STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND
MAINE LAND USE PLANNING COMMISSION

IN THE MATTER OF
CENTRAL MAINE POWER COMPANY'S
NEW ENGLAND CLEAN ENERGY CONNECT PROJECT

NATURAL RESOURCES PROTECTION ACT
SITE LOCATION OF DEVELOPMENT ACT
SITE LAW CERTIFICATION

HEARING - DAY 5
FRIDAY, APRIL 5, 2019

PRESIDING OFFICER: SUSANNE MILLER

Reported by Robin J. Dostie, a Notary Public and court reporter in and for the State of Maine, on April 5, 2019, at the University of Maine at Farmington Campus, 111 South Street, Farmington, Maine, commencing at 9:00 a.m.

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TRANSCRIPT OF PROCEEDINGS

MS. MILLER: Good morning, everybody. I now call to order this fifth daytime portion of the public hearing of the Maine Department of Environmental Protection and the Land Use Planning Commission on the New England Clean Energy Connect project.

I just want to mention we have extra copies of today's agenda on the back table. Just to remind everybody to silence and turn off your cell phones so that there are no interruptions. And also just a reminder again, turn the mics on, make sure you speak into the mics when you're speaking, turn them off when you're done.

Today, we're going to have group witnesses from Group 1 and Group 6. And so at this time, I'd like to swear in the witnesses who are here. If I have to do it again later this morning, that's fine, but we'll start with all of the witnesses that are here that plan to speak today. If you'd stand and raise your right hand. Do you swear or affirm that the testimony you are about to give is the whole truth and nothing but the truth?

(Witnesses affirm.)

MS. MILLER: Thank you. All right. So

we'll get started with the Group 1 witnesses. We've got Mr. Haynes and Ms. McMahon and if you would step up to the witness table that would be great. Thank you.

ROBERT HAYNES: Thank you for having us here today. I believe we have 10 minutes to make to make our presentation and Ms. McMahon will be leading that off for Group 1.

MS. MILLER: Can you speak into the microphone, please?

ROB HAYNES: Good morning. Thank you for having us here. Group 1, I believe, has 10 minutes and if we had a signal at 7 minutes or so that would be wonderful. Ms. McMahon will lead off the testimony.

MS. MILLER: Thank you.

JANET MCMAHON: Good morning. My name is Janet McMahon. I'm an ecologist who has worked for 40 years doing landscape scale conservation planning for public and private landowners in all corners of the state. My testimony focuses on the adverse impacts of habitat fragmentation that would be caused by 53.5 mile long Segment 1. It is not possible to build a new energy infrastructure project of this size without unreasonable adverse impacts on

wildlife, the project is simply too big. The Applicant does not acknowledge that there are critical regional ecological values that will be impacted by this project. The Applicant does not demonstrate an understanding of basic conservation biology principals such as how permanently dividing large forest blocks into smaller ones or changing their shape can negatively impact forest wildlife species because of edge effects.

The proposed transmission corridor would pass through the heart of western Maine mountains. This region is ecologically significant for many reasons. It is the largest and least fragmented area of tempered forests remaining in North America and some studies suggest the world. The combination of mountainous terrain, high landscape diversity and contiguous forest land make the region ecologically significant or ecologically resilient in the face of climate change. It is a globally important bird area. It is the last stronghold for brook trout in the eastern United States. It is a source area for marten, lynx and other forest species. It is the key ecological link between forests in the eastern U.S. and Canada.

Could I have the next slide? The next

slide, please.

MS. PEASLEE: Is that the one?

JANET MCMAHON: Yeah. Full screen would be good too. The reason these values still exist is because the human footprint in the region is light. The green areas on this map are the areas that are relatively unfragmented and have very little development and the red areas are where there is a large human footprint. And those red areas, if you could extend this, this is just the northern Appalachian region, but if you showed the whole United States, the eastern United States it would all look like --

MR. MANAHAN: Excuse me.

JANET MCMAHON: -- southern Maine.

MR. MANAHAN: Excuse me. This is Matt Manahan. Could I just ask, we're desperately trying to find those in the pre-filed testimony somewhere and I'm wondering what exhibit they are.

JANET MCMAHON: They are in -- I don't remember. These documents were submitted and they're in these reports.

Anyway, the reason these values exists is because the human footprint in the region is light. The area has always been forested. Public road

density and traffic are low --

MR. MANAHAN: Excuse me. I would object. Until we can identify a page where they are in here we're not able to find them as an exhibit anywhere.

MS. BENSINGER: Let's pause for a minute.

JANET MCMAHON: I believe I gave two reports as exhibits.

MS. JOHNSON: I believe they're Group 1 Exhibits 3 and 4 or 4 and 5, I'm not sure.

UNIDENTIFIED SPEAKER: It's 4 and 5.

MS. JOHNSON: 4 and 5.

MR. MANAHAN: We have these reports. What we're not able to find are these maps in these reports.

JANET MCMAHON: It's in one of them. Page 10 of opposition paper number two.

MR. MANAHAN: Well...

JANET MCMAHON: So as I said --

MR. MANAHAN: We would object because it's not the same as what's in the pre-filed testimony.

MS. BENSINGER: Is it an exhibit to your testimony?

JANET MCMAHON: Yes, it is. I may have added the word human footprint. If you want to take that out just for clarity for your sake, I can't

remember, but other than that, that is the map that is in the exhibits.

MS. BENSINGER: We're just going to find it. We're looking for it.

JANET MCMAHON: I could share my copy if you'd like. Figure 7.

MS. BENSINGER: Page 10 of Exhibit 5. Do you have it, Mr. Manahan?

MR. MANAHAN: We do have Page 10 of Exhibit 5. It's hard to tell --

JANET MCMAHON: I'm happy to --

MR. MANAHAN: -- whether -- there are differences. It's hard to tell whether the substance is different from looking at it in a short period of time. For example, the one on the screen has city names. It doesn't have this key on the edge. It's -- it's different, so I just don't know whether the substance is different.

JANET MCMAHON: Well, I encourage you to look at Figure 7 if you prefer not to look at the one on the screen, that's fine. It is the same mapped information.

MS. MILLER: We'll just look at the figure Page 10 Exhibit 5 in the pre-filed testimony, we'll look at that instead. Thank you.

JANET MCMAHON: Okay. Thank you. So the transmission corridor would cut this area in two and would be the largest fragmenting feature in the entire western mountain region. To put it in context, it would be as wide as the I-95 corridor between Augusta and Brunswick from verge to verge and I know this because I actually measured that with my 150 foot measure tape. And three times as wide as Route 201, which is the largest road in the region.

If you look at the map on the U.S. on the lower right of what you have in front of you, you'll see a white area that corresponds in northwestern Maine. This is the only part of the eastern United States that is not crisscrossed by major turnpikes and transmission corridors.

May I have the next slide, please? Because it is largely unfragmented the region has been identified by The Nature Conservancy and other groups as the key ecological length between the forest of eastern Canada and those in New Hampshire and the Adirondacks. The yellow arrows show the linkages in this region and the most important one because species are moving in both directions and it's also the widest is the one that passes through this region. The region serves as a source area and

movement corridor for many mammals such as moose, marten and lynx. This means that animals can disperse to the north and west and help maintain populations in other areas, which is already happening with marten in the White Mountains in New Hampshire.

The next slide. The importance of this region to Maine's wildlife will increase as the climate warms. Its mountainous terrain and connected forest blocks will allow species to move up slope or to northern slopes as they shift their range in response to climate change. In landscapes classified as highly resilient, which is shown in dark -- the darker green on this map, the habitat values for wildlife are expected to remain far longer than in the light green areas that are -- and are viewed as critical to the future of many of Maine's most iconic species. And this shows the Segment 1 is the heavy purple line and you can see, again, it's bisecting these resilient habitats.

May I have the next slide, please? The transmission corridor would bisect the largest globally important bird area in the United States. These areas which are shown in red on this map correspond to large areas of undeveloped forest land.

The northern forest block in Maine is considered vital habitat for 34 priority song bird species whose global breeding distribution is restricted to the northern forest biome. Segment 1 was divided in two.

Next slide please. Forest fragmentation is simply the breaking apart of a forested landscape into a smaller and more isolated blocks. The transmission corridor would convert 973 acres of non-forest habitat. While this is significant the corridor would negatively impact on the order of 20,000 to 40,000 additional acres of adjacent forest land due edge effects associated with 107 miles of permanent high contrast edge it would create. Forest habitat near edges is generally windier, warmer and gets more light leading to shifts in the kinds of plants and animals that occur here. And these edge effects can extend from 30 to 1,500 or more feet into the adjacent forest land depending on the effect. And I'll go into these two blocks in a little more detail in a minute.

May I have the next slide? Although negative edge effects have been written about extensively in the literature, the Applicant does not address any of them. These effects include changes in species --

MR. MANAHAN: Excuse me. I object. Is this in the record. In your rebuttal testimony or direct testimony?

JANET MCMAHON: Word for word, I don't know.

MR. MANAHAN: No, this -- this exhibit.

JANET MCMAHON: Oh. Oh, I added -- well, what I did was overlay a piece of mine on what -- one of the images on the segment. I don't know if that's legitimate, but I thought it would be more informative for you to see what it would actually look like on this part of the segment. Is that not allowed?

MR. MANAHAN: I object to this document being admitted because it's not in the pre-filed testimony.

JANET MCMAHON: That was for your benefit. If that's -- if that's not the case, I don't know if there is a bulletin board I could write on.

MS. MILLER: We're going to have to strike it. The idea is that what was in the pre-filed testimony is what you should be summarizing right now.

JANET MCMAHON: My own testimony, so I cannot use anything the Applicant submitted?

MS. MILLER: No.

JANET MCMAHON: Okay.
MS. MILLER: Thank you.
MR. MANAHAN: I also -- just for the record, I have -- I have a standing objection of the use of the exhibits that are close to what's in the pre-filed. The prior -- the prior exhibits were sort of in the pre-filed in some fashion but she marked them up, so to the extent that they're marked up and changed from what was in the pre-filed I object to that, otherwise, I don't object.
JANET MCMAHON: Well, I was adding my language from my testimony onto those, is that not okay?
MS. BENSINGER: The exhibits are supposed to be the ones you've filed in your pre-filed testimony.
JANET MCMAHON: Okay.
MS. BENSINGER: But this one has been stricken. The others are in.
JANET MCMAHON: All right. Well, I'll try to explain then. All right. So, again, the Applicant doesn't address any of the negative effects that are talked about in the literature. These effects include changes in species composition and behavior, changes in soil and water chemistry, encroachment by invasives and many more. Instead,

the applicant focuses primarily on species that can live in the shrub/scrub habitat or meadow habitat of the corridor itself. This adjacent forest edge habitat will support generalist species like skunks, foxes, raccoons, dogs and cats, and weedy plant species that can survive in disturbed areas. We have plenty of this habitat in Maine. What we've lost in much of southern Maine are large connected forest blocks free of invasive species that support interior and forest specialized species like pine marten, wood thrush, oven bird, barred owl and a host of other plant -- plants and animals. A vivid example of how species composition can change in and along transmission corridors can be seen, when you leave Maine on the Turnpike under these corridors you'll see monocultures of the 10 foot tall grass called phragmites, which has completely displaced the native species that used to grow under the transmission lines and it's expanding into adjacent wetlands and forests.

Breaking large blocks of forests into smaller ones creates more edge and reduces overall forest connectivity. Smaller blocks have disproportionately more edge and when blocks become too small negative edge effects may extend all the

way through the block. And I'll try to explain what's up there. Basically, where the corridor is going it's going to break blocks of intact forest land into smaller ones and when you do that some of those smaller blocks, a number of them, are going to basically turn into all edge so that those edge effects are not going to affect not just what's right adjacent to the corridor but it's going to create new isolated blocks with more edge.

