATHERSBY: Just a quick follow-up. If someone wants to be notified, can they -- is there a spot where they can proactively contact you and get on the list so that they receive notifications of blasting or helicopter activity or anything else they want to know about?

MR. PLANTE: Absolutely. The closing slide of the presentation Bryan gave has a web site and an 800 number that you can reach us and provide any sort of request for specific notifications, and we'd be happy to comply with that.

PRESIDING OFFICER ROSS: All right. I think we're finished with questions and

comments. I want to thank you all for your attention. I also want to let you know that there has been a court reporter here recording what's been said. That will become a transcript. It will be filed on the Site Evaluation Committee web site. We would ask that the Applicant supply the court reporter with a copy of your slides, hopefully in electronic form, so that they can be included in the transcript. The Site Evaluation Committee web site is also linked to the Public Utilities Commission web site, which is www.puc.nh.gov, and you can go to that web site and follow the links to the SEC web site. And we appreciate you're coming out tonight and helping us to be begin to consider this project. Good evening.

(Whereupon the joint public information session was adjourned at 7:21 p.m.)

C E R T I F I C A T E

I, Susan J. Robidas, a Licensed Shorthand Court Reporter and Notary Public of the State of New Hampshire, do hereby certify that the foregoing is a true and accurate transcript of my stenographic notes of these proceedings taken at the place and on the date hereinbefore set forth, to the best of my skill and ability under the conditions present at the time.

I further certify that I am neither attorney or counsel for, nor related to or employed by any of the parties to the action; and further, that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

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Susan J. Robidas, LCR/RPR
Licensed Shorthand Court Reporter
Registered Professional Reporter
N.H. LCR No. 44 (RSA 310-A:173)

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