Actually, I might as well -- we'll skip the next slide too because it's like this. The Applicant doesn't address the number or size of forest blocks fragmented by the transmission corridor or how a block's shape influences the amount of edge. The more linear and convoluted the block, the more edge it will have. Where the corridor parallels existing roads like Spencer Road all the land in between would be impacted by negative edge effects. And what my slide would have showed is there is many places where the corridor is like maybe 300 feet away from Spencer Road or 500 feet away from Spencer Road and the edge effects are going to penetrate completely into all the land in between those two because that's how edge effects work. So when it does that it will create habitat or species that do well in forest edges at

the expense of those that don't. Reducing the size of blocks and changing their shape would impact thousands of acres of adjacent forest with major impacts on forest wildlife.

Segment 1 would cross 89 perennial streams, 215 intermittent streams and 480 wetlands, most of which are in mountain headwater areas. The catchment or drainage areas of these headwater streams and wetlands are what determine nutrient levels, temperature and other characteristics critical to the overall health of cold water stream ecosystems. The accumulation processing and eventual downstream transport of organic material is an important energy transfer process that influences the entire watershed. Siting a 53.5 mile transmission line through the mountainous headwaters of the Kennebec would have a regional impact on downstream aquatic habitats. Proposed buffer strips along streams and around wetlands are insignificant to protect these critical headwater catchment areas.

Okay. Could you skip the next two slides? Recent work by Haddad and others showed the direct correlation between forest species diversity and distance from the edges of energy infrastructure and major roads. As distances to edge decrease

populations of forest interior species decline. This figure shows the distribution of large habitat blocks, which in northwestern Maine are currently defined by permanent roads. You can see that a high proportion position of the western Maine mountain region is more than 3,000 feet from an edge. That graph on the right, that red bar -- that green bar, it's really hard to read, but that's greater than 1,000 meters, the percentage, which is about almost 50 percent, is greater than 3,000 feet from an edge whereas in southern Maine most forests are within 500 to 700 feet of and edge. And, again, you can see the ground bars on the left side of the lower one, which is southern Maine. And you can see that just by looking at the large green blocks are in the western Maine mountains in northern Maine, which is not a surprise.

In conclusion, the Applicant fails to mention let alone address how the transmission corridor would impact the unique ecological values of the region, the fact that it is a stronghold for brook trout, a globally important bird area or a critical ecological linkage of continental significance the Applicant doesn't distinguish between the needs of forest interior species and the

generalist species that thrive in our town centers and suburbs. This is not what is at stake. This is a new major transmission corridor that would permanently fragment the forest of the region. It would also be the largest fragmenting feature this part of the state has ever seen. As I said in the beginning, you cannot build a project of this scale without having unreasonable adverse impacts on the existing natural resources of the western Maine mountains, one of DEP's permitting requirements. Thank you.

MS. MILLER: Thank you. Mr. Haynes, just a few minutes.

ROBERT HAYNES: Thank you. I will keep it short and tight and if -- I'll probably skip the who we are as far as the scenic byway goes and if anybody in the cross-examination process would like to make that a question I can fill in as we have plenty of time for cross-examination.

Old Canada Road is a National Scenic Byway selected by the Director of the Transportation Commission in Washington. Our mission is that Old Canada Road Scenic Byway will strive with broad civic and business partnerships to educate residents and traveling about the area history, culture and natural

features while promoting traditional scenic integrity. Anyone familiar with the Old Canada Road, which is Solon to the border has seen a number of interpretive panels going up some new trails, so we're trying to keep people in the area a little longer and spend a little money.

And I'll move right on to our statement. We do not believe that the Applicant has met the criteria in the chapters for proper consideration of scenic character and existing uses. In Chapter 315 Section 10, the Department considers scenic resources a typical point from which an activity in, on or adjacent to a protected natural resource is viewed. The list of natural resources includes but is not limited to locations of national, state or local scenic significance; a scenic resource visited by large numbers who come from across the country or state is generally considered to have natural -- national or state significance; a scenic resource visited primarily by people of local origin is generally of local significance. The national landmarks we have are the Number 5 Bog, Old Canada Road could be considered a national resource and the ITS trails are designated as state. Historically, we have the prisoner of war camp, which was not

mentioned which is a visiting place where a number of people, now it's the -- the children of the veterans that served in that war. And for public land we have Coburn Mountain public land, Moore Pond public land, Number 5 Mountain trail and this is on land that's not in public ownership but was purchased for the benefit of the public.

Applicants for permits under NRPA are required to demonstrate that the proposed activity meets the standards of the NRPA that have been established by the Legislature as Standard 1 in Section 480-D and requires an applicant to demonstrate that the proposed activity will not unreasonably interfere with existing scenic and aesthetic uses. Old Canada Road believes CMP has not made significant efforts to ensure the project will not interfere with scenic and aesthetic issues. Under 8B, Design, when circumstances do not allow siting to avoid visual impacts on a scenic resource elements of particular concern should be designed in a such a way that reduces or eliminates visual impacts to the area in which an activity is located as viewed from a scenic resource. Applicants should consider a variety of design methods to mitigate potential impacts including screening, buffering,

earthen berms, camouflage, low profile and other techniques. OCR maintains that CMP did not make significant design allowances to mitigate impacts to scenic character or existing use.

MS. MILLER: Can we wrap this up?

ROBERT HAYNES: And our final statement -- right on time. Old Canada Road asserts that CMP has made no effort to minimize project effects within sight of OCR or any of the scenic landmarks along the Spencer Road and suggests that the Maine Department of Environmental Protection take appropriate action.

And if I could make another comment, this testimony was put together a few weeks ago and in light of what's been learned here this week there are a number of changes that have been beneficial to Old Canada Road as suggested in testimony by the Applicant such as screening the crossing at Johnson Mountain. I don't know what those are yet, but as they weren't in the original application I would like to learn more about them and I'm kind of a remedy kind of guy and if there was a remedy to take place, which is not the task of this meeting, I would like to be involved. Thank you.

MS. MILLER: Thank you. One thing I wanted to mention just before we start with cross is you'll

notice that Commissioner Reid isn't here this morning. He is sorry he can't be here. He had another obligation, but I just wanted to let you know that he did want to be here this morning.

MS. BENSINGER: And he will be reading the transcript. He will be listening and watching most of the day and he will be reading the transcript of the time -- any time he wasn't able to listen and watch.

MS. MILLER: So we'll move on with cross-examination by the Applicant.

MR. MANAHAN: Good morning. My name is Matt Manahan for Central Maine Power. Mr. Haynes, briefly for you, can you see the impacts of human activity from Old Canada Road Scenic Byway?

ROBERT HAYNES: Yes. The impacts of forestry which is a traditional use are dominant.

MR. MANAHAN: Yeah. Okay. Ms. McMahon, I'm showing up here your exhibit from your pre-filed rebuttal testimony that you referred to earlier today. And you mentioned in your testimony this heavy purple line, in your words, given the scale of this map, how wide would you say it depicts the Section 1 NECEC corridor?

JANET MCMAHON: Well, there is a scale at

the bottom. It is a graphic just like those yellow arrows are not the width of the corridor, but -- so it's just meant to make it obvious where it is, but that scale would show you.

MR. MANAHAN: Does it look like maybe that's 50 miles wide, is that sort of -- what do you think?

JANET MCMAHON: It's obviously not 150. It's just to draw your attention to where it is.

MR. MANAHAN: Where on this map does it show Route 201?

JANET MCMAHON: It doesn't show it. That's not what this map is showing.

MR. MANAHAN: Oh, it's not intended to show fragmentation? I thought that was your testimony today that it was intended to show lack of fragmentation of the western Maine mountains.

JANET MCMAHON: These are actually the resilient areas and the resiliency from a climate change standpoint is a combination of landscape diversity, things like wetlands, rivers, mountains, elevation, gradients, and that's one of the reasons this is so resilient because it is mountainous and connectivity of forest. And even those, there are many logging roads in the area there it is still a much more connected forest than anywhere else in the

eastern United States, so that's what the green is showing.

MR. MANAHAN: So it doesn't show Route 201. It doesn't show Route 16?

JANET MCMAHON: No. Those are the two roads that are in the area, but if you looked at that map that showed the whole United States and the eastern United States looked basically black except for this area. We're talking about major roads like the Turnpike.

MR. MANAHAN: Well, we're --

JANET MCMAHON: Well, that's a big road, but, again, this is three times as wide, the corridor, as Route 201.

MR. MANAHAN: How about Route 27, where is that?

JANET MCMAHON: If you want to see a road map you could put a road map up there. This is not a road map. It's showing where the resilient landscape is.

MR. MANAHAN: Okay.

JANET MCMAHON: Which includes those roads, but there's not enough roads to reduce its resiliency. It's considered highly resilient because there are only Routes 201, 4, 16 and 6. That's it.

MR. MANAHAN: So how much vegetation would you say remains on those existing roads?

JANET MCMAHON: Well, where they're paved there is no vegetation. The verges are sprayed. So when I say 50 feet, which is the rough distance of 201 from cleared verge to cleared verge. There is grass, but that's not --

MR. MANAHAN: Well --

JANET MCMAHON: -- habitat really.

MR. MANAHAN: Okay. Wouldn't the NECEC corridor which utilizes scrub/shrub vegetation and has no regular vehicular traffic cause significantly less habitat fragmentation than the existing roadways that are there?

JANET MCMAHON: Well, it's a new fragmenting feature. I mean, these roads are already causing fragmentation, but also the fragmentation is associated with the edge habitat and the adjacent forest not just the scrub/shrub vegetation.

MR. MANAHAN: Does commercial forestry result in the habitat fragmentation in your view?

JANET MCMAHON: It does, but it's temporary and there is something called the shifting mosaic steady state. If you look at this landscape as a whole, over time you'll have a clearcut or a partial

cut, but regionally they'll move around over the landscape and the rough proportion of those things stay the same, so there is always a place for habitat to move. This is not -- and that's not at permanent situation like the corridor would be.

MR. MANAHAN: Well, let me ask you this, do you know how many acres of commercial forest are harvested in each year in Maine?

JANET MCMAHON: I don't have that number off the top of my head.

MR. MANAHAN: In the western Maine mountain region?

JANET MCMAHON: I don't have that number off the top of my head, but I'm sure it's a lot. That's the major land use in the area.

MR. MANAHAN: Do you know how many miles of edge effect are caused by those commercial forestry operations?

JANET MCMAHON: Well, there is edge effect every time you clearcut or, you know, if you do a clearcut, although, that's not a huge percentage of the forest. Most of it is partially cut. But, again, that's temporary. It takes three to five years before I -- when I do my field work can no longer walk through those clearcuts because there is

too many trees.

MR. MANAHAN: Are you aware that CMP's tapering proposal is to retain existing vegetation as long as it doesn't intrude into the conductor safety zones?

JANET MCMAHON: I don't know if that was in your application. Is it?

MR. MANAHAN: I'm asking are you -- so you haven't seen it?

JANET MCMAHON: I've heard of it today, but I did not see it in your application --

MR. MANAHAN: Okay.

JANET MCMAHON: -- but that sounds like new information.

MR. MANAHAN: And are you aware that CMP's tapering proposal is not to cut the corridor --

MS. TOURANGEAU: Objection. This goes beyond the scope of her direct.

MR. MANAHAN: No, she's incorporated Dr. Publicover's testimony by reference and the entirety of Dr. Publicover's testimony is incorporated into her rebuttal testimony.

JANET MCMAHON: I am aware of what that means. I have looked at your --

MS. MILLER: Hold on.

MS. BENSINGER: Hold on.
JANET MCMAHON: Okay.
MR. MANAHAN: Just read the first paragraph of her rebuttal testimony. It says I incorporate Dr. Publicover's testimony in my reference.
MS. BOEPPLE: Just for sake of -- excuse me. This is Elizabeth Boepple representing Groups 2 and 10. For the sake of the proceeding, could we please just explain to the witnesses that they need to wait until the Presiding Officer makes a ruling on an objection?
JANET MCMAHON: Okay. Sorry, I haven't done this before.
MS. BOEPPLE: Exactly. That's why I think they need to explain a little bit to you. Okay.
MS. BENSINGER: Ms. McMahon, did you incorporate Dr. Publicover's testimony into your testimony?
MR. WEINGARTEN: Excuse me, if I can address that. She incorporated Dr. Publicover's rebuttal testimony not his pre-filed testimony.
MR. MANAHAN: That's fine. Yes. That's what I'm talking about.
MS. BENSINGER: I'm -- I am asking did you incorporate his rebuttal testimony --

JANET MCMAHON: Yes.
MS. BENSINGER: -- into your rebuttal testimony?
JANET MCMAHON: I incorporated David Publicover's testimony.
MS. BENSINGER: Then I would recommend to the Presiding Officer that a question on that rebuttal testimony be allowed and she can answer it to the best of her ability.
MS. MILLER: Okay. I'll allow it.
MR. MANAHAN: And are you aware that CMP's tapering proposal is not to cut edge to edge in the entire corridor?
JANET MCMAHON: I haven't seen the details. I looked at what was in the application, which is the right of way vegetation maintenance procedures and I have also noticed that if you do taper and allow trees to grow 20 to 30 feet along the edges and still cut them every time they get that high that's still going to -- there is going to be the edge effect until you get to that tapered zone, but also the width of the safety zone is a good 100 feet if you go 15 feet outside of the actual -- well, the wire zone, I guess. I'm looking at your diagram, but I may -- I don't understand because I'm --

MR. MANAHAN: Right.
JANET MCMAHON: -- honestly this is new information.
MR. MANAHAN: To you. It's new information to you. You're not aware of it.
JANET MCMAHON: Not the details because I haven't seen -- it's not in your vegetation maintenance procedures in your --
MR. MANAHAN: Okay.
JANET MCMAHON: -- application. You may have referred to it, but I have not seen exactly how you spell it out.
MR. MANAHAN: So I'm talking about the tapering proposal that he referred to and that was referred to earlier. Were you here earlier this week for this hearing?
JANET MCMAHON: No, I was not.
MR. MANAHAN: Okay. Are you aware that CMP's tapering proposal is to extend the tapering --
MS. JOHNSON: I would object. I don't believe that Dr. Publicover's testimony talks about tapering. This is going beyond the scope of testimony.
MS. MILLER: All right. Hold on. Hold on.
MR. MANAHAN: We're talking about edge

effects, which Ms. McMahon has specifically testified that she thinks there will be adverse edge effects and the tapering proposal that is directly relevant to her testimony and I'm cross-examining her on whether or not there will be edge effects.

MR. WEINGARTEN: Excuse me. But she did not include --

MS. BENSINGER: Excuse me. Can you --

MR. WEINGARTEN: -- tapering in her testimony.

MS. BENSINGER: Excuse me. Excuse me. Could you please identify yourself and your group and for the transcriptionist when you speak?

MR. WEINGARTEN: Yes. I'm -- I'm Bob Weingarten with Group 1. Ms. McMahon did not address tapering in either her pre-filed testimony or her rebuttal testimony, so how could you question her on that?

MS. BENSINGER: You should speak to the Presiding Officer when you respond to an objection, please. And the question is was tapering discussed in the pre-filed -- in the rebuttal testimony?

MR. MANAHAN: Ms. Bensinger, it's not actually. The question really is whether my line of questioning is relevant cross-examination with

respect to her direct and rebuttal testimony. Her direct and rebuttal testimony talks about how there will be edge effects -- adverse edge effects. Tapering was discussed this whole last week about whether or not what are beneficial to edge effects and that's what I'm asking her about, her edge effects testimony.

MS. BENSINGER: Certainly you could ask her -- you asked her if she was aware of the places in which CMP proposed the tapering or the -- what the tapering proposal was, but she already answered that she was not. And if it's not in the testimony, I don't see that any further questions about that are appropriate because it wasn't in her testimony and she already answered she was not aware of it. She wasn't here.

MR. MANAHAN: Okay. Thank you. Ms. McMahon, let me ask you, are you aware that the Maine Department of Inland Fisheries and Wildlife has reviewed and commented on CMP's proposed compensation plan including in relation to habitat fragmentation impacts?

JANET MCMAHON: I am aware of that. I read their testimony. And I know that their purview is much narrower and forest fragmentation actually is

not something that IF&W or actually any state agency regulates around at this point, so they're not required to take into account, for instance, stream catchment areas and those headwater streams that the corridor crosses.

MR. MANAHAN: So we had heard a few witnesses yesterday, I guess you weren't here, some of the witnesses testified that IF&W dropped the ball on the habitat fragmentation. I think dropped the ball was the word. Would you agree with that?

JANET MCMAHON: I don't think it's in their purview.

MR. MANAHAN: Okay. No further questions. Thank you.

MS. MILLER: Thank you. Group 7.

MR. SMITH: No questions. Thank you.

MS. MILLER: Group 3. Okay. And we'll go on to Department questions.

MR. BEYER: Ms. McMahon, do you -- is it your opinion that this project would put the habitat in the western Maine mountains beyond some tipping point for either resiliency or fragmentation in terms of -- in terms of the overall impact? Is it going to -- is this project going to push the values or the impacts beyond some tipping point from which there is

no return?

JANET MCMAHON: We don't actually know. I should say scientists don't know what that tipping point is. We do know that as you fragment a region each fragmenting feature compromises it and reduces its resiliency, so -- and this one is large enough -- and going east/west also is problematic, but it's going to compromise its resiliency. And another thing is often when you do fragment it leads to more fragmentation, for instance, you know, it's a 300 foot corridor, I would imagine in the future they'd want to put more transmission lines down that outside of their project now. But usually once you introduce a fragmenting feature there is more fragmentation that comes in with it. So the reason this is critical at this location is in the southern part of the western Maine mountains, this is actually going through more or less the middle of it, but as you increase the fragmentation it's going to bring invasive species in likely even though they're going to spray every four years and might get some of them, but it just provides a door to reduce the resiliency at the edge and it will creep in. So it's a cumulative process that happens over time, but a big feature like this is going to have a major impact.

It's just -- it's a big feature and it's going to fragment a number of forest blocks, which is not addressed at all in their application. So there is a lot of pieces. We can't even gauge what the overall impact is from the application because it's going to break so many other forest blocks into smaller ones. And also going over mountainous terrains, the mountain is -- the mountains are the most resilient part of the state because that's where there is more room for species to move up or down or to northern slopes as I mentioned, so putting it through a mountainous area on average elevations of 2,000 or 3,000 feet is problematic. And also headwater streams are the most important part of a watershed in terms of controlling nutrient flow, so going through all those headwater streams is also problematic. So I don't know what the tipping point is, but it will have -- it will just, I guess, it will lower a notch the overall resiliency of the region.

MR. BEYER: How narrow would a linear feature have to be in order for it not to represent a fragmentation?

JANET MCMAHON: You know, certainly a road where the canopy closes over it would probably be pretty minimal. I'd say, you know, if it were a 75

foot corridor. I've heard when I came into this talk of looking at what it might take to put some of it or all of it underground, but a 75 foot corridor is still going to have those edge effects. And the edge effect is when you have opening, light penetrates into the adjacent forest and wind makes it warmer, you end up with more early successional species or invasives can move into that zone and also predators move farther in and prey on birds that lay their eggs on the ground and that type of thing. Those are the kinds of edge effects that are documented in the literature, so even if it were 75 feet, which would be the width of say the Route 1 corridor in Maine going from the verge to verge that obviously has edge effect, so you can't really put a 75 foot or 100 foot or 50 foot wide corridor through this region without having permanent -- and because it's permanent you're going to have edge effects. And I -- my point is the application doesn't deal with the negative ones, it just says the edge habitat is good habitat for early successional species, which may be true for some early successional species anyway, but that doesn't address the edge effects into the adjacent forest.

MR. BEYER: Thank you. I have nothing else.

MR. BERGERON: Mr. Haynes, could you tell me

how many National Scenic Byways are in Maine? You noted I think in your testimony there is about 150 in the United States.

ROBERT HAYNES: There are four in Maine of national significance and there is a number of state designated byways which is a different level.

MR. BERGERON: Okay. Thank you.

Ms. McMahon, in your direct testimony you talked about -- Page 10 of your direct there is a sentence that says, quote, negative impact such as avian and bat collisions with transmission poles and wires over a new corridor of this length are likely to be substantial. Do you have some other data or studies that talk about avian and bat collisions with transmission poles and wires?

JANET MCMAHON: There are some referenced in this report and I can't off the top of my head tell you what they are, especially avian. I mean, there has been a lot of research mostly in Europe, but, you know, transmission lines have similar impacts wherever they are. Birds colliding. And also the impacts of the electromagnetic radiation on birds, which is not mentioned in their application. There are impacts associated with reproductive effects tied to that.

MR. BERGERON: Okay. And could you give me a sense of the impacts of logging or forestry activities on species mortality?

JANET MCMAHON: I -- and whenever you put in a logging road or a road or a corridor you're going to clear all of the vegetation and obviously there is going to be a lot of mortality of whatever is in the path of that infrastructure. But, again, because forest operations occur at a patchy level and they grow and there is this sort of shifting mosaic of different age classes, I'm not -- the overall amount of forest land is not decreasing so you end up with enough interior habitat for species to move between blocks as long as they're relatively connected. And, again, this is wide enough that may keep some species from moving between blocks. But the edge effects are very temporary in a forest and it doesn't stay cleared. You're not spraying it every four years to keep it cleared.

MR. BERGERON: Okay. And there has been some talk this morning of a tapering proposal, could you give me your input in terms of if a corridor was cut to a certain width, whatever it is, 75 or 150 feet wide, and then allowed to regrow some distance on the edges what length of time it would take to get

from that initial cut to some sort of tapered or transition or shape?

JANET MCMAHON: Well, I mean, a forest can grow to -- saplings can grow up within a handful of years to be over your head or, you know, 10, 20 feet tall, but they'll stay very small diameter. But I'm not familiar with the tapering proposal. I mean, I do know that if you have that 15 foot wire zone you still could end up with 75 feet of a cleared zone. I think you would have to to keep trees from impacting the sag area or whatever. I don't know exactly how it works, but in looking at the vegetation maintenance procedures you're still going to have a very wide cleared zone. But the tapering, you're still going to have an edge. I mean, you may taper it, so it's, you know, I'm not sure what it looks like. Again, I haven't seen their proposal, but you're still going to have edge between that cleared -- the part that you have to keep clear and forest. It just means you have a sort of early successional stage in between, so you go from scrub/shrub, saplings, forest, but you still have an edge. It's permanent. And I guess it's the permanent part that is what sets this apart from forest practices.

MR. BERGERON: Thank you.

MS. BENSINGER: Good morning, Mr. Haynes. Do you have any figures -- I don't think I saw that in your pre-filed testimony, any figures of the number of cars using the Old Canada Road each year?

ROBERT HAYNES: We don't. Tourism was an item which was stricken from the testimony and we do have reports from the Maine Office of Tourism that support scenic byway's importance to the livelihood of the folks in the area, which is an existing use, but I did not bring those for that particular purpose.

MS. BENSINGER: But do you have any sense off the top of your head of an estimate of the number of vehicles using that road every year?

ROBERT HAYNES: I couldn't say within any sense of credibility.

MS. BENSINGER: I've been on it and it's beautiful and I'm trying to remember is there -- there was some discussion earlier this week, is there a trail or path along some part of it that maybe snowmobilers or hikers would be using?

ROBERT HAYNES: There are crossings for all sorts of recreational activities whether it's ATVs, snowmobiles, our most -- our biggest project to date

is on land owned by CMP and they've been great to work with and this is a multiple use trail on the Kennebec River and also the Dead River and in most places it's ADA compliant. It's a hard crusher dust surface. Wheelchairs can use it. It is used for a snowmobile trail in the wintertime. And it was put in -- it was wrapped up probably in 2006 and CMP donated steel for the large bridges we put in. We went through the Army Corps of Engineers permit in one spot to do it and I'm very proud of that. It's a great item. And we will be finishing the, oh, creature comfort thing, so to speak, this year as we had a significant amount of match to match the federal money that went with that and that will be in the form of kiosk and more interpretation and one new trail head. I feel quite fortunate to have been part of this process. And I'm also a member of the National Scenic Byway Foundation and we are now in the process of getting the program reauthorized for funding. President Obama decided it was suitably funded back in 2009.

MS. BENSINGER: So that those trails or that trail run along some parts of the Old Canada Road?

ROBERT HAYNES: The Old Canada Road is -- actually in this section of the Kennebec it's on the

other side of the river if you want to stick to the historic footprint and we actually have a lot of ties to Lewiston because immigrants came from Quebec, walked down and went to work in factories in Lewiston. There is quite a history there. Above the confluence of the Dead and Kennebec, it -- the trail passes right next to the old ferryman's foundation where his home was and to slide people back and forth across the river so they didn't have to walk and there was a few people that didn't make the crossing, but that is the most tightly connected to the footprint on the Old Canada Road.

MS. BENSINGER: But what I'm trying to get at is these other uses of the scenic byway.

ROBERT HAYNES: Mmm Hmm.

MS. BENSINGER: They are parallel to it in some places?

ROBERT HAYNES: Most cross.

MS. BENSINGER: They're crossings.

ROBERT HAYNES: Right.

MS. BENSINGER: All right. Thank you. I have one question for Ms. McMahon. You mentioned predation into the full growth area by predators using the -- a transmission line, could you elaborate a little bit on that with regard to what species

might be involved as predator and prey?

JANET MCMAHON: Okay. Well, when you have early successional habitat or the scrub/shrub zone or in that corridor, vegetation in the corridor, there is a lot of species that like that habitat and they like forest edges like foxes, skunks, raccoons and those are the types of species that prey on ground nesting birds like hermit thrushes, wood thrushes, oven birds and that's a major cause of decline of those species is predation where there is a lot of edge, which is why they're declining more in the southern part of the state partly because of cats, but also those other predators that are native to the north Maine woods. So those are the generalist species that like edge conditions and that's what -- that's a major negative edge effect that you see throughout the literature.

MS. BENSINGER: Thank you.

MS. MILLER: Okay. I think that concludes the Department's questions. Any redirect?

MR. WEINGARTEN: No redirect.

MS. MILLER: Thank you. Okay. Thank you both for your testimony this morning.

JANET MCMAHON: You're welcome.

MS. MILLER: Okay. Moving on to Group 6's

witnesses. I've got Mr. Hunter --

MR. TURNER: Dr. Hunter.

MS. MILLER: Dr. Hunter, sorry, Mr. Wood, Mr. Cutco and Mr. Emmerson.

MR. TURNER: Before we begin, I just want to introduce myself. Phelps Turner, Conservation Law Foundation. Because Mr. Wood is a witness today, I will be serving as a spokesperson for Group 6.

MS. MILLER: Thank you.

MR. TURNER: Thank you.

ROB WOOD: Good morning. While that gets set up if you can go ahead and go to slide 4, please.

MS. MILLER: Can you speak more into the mic, please?

ROB WOOD: Yes.

MR. TURNER: Before the witnesses begin, I believe Mr. Wood was not here for the initial swearing in, so we should swear him in.

MS. MILLER: Yes, thank you. I appreciate that. So if you could stand and raise your right hand, do you swear or affirm that the testimony you are about to give is the whole truth and nothing but the truth?

(Rob Wood affirmed.)

MS. MILLER: Thank you. And just -- if

everybody could just say who you are before you start speaking for the transcriptionist and try your best to speak right into the mic. Thank you.

ROB WOOD: Thank you. So good morning. My name is Rob Wood. I'm the Energy Policy and Project Advisor for The Nature Conservancy of Maine. The Nature Conservancy is a global conservation organization working in all 50 states and more than 70 countries and our mission is to conserve the lands and waters on which all life depends. I'll be summarizing the testimony of TNC staff this morning. To my left are Andy Cutco and Brian Emmerson, also co-authors of our testimony. So if it's all right to have them briefly introduce themselves.

BRIAN EMMERSON: Hi. My name is Brian Emmerson. I'm a Mitigation Program Manager for The Nature Conservancy in Maine. I've been working on wetland and natural resource permitting issues for 10 to 12 years and I'm a professional wetland scientist as well.

ANDY CUTCO: Yes. Good morning. My name is Andy Cutco. I'm the Director of Science for The Nature Conservancy in Maine. I've been with the Conservancy for about two years and prior to that I worked for close to 20 years as a Forest Ecologist

with the Department of Agriculture Conservation and Forestry in the Natural Areas Program. I have a graduate degree in forest ecology and I am a licensed forester in Maine.

ROB WOOD: Great so our pre-filed testimony --

MR. MANAHAN: I'm sorry, could I just put a standing objection like I did last time, but to the extent that their exhibits have language that is not in the pre-filed testimony and is in addition like this language on the left side of this exhibit, to the extent that's new and not in the pre-filed we would have a standing objection to it. Thank you.

ROB WOOD: Sure. And...

MS. MILLER: Yup, and that objection is noted and understood.

ROB WOOD: I would just note this text is from our pre-filed testimony. I just kind of combined them on one PowerPoint slide. So our pre-filled testimony addresses three of the hearing criteria, wildlife and fisheries alternatives analysis and compensation and mitigation.

The Nature Conservancy science shows that the forests of western and northern Maine is both regionally and globally significant. Our forest

exhibit shows well-connect -- or sorry. I'm sorry. Our first exhibit shows well-connected forests in eastern North America. Landscape connectedness is a measure of how easily wildlife can move from one place to another and western Maine is unique in the eastern United States where its concentration of lands with above average to high connectivity source.

Next slide, please. Western Maine is also resilient to the changing climate. Our second exhibit shows lands in the northern Appalachian eco region that are both resilient to climate change and highly connected and the two concepts are interrelated. Connected forests allow for greater species movement over time and are responsive to climate change and western Maine will serves as a key wildlife linkage in the northern Appalachian region as the climate changes.

Next slide, please. Data from the State of Maine also shows the regional significance of the specific area where Segment 1 of NECEC would traverse and the state has identified this block as larger than 500,000 acres making it one of the largest unfragmented corridor -- forest blocks in the region.

Let's skip to slide 9. This is perfect. So this is an animated version of our Exhibits 4 and 5.

We also have the just normal Exhibits 4 and 5, but this shows that at a global scale western Maine also serves as a corner of one of the world's last remaining contiguous temperate broadly mixed forests. So our Exhibits 4 and 5 show the historical extent of temperate broadly mixed forests globally and the current extent.

If we could move to slide 11, please. And some of this has also been provided as exhibits by other witnesses and other groups, so please excuse any redundancy. We also note that western Maine supports exceptional biodiversity providing habitat for approximately 140 rare species and nesting habitat for more than 30 woodland and song bird species. This exhibit -- our 6th exhibit also shows that western Maine -- the western Maine mountains are globally significant as a bird area according to the National Audubon Society.

So in short, The Nature Conservancy is concerned about the potential NECEC Segment 1 to contribute to new an unprecedented habitat fragmentation of this globally and regionally important well-connected and resilient landscape. Habitat fragmentation is a particular concern for species that require mature closed canopy forest

cover as noted by others this week. Ultimately, we believe that habitat fragmentation has not been adequately addressed in the Applicant's compensation and mitigation plan.

So I'll touch briefly on the alternatives analysis. We note in our pre-filed testimony that the Applicant makes a reasonable case that among the three action alternatives presented that NECEC would be the least damaging and they do take into consideration habitat fragmentation. However, we believe it would be reasonable for the Department to request a Segment 1 line burial alternative especially because the alternatives analysis does contain an underground transmission alternative specific to the Kennebec Gorge, so we think that would be expanded to the entirety of Segment 1. Understanding the practicability of underground transmission in Segment 1 could be useful especially given the other proposed corridors in northern New England that propose burying significant portions of the line.

So moving to compensation and mitigation. Our last subject area covered by our pre-filed testimony starting with cold water fisheries, we agree that replacing undersized culverts with Stream

Smart culverts can approve aquatic habitat connectivity. However, we note that the $200,000 in compensation that has been proposed would be insufficient to replace the 20 to 35 culverts the Applicant intends to replace. Regarding compensation and mitigation for wildlife habitat impacts, the Applicant states in its revised compensation plan that the plan achieves no net loss of ecological functions and values. We believe that this cannot be the case unless additional steps are taken to mitigate habitat fragmentation. The Applicant's revised compensation plan takes initial steps to mitigate habitat fragmentation, for example, by proposing to establish deer travel corridors in the Segment 1 deer wintering area, proposing to raise pole heights to allow for full height canopy and Roaring Brook Mayfly and Northern Spring Salamander habitat and proposing to taper vegetation in the corridor that is in the viewshed of Coburn Mountain. However, these strategies apply only to a small portion with the 53.5 mile Segment 1 corridor. We recommend that the Department consider requiring additional steps to mitigate habitat fragmentation in Segment 1 to the maximum extent practicable.

We can move to slide 19, please. So we

suggest four techniques to minimize habitat fragmentation. So first, narrow the width of the clear -- or narrow the cleared width of the corridor to the --

MR. MANAHAN: I would object to this. It appears to be an entirely new exhibit, which we haven't seen. It's not in the pre-filed testimony.

ROB WOOD: Could I just respond?

MS. MILLER: Respond.

MR. TURNER: May I respond? Sorry. Just one second.

ROB WOOD: Sure.

MR. TURNER: This is a summary of what's been submitted in the pre-filed testimony.

MR. MANAHAN: Well, can I just say it's not clear unless I review it and compare it to the pre-filed testimony and the instructions were clear that we can't have new exhibits.

MS. BENSINGER: Excuse me, sir, you need to identify yourself for the transcriptionist.

MR. TURNER: Sure. I already did, but I will do it again. Phelps Turner, Conservation Law Foundation. We are a member of Group 6. I'll be the spokesperson today because Mr. Wood is serving as a witness.

MS. BENSINGER: Okay. If the spokesperson could respond to the objection. Say that again, please. You're saying --

MR. TURNER: I did, but I will --

MR. BENSINGER: You're saying it's a summary of his testimony?

MR. TURNER: Yes, that's what I said. It's a summary of -- of what's been presented in the pre-filed testimony.

MS. BENSINGER: It would be better if you just gave it orally because we can't have new exhibits.

ROB WOOD: Understood. So we can take that down, please. So we suggest --

MS. MILLER: Do not look at that.

ROB WOOD: Sure. And that's also butchering the best practices for PowerPoint presentations. So we suggest four techniques to minimize habitat fragmentation; number one, narrow the cleared width of the corridor by burying additional sections of the line; number 2, narrow the cleared widths of the corridor by tapering vegetation within the corridor, we present the Bingham Wind Project as an example where the Department required in places the use of v-shaped management, so tapering in other words;

requiring additional wildlife travel corridors similar to what has been proposed in the Segment 1 deer wintering area and we also know that, you know, that could be confined with tapering; and number four, requiring co-location of the line with the Spencer Road to minimize habitat fragmentation.

We do have one more exhibit actually. I'm so sorry, if -- if you already took it down, that's okay. We can look at it potentially later and it's in our pre-filed testimony for folks who are looking at it it's Exhibit 7, which is priority areas for habitat connectivity identified by our staff.

MS. BENSINGER: We have it here.

ROB WOOD: Okay. Great. So we'll note that the entirety of Segment 1 is a priority for habitat connectivity, but we did take the additional step of narrowing in on the areas that we see as most important from a habitat connectivity perspective.

And then finally, in our pre-filed testimony we note that for habitat fragmentation that cannot be avoided and minimized to recommend compensating by reducing or preventing fragmentation elsewhere in the affected region through land conservation and that would be either preservation or acquisition of conservation easements on land. So we -- we do note

that if you apply kind of standard multipliers to the acreage that is affected or would be affected by the proposed corridor that you could arrive at a number of around 40 to 100,000 acres in terms of compensation for habitat fragmentation without any additional avoidance or minimization.

So that's all. Thank you so much for the opportunity to provide input.

MS. MILLER: Thank you.

MALCOM HUNTER: Good morning. My name is Malcom Hunter. I'm a Professor at the University of Maine in the Department Wildlife Ecology and Conservation Biology. And I have written a number of papers and three books on the topics at hand. I'm used to speaking in 50 minute chunks, so to control myself I'm going to read my testimony, something I virtually never do. That will -- that will also keep me from waxing personal and telling you about skiing down Coburn Mountain or swimming the length of the Kennebec Gorge.

Anyway, so here we go. Habitat fragmentation is wildly recognized as one of the leading causes of biodiversity decline across the globe and thus a key concern here is the differences between the fragmentation generated by working

forests and the transmission corridor. There are three basic ones; the proposed corridor would be essentially permanent, whereas most of the openings created by forestry are patchwork that shifts over time; two, the corridor would be significantly wider than typical logging roads, 150 feet versus 20 to 40 feet; and third, it would be a linear fragmenting feature creating far more edge than forestry cuts of similar acreage. This is simple geometry. A circle has the -- is the shape of the least edge and as you divert from a circle you get more and more edge per unit area. I'll come back to the edge effects later.

It's important to note that the fragmentation effects of the forest management in this region are quite light handed compared to some other forests like the industrial plantations of the southeastern United States or even parts of New Brunswick. Just a few weeks ago, I flew from Amsterdam to Boston and I was really struck by the difference between northern New Brunswick and northern Maine in terms of the intensity of our forest management.

So what does fragmentation of this nature mean for wildlife? This very much depends on the species. Every species is different and we are

talking about hundreds of species of vertebrae animals, thousands of species if we include invertebrates and plants. On one end of the continuum for wide ranging species like coyotes long linear openings are likely to be pathways actually facilitating their movements across the landscape. On the other hand, for a pine marten or a red-backed salamander a power line would be a significant filter to their movement, not an absolute barrier but something that greatly reduces the possibility of -- or probability of their passage of crossing. Even the situation of individual animals can affect this filter effect. For example, we undertook a study of road crossing by amphibians and we found that a juvenile frog disbursing away from its natal pool where it was born is more likely to cross a road than an adult amphibian moving around its home range, so it's all very much dependent on exactly what you're talking about.

Other ecological impacts of the corridor would include just the immediate loss of roughly 1,000 acres of -- of vegetation. This will be a particularly large impact for a species with small home ranges, back to the red-backed salamander, and I want to remind you most species have small home

ranges. We focus on the big ones, the white-tailed deer and bears that have large home ranges and most species have small home ranges and 1,000 acres is significant to them. Introduction of invasive plant species is a significant issue. Large forest blocks resisting invasive species whereas disturbed areas, especially disturbed soil, invite them and once that foothold is established control of invasive plants is extremely difficult.

Edge effects, we've heard a little bit about this this morning, but at the risk of repeating these are caused primarily by changes in light and wind exposure that can profoundly alter the plant communities composition and structure, particularly when that's linked to the invasion of exotic species and ultimately that means an altered habitat for wildlife. As a broad generalization, forest edge is more favorable to widespread species that tend to be of less conservation concerns, raccoons and foxes and such and worse for specialized forest interior species like American marten and many song birds. One global review found forest interior species reach peak performance over 200 to 400 meters from the nearest edge of, you know, 700 to 1,300 feet. So Segment 1 would create 107 miles of new forest edge

and even thinking in terms of an edge effect of just 330 feet that means 5,000 acres of the interior forest that would be directly or indirectly impacted. And with some edge effects occurring in excess of 1,000 feet, we're talking about in excess of 15,000 acres of impacted forest.

I want to wrap up with a bit of a long-term perspective. Many fragmentation effects are not immediate. They may take decades to play out as populations have less habitat and are impeded from movement across the landscape. Second, impacts from a power line would be cumulative and additive to existing features, mainly the major logging roads in the region, but we're not just talking about another straw added to the camel's back. This feature would be a big log put onto the camel's back. Fragmentation likely increases the vulnerability of Maine's native plants and animals through climate change because ultimately it's the movement of individuals across the range leading to the movement of populations that is the main way that species adapt over time to climate might change.

So in summary, I -- I do not believe the proposed mitigation compensation plan as I understand it currently adequately addresses the cumulative

impact to the full array of Maine wildlife. Thank you.

MS. MILLER: Thank you. Cross.

MS. GILBREATH: Morning, everyone. My name is Lisa Gilbreath. I'm here on behalf of CMP. Mr. Wood, I guess, I'll address these to you and your panel. I don't care who responds. But in your TNC testimony you state that sustainable forestry does not fragment large forest blocks in the same manner as a wide linear corridor; is that correct?

ROB WOOD: That's correct.

MS. GILBREATH: And I've heard both you and Dr. Hunter mention approximately 100 miles of new habitat edge that you estimate would be created by this corridor?

ROB WOOD: Correct.

MS. GILBREATH: Have you read the Maine Forest Service statistics for timber harvest in Franklin and Somerset counties that Mr. Goodwin cites in his rebuttal testimony?

ANDY CUTCO: Yes, again, this is Andy Cutco and I am familiar with those statistics.

MS. GILBREATH: So do you agree that for the period 2015 to 2017 those statistics show a total of 27,368 acres of forests for clearcut?

ANDY CUTCO: I'm confident in the statistics from the Maine Forest Service, yes. I would like to also comment on the definition of a clearcut. I think we've heard a lot of discussion this week about clearcuts and their comparison and contrast to what a power line clearing might look like. The definition of -- according to the definition of a clearcut a forest could actually retain as much as 30 square feet of basal area of forest within a clearcut, which if you think about 4 or 5 and 6 or 7 inch trees might be as many as 40 to 50 trees per acre. So even in a silvicultural clearcut as defined by the Maine Forest Service, I think the residual forest looks quite a bit different than what a cleared power line corridor would look like.

MS. GILBREATH: So how would you define a say 30 acre parcel that's been completely leveled to the ground?

ANDY CUTCO: That would certainly qualify as a clearcut, however a couple things. First, only I think 6 to 7 percent of Maine's harvest are clearcuts and most of the clearcuts that I'm familiar with, and I've spent a lot of time with the land managers in this region, most of the clearcuts that I'm familiar with do actually retain some structure, certainly

more than a cleared utilities corridor.

MS. GILBREATH: So is it your testimony that the Maine Forest Service statistics showing 27,368 acres of forest clearcut is inaccurate?

MR. TURNER: Objection. If Ms. Gilbreath is going to cross-examine this witness on those statistics, I'd like to make sure that he has them in front of them so he can consult them.

MS. GILBREATH: Subject to check. They're in the rebuttal testimony.

ANDY CUTCO: As I mentioned, I don't quite --

MS. MILLER: Hold on. Hold on.

MR. TURNER: Sorry, I don't think the objection is ruled on yet.

MS. MILLER: Can you just -- I am sorry to ask you to keep identifying yourself every time you speak, but --

MR. TURNER: Phelps --

MS. MILLER: -- you're new here, so.

MR. TURNER: Phelps Turner, Conservation Law Foundation. I'll be the spokesperson for Group 6 today because Mr. Wood is serving as a witness.

MS. MILLER: I would just -- just when you speak just say Phelps Turner that would just be very

helpful and I know that's really annoying, but where there is a lot of people here and it's really hard for the transcriptionist to keep up.

MR. TURNER: Understood.

MS. MILLER Thank you.

MR. TURNER: This is Phelps Turner, I have an objection to the form of the last question.

MS. BENSINGER: Does the witness wish to see the testimony that she's referring to because it can be provided to you.

ANDY CUTCO: If this is Mr. Goodwin's rebuttal testimony, I am familiar with it, yes.

MS. MILLER: Okay. Proceed then.

ANDY CUTCO: I -- as I mentioned, I don't question the Maine Forest statistics --

MS. BENSINGER: Just -- is that microphone on?

ANDY CUTCO: Yes, it is. I'm sorry. As I mentioned, I don't question the Maine Forest Service statistics on clearcutting. What I wanted to do is provide both a definition -- a regulatory definition and also essentially what might be a visual description of what a clearcut looks like. And a clearcut I think can, in fact, look like an area that is cleared of all trees greater than maybe 2 or 3

inches in diameter but is not by definition a cleared stand of all trees and saplings. It can have as much as 30 square feet of basal area or roughly 30 to 40 trees that are 4 or 5 and 6 inches tall can still be defined as a clearcut, so there is a lot of variety within what the clearcut looks like on the ground and they don't all look like a cleared power line corridor, that's my point.

MS. GILBREATH: Do clearcuts have an edge effect?

ANDY CUTCO: It depends on the intensity of the clearcut and I would say they probably do have an edge effect, but as many others have described it's a much shorter lived effect than a permanent corridor.

MS. GILBREATH: How long does it take a clearcut area to regenerate?

ANDY CUTCO: As I --

MS. GILBREATH: To full forest canopy.

ANDY CUTCO: As I mentioned, most clearcuts have some retained regeneration within them, so they'll already have trees that are 20 to 30 feet tall. In terms of sap- -- or a seedling, let's say, that are 2 or 3 feet tall, it may take -- to get to 25 feet tall it may take 25 years.

MS. GILBREATH: Are you aware that the

entire border between the United States and Canada is cleared and mowed?

ANDY CUTCO: I am.

MS. GILBREATH: Would you describe that area as an impediment to the movement of animals?

ANDY CUTCO: I would. And I would defer to Dr. Hunter if he wanted to elaborate on -- on that. As I think you heard from his testimony there is -- there is a lot of gray in this. I think there has been an attempt this week to simplify matters and categorize things in a lot of black and white, so I am sure it's a barrier to some species and not others just like a utility corridor would be.

MS. GILBREATH: Dr. Wood, would you like to add?

MALCOM HUNTER: Hunter.

MS. GILBREATH: Oh, I'm sorry. Mr. Wood, Dr. Hunter.

MALCOM HUNTER: Yeah. No, I didn't think I have much more to add to that except that, yes, I don't know that the border is actually mowed, the parts I've walked, but -- but you're right, it's wide, it's a wide clearing and -- and, again, it -- whether or not it represents a fragmenting feature depends very much on the species you're talking

about.

MS. GILBREATH: Now, back to TNC, you discussed in your presentation and in a few places in your testimony the concept of tapering; am I correct?

ROB WOOD: Correct.

MS. GILBREATH: Have you read the compensation and mitigation plan that CMP submitted into the record in January of this year?

ROB WOOD: Yes, I have.

MS. GILBREATH: Are you familiar with Exhibits 10-1 and 10-2 of the Site Law Application that were revised and submitted with that compensation plan in January 2019?

ROB WOOD: Yes, I have -- I have not read it in the past couple of days, but I have read it.

MS. GILBREATH: Well, let me remind you that those are the construction vegetation clearing plan and the post-construction vegetation management plan, does that ring a bell?

ROB WOOD: Yes.

MS. GILBREATH: And within those plans CMP has a proposal for what we've been referring to as tapering here; is that correct?

ROB WOOD: Yes, that's correct. I would say that the -- I did not see any diagrams in those

exhibits. I believe there is a diagram of what tapering would look like in the Coburn Mountain viewshed in other materials, but we have not seen a diagram in those exhibits.

MS. GILBREATH: Are you aware that within those management plans CMP describes that where possible as part of its tapering plan there will be no clearing from edge to edge and instead there will be selective vegetation management to achieve the tapered effect?

ROB WOOD: Could you clarify if you're speaking about which -- which portions of the corridor you're referring to?

MS. GILBREATH: Where tapering has been proposed.

ROB WOOD: And could you elaborate on those specific areas?

MS. GILBREATH: Not off the top of my head. But within the vegetation plans that are in 10-1 and 10-2.

ROB WOOD: So our understanding is that based on application materials and conversations that tapering could be achieved by allowing existing stands to remain in place and so it could be done without clearing initially and I think we would argue

that that is -- that would be highly preferable to -- to clearing initially and so if that is the point you're driving toward I think, yes, leaving trees up to 35 feet high down to 15 feet high in the middle of the corridor without clearing those trees initially they could be retained that could be helpful, but I would defer to my colleagues in terms of to the extent that's helpful.

MS. GILBREATH: Thank you, Mr. Wood, that is the point I was driving at and I just wanted the record to be clear that that is part of our tapering plan.

ROB WOOD: And I would just note --

MS. GILBREATH: And you understand it.

ROB WOOD: And I would just note that I -- my understanding to that is proposed primarily for the Coburn Mountain viewshed and which is a 3 mile portion of the 53.5 mile Segment 1 corridor and so a small portion of Segment 1.

MS. GILBREATH: Now, anyone from TNC, do you agree that utility corridors can minimize hard edge impact on fragmentation by applying soft edge management techniques such as integrated vegetation management and maintaining what I'll refer to as vegetation bridges for wildlife movement?

ANDY CUTCO: Yes, I think we are familiar with the fact that vegetation management can enhance habitat in the context of a much more developed and disturbed environment. Southern Maine, southern New England. If I -- I lived in southern Maine and I have a power line near my house and there is definitely wildlife that use it, however, most of those wildlife species are a number of those that have been described earlier today as generalists, the foxes, the raccoons, the blue jays, et cetera, many of which are actually predators.

MS. GILBREATH: And Mr. Emmerson, do you think the Maine Department of Inland Fisheries and Wildlife has expertise in the management of wildlife in Maine? I'm sorry, Mr. Cutco. I confuse the two of you.

ANDY CUTCO: Yes, I do. We've worked a lot -- I've worked a lot with IF&W in the past and The Nature Conservancy has a number of ongoing projects with IF&W, so, yes, we do.

MS. GILBREATH: And does IF&W have that same expertise in habitat fragmentation?

ANDY CUTCO: That's a good question. I -- I -- understanding their regulatory purview, I am not sure that they spend a lot of time focusing on large

scale habitat fragmentation of the scale of this project, so that's an open question. There are some certainly dedicated and bright people who I'm sure thought about it at IF&W.

MS. GILBREATH: Do you believe that IF&W has expertise in ensuring adequate mitigation strategies to protect wildlife and fisheries habitat?

ANDY CUTCO: I believe IF&W has a valid perspective on the topic, absolutely.

MS. GILBREATH: And are you aware that CMP has consulted extensively with IF&W on travel corridors and riparian buffers?

ANDY CUTCO: I am. My -- I guess my understanding of this proceeding is that your aim is to collect I believe the term is all relevant evidence regarding perspectives on habitat fragmentation and impacts and so I feel as though our perspective, certainly that of Dr. Hunter, is -- is valid as well.

MS. GILBREATH: On Page 8 of TNC's testimony, TNC requests that CMP consider IF&W's recommendation to maintain a 100 foot riparian buffer on all streams within the project area. I believe it is the second to last full paragraph beginning with the Conservancy also appreciates the Applicant's

proposal.

ROB WOOD: Sorry, could you repeat -- is the question do you see that?

MS. GILBREATH: Do you see that?

ROB WOOD: Yes.

MS. GILBREATH: Okay. Are you aware that CMP modified its proposal in January 2019 in that submission that we spoke of earlier by expanding its proposed buffer to 100 feet for cold water fisheries habitat?

ROB WOOD: Yes.

MS. GILBREATH: Okay. And that CMP also proposes for all other streams a 75 foot buffer expanded from its previous proposal of 25 feet?

ROB WOOD: Yes.

MS. GILBREATH: Quickly, Dr. Wood, you mentioned in your --

ROB WOOD: Dr. Hunter or?

MS. GILBREATH: Mr. Wood. You need to get a PhD, Mr. Wood.

MALCOM HUNTER: He deserves the PhD after this after his name as well.

MS. GILBREATH: Oh, of course, which is a doctorate. You noted, Mr. Wood, in your summary testimony morning that TNC would benefit from

understanding the practicability of undergrounding the project; is that correct?

ROB WOOD: So I -- I think the way we phrased it as -- is as the state could benefit from understanding the practicability.

MS. GILBREATH: Are you aware that CMP submitted extensive rebuttal testimony on just that proposal?

ROB WOOD: Yes. Yes, I am and I also understand there will be another hearing day in May specific -- specifically on that topic.

MS. GILBREATH: Thank you. I have no further questions.

MS. MILLER: Thank you. Group 4.

MR. PUBLICOVER: All right. Dave Publicover from the Appalachian Mountain Club for Group 4. And I'm going to want to bring TMC's exhibits back up on the screen that we had earlier. All right. I'd like to -- I'd like to start with Dr. Hunter.

MS. MILLER: Hold on a second. We talked about some of those.

MR. PUBLICOVER: I believe this is one that was not objected to.

MS. MILLER: Okay.

MR. PUBLICOVER: And I'm only going to refer

to one.

MS. MILLER: Okay. Thank you.

MR. MANAHAN: All right. Just to clarify, I believe we objected to all of them if they didn't -- so if they didn't -- if the information or if the slide itself was not in the pre-filed testimony, so just --

MR. PUBLICOVER: I -- I can get the same thing from my exhibit if you'd rather I pull that one up.

MS. MILLER: Let's just pull up the actual exhibit from the actual testimony, which I believe we have on there, do we not?

ROB WOOD: Could I just respond as well just to save --

MS. MILLER: Yes.

ROB WOOD: In terms of, you know, the -- what my understanding was for the summary testimony, I don't think that there was an explicit instruction that we couldn't have PowerPoint slides that had text on them with our exhibit.

MS. BENSINGER: The PowerPoint slides, and maybe we could have been clearer, are just supposed to be of the -- it's just supposed to have exhibits that were actually submitted and not recombinations

of things, but the exhibit that Mr. Publicover is going to use is just a regular exhibit that was submitted...

MR. PUBLICOVER: And it's a -- it's essentially identical to an exhibit that I submitted to you and if you'd rather I pull up --

MS. BENSINGER: Great. Let's use that one.

MR. TURNER: May I also interject, please.

MS. MILLER: Yes.

MR. TURNER: Phelps Turner, spokesperson for Group 6. I just want to add I don't believe it was Mr. Wood's intention to enter any of the PowerPoint into the record. We were using the slides as illustrative demonstratives, so.

MS. MILLER: Yup. And we allowed them as such.

MR. TURNER: Thank you.

MR. PUBLICOVER: All right. Are we good to go?

MS. MILLER: Yes. Thank you.

MR. PUBLICOVER: Dr. Hunter, I think you maybe sold yourself a little short on your qualifications. You've been a Professor at University of Maine for 40 years.

MALCOM HUNTER: (Witness indicating yes.)

MR. PUBLICOVER: You've been researching biodiversity in both Maine and globally for that time?

MALCOM HUNTER: (Witness indicating yes.)

MR. PUBLICOVER: You've authored or edited three books on the subject and numerous peer review publications.

MALCOM HUNTER: (Witness indicating yes.)

MR. PUBLICOVER: You are --

THE REPORTER: Excuse me, he has to answer out loud for the record and not nod. Please verbalize your answers.

MALCOM HUNTER: Oh, sorry, yes. I was waiting for the end.

THE REPORTER: Thank you.

MR. PUBLICOVER: And you were past President of the Society for Conservation Biology, correct?

MALCOM HUNTER: Yes.

MR. PUBLICOVER: All right. Now, several witnesses that we've heard extensive testimony about the significance of the western Maine mountains as part of a nationally and even globally significant region. Could you explain how this region could be considered so significant given that much of it is managed commercial timberland?

MALCOM HUNTER: Well, I think there are two considerations there. First of all, the -- when you hear managed timberlands there is a range of situations that that covers. And as I alluded to earlier compared to much of the forest plantations of the southeastern United States or even New Brunswick and much of southern Quebec our lands are much more widely managed than those situations where you have rows of spruces planted and so forth. So there -- there is -- that's part of the story. And the other the extent to which we are connected as a number of maps have shown the -- because we are sitting on the spine of the Appalachians there is connectivity to forested regions through the Adirondacks and beyond and up into the Maritime Provinces, the Gatsby, et cetera, so all of these things combine to make this as you alluded and that this map depicts is a globally significant place.

MR. PUBLICOVER: All right. In terms of connectivity, you know, we've heard that this region is permeated by logging roads. How do logging roads impact connectivity as compared to the new corridor?

MALCOM HUNTER: Well, they have an impact certainly and particularly a permanent road like the Spencer Road would have an impact, but significantly

less just simply if for no other reason than the -- than the width of the road is going to represent a fragmented feature for fewer species. Again, I always come back to the -- there is a whole suite of species out there and every one of them looks at the world a little differently, but they're going to be far fewer species that see a forest road as a fragmenting feature than a 150 feet wide corridor associated with the power line that's proposed.

MR. PUBLICOVER: Sometimes the term habitat permeability is used, could you describe what that means?

MALCOM HUNTER: Well, just, again, species by species the extent to which a particular -- typically we're talking about vegetation types and to what extent they are willing to move into and through a particular type of vegetation would constitute its permeability.

MR. PUBLICOVER: And why should we care if salamanders can get from one side of corridor to the other?

MALCOM HUNT: Do you want me to whack philosophical about the value of salamanders?

MR. PUBLICOVER: No, I want you to whack ecological about consequences of separating

salamanders on one side from the other.

MALCOM HUNTER: Okay. Well, it's not just a matter of losing cultural bonds or the -- the population connectivity is -- sorry, this gets into some fairly arcane stuff about metapopulations and things, but to try and keep it simple the populations need to be connected. They're -- the populations are divided into small subpopulations that are forever in danger of this disappearing and needing new genetic input and there is -- a population that is isolated is in danger of going extinct and staying extinct if it is not connected. The connectivity whether it's about population shifting the geographic range in response to climate change or avoiding genetic inbreeding or avoiding a shortage of males or females in a given population, there is a host of reasons why populations need to be connected and fragmentation works directly against that.

MR. PUBLICOVER: All right. Ms. Gilbreath brought up the point that there is it a cleared swath along the border and you said you've been in that swath. If I told you that swath was about 30 to 35 feet wide, would that be consistent --

MALCOM HUNTER: That's consistent with my memory, yes.

MR. PUBLICOVER: Okay. All right. Some of these questions you already addressed during your summary. All right. In your opinion, would the early successional habitat that would be permanently maintained in the new corridor result in an overall improvement to habitat quality in the region?

MALCOM HUNTER: No.

MR. PUBLICOVER: All right. In his pre-filed testimony CMP witness Mr. Mirabile states that the project will not disrupt or interfere with wildlife life cycles, do you agree with this conclusion?

MALCOM HUNTER: Definitely not.

MR. PUBLICOVER: All right. And I think we've addressed this, the Applicant contends that the fragmenting impacts of the corridor are no different than the fragmentation created by the existing pattern of timber management in the region, do you agree with that conclusion?

MALCOM HUNTER: No.

MR. PUBLICOVER: That's all for now. I may think of another one and come back, but now I'd like to move onto Mr. Cutco. I just want to make sure that people understand this exhibit which both you presented and I adopted as well. So the top slide

that the -- the green area represents the mixed temperate or the temperate mixed hardwood or temperate and mixed hardwood and mixed forest biome, correct?

ANDY CUTCO: Yes.

MR. PUBLICOVER: And could you describe what that is?

ANDY CUTCO: It's a certain forest type that has characteristic species and a map of all -- as it indicates a map of all extents across the globe. So it would be different than, for instance, the boreal forest or the tropical forest.

MR. PUBLICOVER: All right. And in the bottom slide the green represents the remaining large forest blocks within this biome, correct?

ANDY CUTCO: Yes.

MR. PUBLICOVER: All right. And do you know what the map -- what they considered large was?

ANDY CUTCO: Thousands of acres typically. So as you can see here, obviously we had some discussion about scale earlier in the day and clearly areas of even hundreds of acres wouldn't show up at a scale of this map, so I don't know the exact number, but it's thousands of acres.

MR. PUBLICOVER: All right. And within the

red line that represents our region, that's not a single forest block, is it, it's multiple forest blocks? I mean, if you zoomed in on this map would you see a separation created by Route 201?

ANDY CUTCO: Obviously it depends how you defined forest blocks, but, yes, you would likely see a separation by Route 201. Probably 201, probably 27, Route 6 and some of the traveled roads in the area, yes.

MR. PUBLICOVER: Okay. So they haven't been ignored in this analysis?

ANDY CUTCO: Correct.

MR. PUBLICOVER: Okay. In terms of the difference between the top and the bottom, what happened to all that green in the top slide?

ANDY CUTCO: Well, it's largely clearing of forest and development over the last several centuries. As you can imagine, there has been significant change in the landscape of the globe and that change is manifested in these maps.

MR. PUBLICOVER: Okay. And would it be fair to say that this biome lies where some of the most intensively settled portions of the globe are of the eastern United States, Europe, China, Japan?

ANDY CUTCO: Yes, I think that's a fair

statement.

MR. PUBLICOVER: Okay. Now, we've heard a lot about The Nature Conservancy's resilient and connective landscapes analysis and how do you define -- how did TNC define resilience?

ANDY CUTCO: In the context of ecological resilience it's defined as the capacity of a site to maintain species diversity and ecological function in a changing climate.

MR. PUBLICOVER: Okay. In the interest of time, I'm not going to ask you to go into details, but who was involved in developing that analysis?

ANDY CUTCO: The key architect of it was Dr. Mark Anderson who has been with the Conservancy for more than 20 years and he had input from Conservancy scientists and others all across the country.

MR. PUBLICOVER: All right. And has that analysis been peer reviewed?

ANDY CUTCO: The underlying concepts were published in the Journal of Conservation Biology in 2014, I believe.

MR. PUBLICOVER: Okay. Thank you. And as we've seen in both your exhibits and my exhibits, this region rates very highly in terms of climate change resilience. In Mr. Manahan's cross of

Ms. McMahon when he had the slide up showing resilient lands he asked where the highways were, do you recall that?

ANDY CUTCO: Yes, I guess.

MR. PUBLICOVER: Okay. Are roads and highways considered in that analysis?

ANDY CUTCO: Yes, they are.

MR. PUBLICOVER: All right. And how are they -- how are they considered?

ANDY CUTCO: Well, without -- I guess I could get into a lot of detail here, but in the 2016 publication that summarized the resilience analysis there were over 70 data layers that were involved. One of the data layers was a land use or land cover, basically what's -- what's occurring on the landscape. Every type of land cover was assigned a value from 1 to 20 in terms of resistance to wildlife movement, so a highly developed landscape would be a 20, highly resistant to wildlife movement, an intact mature forest land would be a 1. So roads, hay fields, forests, every type of conceivable development was assigned a number in that analysis.

MR. PUBLICOVER: All right. So and something like an interstate highway would be considered -- would have a higher number would be

considered to have a higher resistance than say a logging road?

ANDY CUTCO: Major roads were assigned a value of 20.

MR. PUBLICOVER: Okay. And were transmission lines considered in this analysis?

ANDY CUTCO: They were.

MR. PUBLICOVER: All right. And how were they considered to be in terms of the resilience to species movement?

ANDY CUTCO: The number on a scale of 1 to 20 is a -- is a 9 for a transmission line.

MR. PUBLICOVER: And so what would that be comparable to?

ANDY CUTCO: Well, so for comparison, as I mentioned, mature intact forest is a 1. The rating that is given for private industrial forest land in the United States is 3. So roughly three times the resistance of managed forest land.

MR. PUBLICOVER: Okay. And but what other features were sort of in that middle range with transmission lines?

ANDY CUTCO: There is something called developed medium intensity, baron land, non-natural, cultivated crops are actually given a 7, developed

open space, developed low intensity both 8 et cetera.

MR. PUBLICOVER: All right. I don't --

ANDY CUTCO: Pipelines and railroads, pipelines are also 9.

MR. PUBLICOVER: Okay. Thanks. I'd like to ask a few questions of Mr. Wood. In Mark Goodwin's rebuttal testimony starting on the bottom of Page 15 he cites the websites of the Habitat Network in support of the argument of that the corridor provides habitat benefits, are you familiar with this material in Mr. Goodwin's testimony?

BRIAN EMMERSON: Yes.

MR. PUBLICOVER: All right. And the Habitat Network is a partnership between TNC and the Cornell Lab of Ornithology, correct?

ROB WOOD: Correct.

MR. PUBLICOVER: Okay. Do you believe Mr. Goodwin has fully and accurately represented the material on the Habitat Network website regarding transmission corridors?

ROB WOOD: Not -- not fully. So there is the citation to an article on the website, one article on the website, and there are some bullet points underneath that are in terms of summarizing that article in his rebuttal testimony, but the --

the kind of lead in to that article that he references on the website, the Habitat Network, starts out utility corridors run the gauntlet traversing both the physical and the social landscape mile after mile and tower after tower. They distribute energy to cities and towns but also carve their path through the wilderness disconnecting habitats and disturbing the environment.

MR. PUBLICOVER: Okay. Thank you. That's all I have.

MS. MILLER: Thank you. I'm going to call for about a 10 minute break.

(Break.)

MS. MILLER: So we're going to go ahead and resume cross-examination of Group 6 witness panel. Right now, I think we are up to Groups 2 and 10.

MS. BENSINGER: And if I might just mention for the record that Group 7 has submitted a paper copy of its cross-examination Exhibit 1, so everybody should have a copy of that now. They, I assume, have been handing them out or they're handing them out now.

MS. BOEPPLE: Good morning. Elizabeth Boepple representing Groups 2 and 10. I really have very few questions for the panel. Fortunately, Dr.

Publicover covered the vast majority of it in the language that you all speak and I don't speak, so my questions are just a few and those go to your pre-filed testimony when all of you basically said that you are neither for nor against the project; is that correct?

ROB WOOD: Yes, that's correct.

MS. BOEPPLE: And that position seemed to be premised on certain conditions that you would accept as compensation and mitigation; is that correct?

MR. TURNER: Objection. I just want to -- I am wondering if there was a citation to --

MS. MILLER: Can you speak up? I can't hear you.

MR. TURNER: Phelps Turner spokesperson for Group 6. Before we go any further, I just was hoping to get a citation to the testimony so we know where we are because I believe that Ms. Boepple is referring to the last section of Page 1 the testimony says our position in this proceeding is neither for nor against a permit being issued, is that where we are?

MS. BOEPPLE: That is correct.

MR. TURNER: Okay. I just wanted to know -- so the witnesses know where we are.

MS. BOEPPLE: Yes.
MS. MILLER: Thank you for the clarification.
MS. BOEPPLE: And so I'll -- I'll be a little more specific. And in the conclusion sections of your testimony you set forth certain compensation and mitigation proposals; is that correct?
ROB WOOD: Correct.
MS. BOEPPLE: Okay. And so my question to you really is if those conditions or something similar to those were not part of what the Department imposes, would your -- and they decided to issue the permit, would your position still be neither for nor against the project?
ROB WOOD: So ultimately I think we need to see what is put forward as conditions, but if the question is if there are no additional conditions how would our position change. So I think we would say that the measures taken to avoid, minimize and compensate for impacts to habitat fragmentation are inadequate and so that's how we would -- that's how we would approach it.
MS. BOEPPLE: And that therefore -- okay. Thank you. Dr. Hunter, what would your position be?
MALCOM HUNTER: I would be against the

project speaking personally.

MS. BOEPPLE: And in your professional opinion?

MALCOM HUNTER: Yes.

MS. BOEPPLE: Thank you. No further questions.

MS. MILLER: Thank you. I don't think there is anyone here from Group 3, so Group 7.

MR. SMITH: Good morning. Ben Smith for Group 7. I promise I won't ask any questions about coyotes.

(Laughter.)

MR. SMITH: So I want to follow-up if I could on I think some comments that Mr. Emmerson had in response to questions from Dr. Publicover and he was asking you about resistance values and obviously you were talking about different values for different types of development. I think you said for like a major or road it would be a 20?

ANDY CUTCO: Yes. And it's Mr. Cutco not Mr. Emmerson.

MR. SMITH: I'm sorry. I apologize, Mr. Cutco.

ANDY CUTCO: No worries.

MR. SMITH: Transmission line you said would

be about a 9?
ANDY CUTCO: Yes.
MR. SMITH: And a pipeline would also be a 9, correct?
ANDY CUTCO: Yes.
MR. SMITH: And the reason a pipeline would be a 9 is that presumably because in order to make sure that that line remains reliable over time you don't have roots and what not growing into it, you allow for maintenance going forward, you'd have to clear some portion of a corridor above it?
ANDY CUTCO: I think the -- the ranking is that the corridor would be somewhat similar to a transmission line, yes.
MR. SMITH: And it would have to be maintained for whatever the duration of that line?
ANDY CUTCO: Yes.
MR. SMITH: Okay. And you -- have you been here throughout the hearings?
ANDY CUTCO: No, I have not.
MR. SMITH: Okay. Are you aware that there was testimony that if buried and if feasible to be buried that the NECEC would require a minimum of 75 feet cleared of the line if it were buried?
ANDY CUTCO: I have not been familiar with

the specifics on burial, no.

MR. SMITH: Okay. Well, I guess assuming that is the case, would you agree that even if the line were buried it would still maintain a value of 9?

ANDY CUTCO: I think there are a lot of questions about the specifics of burial and whether it's superficial or directionally drilled or bored and I am not prepared to make the qualification about a ranking of the impact based on the lack of information I have about the specifics.

MR. SMITH: Okay. Well, let me ask you this way, I guess assuming that it were going underground and there is some sort of area that would have to be cleared and maintained, would you agree that if that area and if that impact is the same as the transmission line that the buried approach would still have the same value?

MS. TOURANGEAU: Can I object that the pipelines that are being referenced in those documents are not necessarily buried?

MR. SMITH: Well, I guess -- I don't think Ms. Tourangeau is on the stand here and I don't -- I object to the speaking objection.

MS. BENSINGER: What is the nature of your

objection?

MS. TOURANGEAU: The objection is that he's crossing on something that was outside the scope of his direct and that the question that he's presenting is assuming that the pipelines that he's referencing in those materials that are outside the scope of the direct are buried when there has been no foundation or evidence to that effect.

MR. SMITH: I don't think it's outside the scope. I'm sorry.

MS. BENSINGER: I would recommend that the Presiding Officer allow the question to be clarified.

MS. MILLER: Yeah, I -- can you ask the question and be a little more clear on the assumption?

MR. SMITH: Yeah, I can try. I don't think I'll get it out the same way I get it out the last time. But what I think I'm getting at is even if you don't know the particulars of the NECEC and how it's going to be buried, all of the details, would you agree that if the line is to be buried there is going to be some impact, right?

ANDY CUTCO: Yes, I agree with that.

MR. SMITH: Okay. And if the portion of the land to be cleared is relatively comparable to the

portion or is significant compared to the portion of the clearing if it were actually over head that there would be maybe the same values assigned?

MR. TURNER: Just a point of clarification, Mr. Smith, I don't have an objection, but if you could clarify whether you're talking about undergrounding the entire line or parts thereof I think that could be helpful.

MR. SMITH: I'm talking just any portion that be underground.

ANDY CUTCO: Sure. If you took a specific cross-section and had a very similar clearing for a buried line as opposed to an overhead transmission line, I think the impacts on wildlife would be similar.

MR. SMITH: Okay. Thank you.

MS. MILLER: Okay. Thank you. I think we're now up to Department questions.

MR. BEYER: Thank you. Dr. Hunter, on Page 3 of your testimony you state there are no known examples of this kind of fragmentation which are comparable in Maine, can you explain that?

MALCOM HUNTER: Yes. In terms of a -- I was not aware of any power line of this -- with this scope and length both width and length of going

through an analogously intact landscape.

MR. BEYER: What about Bangor Hydro's 345 line down the Stud Mill Road or the Downeast Reliability Project, are they not comparable?

MALCOM HUNTER: That's probably the -- the closest analog. That -- I think there is a difference there in that that power line follows very close -- well, first of all, there are three things there now. There is a gas line, a power line and the Stud Mill Road. The Stud Mill Road is one of the major logging arteries in the -- in the state and has been since the '70s, so it's really not comparable to the Spencer Road, so in that sense it is rather different. It took -- they took advantage of that existing fragment feature and put the power line largely directly along it. There are some -- some deviations.

MR. BEYER: Wouldn't the Stud Mill Road be a far more fragmenting feature in the landscape than this would be and the associated infrastructure projects that are located next to it?

MALCOM HUNTER: Yes.

MR. BEYER: Okay. Mr. Wood, in your first -- on Page 9, first paragraph of your direct testimony, you state the Department and MDIF&W have

required compensation for mitigation -- compensation and mitigation for impacts which were not specifically required including cold water fisheries. Can you discuss why you think that, please?

ROB WOOD: Yeah. So it's my understanding -- so the, for example, the compensation for corridor fisheries, the 200,000 for culvert replacements, but that's not addressing the regulated resource under NRPA in the same way that addressing the Roaring Brook Mayfly or the spring salamander is addressing RTE species. Is this specifically for me or the entire panel?

MR. BEYER: Anyone can answer.

ROB WOOD: Okay.

BRIAN EMMERSON: This is Brian Emmerson. I would -- I would think we're also forgetting the fact that it's not specifically called out as significant wildlife habitat or -- and I don't think -- and I don't believe brook trout are rated as a rare, threatened or endangered species in the state, so that's where we're going.

MR. BEYER: Okay. Back to Dr. Hunter. There has been lots of testimony this week that there is an abundance of early successional forest in this part of the State of Maine. Is there particular

patches of mature forest that this project goes through that are particularly going to be particularly impacted; in other words, they're mature now and they will be removed?

MALCOM HUNTER: I am afraid I can't answer that -- that question. I was out of the country for most of the month of March and so I had limited time to prep for this.

MR. BEYER: Okay. In your summary you also said that this project would be the log on the camel's back. Would it break the camel's back?

MALCOM HUNTER: I anticipated that question. I did get a chance to listen to the live-stream and I have heard you ask the tipping point question of other people. It's an interesting and important question. One that I've thought a lot about in generic terms. I've actually written a paper about the interface between ecological tipping points and public environmental policy. The tipping points are incredibly important where they exist, but they are actually relatively uncommon. Most ecological responses are just nice long lines. There may be some bends in the line, but there aren't, you know, break points like that under most circumstances. The -- so in environmental policy it's really

important to think about those tipping points and avoid them obviously, but 9 times out of 10, 95 times out of 100 we're really just making arbitrary selections, arbitrary points along a -- on a continuum of impact and I -- honestly, I think that's what we're talking about here. The -- I don't honestly believe that, you know, half the populations of species in this region are going to go extinct if we cross some line. But back to my big log, I am saying that along that continuum of environmental impact that would shift us along there dramatically.

MR. BEYER: Nothing further. Thank you.

MR. BERGERON: I guess I'd like to hear from each of the panelists. Some of the lines of questioning yesterday relate to priorities of different types of mitigation techniques whether it's burying sections of the line in Segment 1, additional taperings, raising pole heights, certainly your Exhibit 7 of your direct testimony from TNC has a number of areas. Could you help prioritize those areas and describe whether that would be additional pole heights tapering or undergrounding?

ROB WOOD: So I'll pass it down the line in just a minute. I just -- I would start by saying that, you know, kind of on a principle level our core

priority would be to retain mature forest where it currently is and to allow for a mature forest growth. And so to the extent that mitigation techniques can allow for that so, for example, raising pole heights in areas and of course taking into consideration scenic impacts as well, but the fact that, you know, full mature forest canopy cover can be allowed under -- under the poles for Northern Spring Salamander and Roaring Brook Mayfly that's important also. Horizontal and directional drilling to allow for forest canopy to remain on the surface. Those -- those two would be the best in terms of allowing for full forest canopy cover.

And that -- I would say another point just to bring up is that we believe that tapering and wildlife travel corridors kind of as they've been proposed in the deer -- deer wintering area for Segment 1 that those techniques aren't mutually exclusive, so you could combine those as well as potentially raising pole heights enough to allow for vegetation that's high enough to -- to allow for movement of species like marten, but I would believe kind of the prioritization to some of my colleagues here, but I think on the principle kind of approach that the least impact on habitat connectivity would

be retaining mature forests, which could be achieved through a couple of those techniques.

BRIAN EMMERSON: Yeah, I can just add on. This is Brian Emmerson. I'll largely just echo what Mr. Wood just said, but just to emphasize the point that I think a lot of these measures can be done in combination with each other to create a really, you know, to create a better area of connectivity, so if this project were to be approved as is we would like to, you know, see some of those measures I think done in combination in multiple, you know, ideally along the whole corridor if possible, but in some select areas.

ANDY CUTCO: This is Andy Cutco. I'll speak to the, I guess, the spacial prioritization. We submitted a map indicating about nine different that we had identified as potentially important areas for connectivity. We did that based on our knowledge of riparian areas or streams, wetlands and land cover. As I listened to some of the testimony of Group 4, I recognize that a lot of the areas that were identified as priorities for stream crossing and brook trout habitat actually do align quite well with our priority areas for connectivity. However, that analysis, I think, could use a more robust discussion

particularly with IF&W. We would appreciate IF&W's input on additional important areas for connectivity and a greater review of ours.

And the other comment I would make is that a lot of this, I think, in terms the mitigation techniques the specifics can be site specific in terms of the specific -- the western part of Segment 1 in particular has a lot of topography, rugged mountains, valleys, and so I would think some analysis there would be useful to look at where pole heights -- raising pole heights and tapering and combining that with minimal visual impact could produce some positive results both in terms of wildlife and minimizing impacts on scenic character. Obviously, the scenic character is not something that we have expertise in, but we know that's a consideration that DEP is looking at as well. Anything for you, Malcom?

MALCOM HUNTER: Well, again, as I explained, I have not had the time to get into sort of the specific segment by segment issues here, but speaking generically as somebody who, frankly, instead of prepping for testifying today, I spent a half of the last four days listening to this live-stream here. I couldn't tear myself away. And the -- and I've heard

this issue come up repeatedly in terms of prioritization for mitigation and the alternatives and I am now hearing five alternatives, the burying the line, co-locate with the Spencer Road, raise pole height, taper vegetation and do whatever is proposed for the deer wintering areas, the corridors for deer movement and it strikes me that a number of those are combined, so there is probably at least a dozen different possibilities and some of those possibilities would make sense in different segments, et cetera, but the -- but at the end of the day, I begin to have enough understanding of the environmental mental impact and the real cost from independent sources of what it would take to undertake those and I think there is a lot of analysis and further information that's going to be needed to sort this out.

ANDY CUTCO: I'd like to make a, I guess, one more reflection on the mitigation that's been discussed. As we among our team have talked about the various proposals that have come forward, I am personally not convinced that even if a lot of these on-site mitigation techniques were implemented, I think we would still -- I think we would still have some potentially significant impacts from the

corridor and so I think the possibility of conserving additional land to offset those impacts where we could ensure contiguous mature forests were conserved in the region, I think is certainly an important and viable part of the mitigation package as well.

MR. BERGERON: Thank you.

MS. BENSINGER: I do have a few questions. Mr. Wood, you mentioned today and on Page 9 of your pre-filed direct testimony that your recommendation is to have the vegetation on the corridor tapered. Today in particular you testified that you recommended that the whole width of the 150 foot wide corridor not be cut initially and have the edges then grow back. Is it your understanding that CMP's proposal for the Coburn Mountain section is to cut the width of the 150 foot section and then let the edges grow back to a tapered look?

ROB WOOD: So I am not sure that that question is actually addressed in the application material, so I'm not sure that's in the record in the application materials or testimony. What I believe I heard this week and, you know, have heard from CMP is that the -- it would be possible for trees of the height limitations that they've discussed for a tapering scenario to be retained during the initial,

you know, construction if the project were to be permitted and so that would be, you know, really important, right, because as we've heard from others here today if you take down all of the vegetation currently in that corridor it will take quite some time for it to grow back and that would be problematic and so the idea that you can retain existing vegetation, you know, up to 35 feet high in certain segments, up to 25 feet high in other portions and up to 15 feet high as, you know, if the corridor were permitted and constructed that being able to leave that vegetation there to say it's helpful, but, again, I would, you know, say there are other techniques in addition to vegetative tapering that could retain, you know, a higher canopy.

MS. BENSINGER: In your testimony you reference the Bingham wind permit as required a v-shaped transmission corridor, v-shaped vegetation. It's been a while since I've looked at the Bingham wind permit, can you elaborate on how wide that transmission corridor is and what that v-shape vegetation would look like?

BRIAN EMMERSON: Yeah. I can -- I can take that. This is Brian Emmerson. That was -- so the Bingham one, that particular line was a generator

V-line that came from the wind turbines into the grids, so I believe it was a 115 kV line, I think. And from looking at the permits -- and I have a couple notes here if you give me just a second. I'm looking at the order that was issued by the -- by the Department, the -- it was that particular area that was within a deer wintering area, a mapped deer wintering area, and so I believe that was mitigation for impacts and so the line was cut in a v-style during clearing and they were left with I believe at least as far as what the order said and I didn't -- I haven't been on the ground to see how it came out in reality, but the order said they were going to leave a 21 foot wide section down the middle which they used for access during construction, but for the rest of the line it was the vegetation was then tapered outward and got gradually larger as you moved -- moved towards the edge.

MS. BENSINGER: And I'm not sure who on the panel would answer this, there has been a fair amount of discussion about travel corridors, wildlife travel corridors, can someone take a stab at explaining how -- how wide that would be in terms of as you go -- as you travel across the corridor if you were a wildlife -- if you were a deer or something, a fox,

how wide do you think those should be and how does that work when you get to the wire zone where you have to have scrub/shrub habitat vegetation?

ROB WOOD: I'll speak to that to the extent that I can and I'll pass it down just to say that in -- in my reading of the application materials and compensation plan, I haven't seen specific diagrams of what that would actually look like in practice and so I think it's an important point that all of these concepts, you know, should be elaborated on and looked at more closely and then, you know, if they were ever applied to be monitored pretty closely, but I would say that the -- so the idea is that closer to the poles where there is less sag the vegetation can grow higher and so they would allow 35 foot high vegetation near the poles and then where there is something you would wind up with scrub/shrub is my understanding. But I -- in terms of what would be necessary for species movement, I -- if that's part of the question I would like to defer to my colleagues.

MS. BENSINGER: Yes. Two things, one, so that makes sense that the travel corridor would be put near a pole so the vegetation could be a lot taller. So how wide would it be and one of the

reasons I'm asking that is we heard testimony, I think it was yesterday, about the concern about the effectiveness of a travel corridor due to blowdowns.

ROB WOOD: Correct. And I would -- so in terms of how wide it would be I would have to go back and look at the compensation plan again, but I -- I know the Applicant references a specific number of feet in total for deer travel corridors and so I suppose if you took that and divided it by -- that might include the portion where the line is drilled on either side of the Kennebec and so I'm not sure that it's actually identified exactly how wide that would be.

MS. BENSINGER: Excuse me, but my --

ROB WOOD: Yes.

MS. BENSINGEr: But my question is what would you recommend --

MR. WOOD: Oh, okay.

MS. BENSINGER: -- for the width? How wide should it be?

ROB WOOD: In order to avoid blowdown and allow for movement, um... I defer to --

MALCOM HUNTER: I don't think there is a right answer to this. And it's possible that somebody might have an answer for white-tailed deer,

but I would be inclined to respond generically and say the wider the better, the more species will be encompassed the wider the it is. But, again, it comes back to the absence of real thresholds in the ecological world. It's not like if it's is a hundred feet wide, everybody is going to go across it and if it's 80 feet wide nobody is going to cross it. The world doesn't work that neatly.

ROB WOOD: And may I -- so there was a question about the blowdowns too and so I think that's what we were getting at and maybe there is a more precise answer there. I don't have it, but in terms of what would be sufficient to -- okay. No.

MS. BENSINGER: Thank you.

ANDY CUTCO: Well, I mean, I can embellish on that a little bit. It's obviously site specific as so many of the things we've talked about are. It's going to depend on the forest type and the soils and the adjacent habitat, so it's -- unfortunately, there is no one size fits all answer here.

MS. MILLER: I just have one question. I think I heard you testify today about just as part of the compensation mitigation plan relating to things like culvert replacement that the dollar amount was insufficient and I think I heard that earlier in the

week as well and I'm wondering if TNC has a sense of what the need and the scope of that kind of work is in that area and what a better more appropriate amount might look like.

ROB WOOD: Okay. So we don't have anyone from a fresh water team here today, but I would say the scope of the need is substantial. We do work with private landowners on doing Stream Smart Culvert replacements on a regular basis as well as municipal culvert replacements and over the past decade plus we have partnered with the State of Maine to survey all of the stream crossings in Maine and I think we are almost done with that and so there is actually a tool -- a publicly accessible tool, the Stream Habitat Viewer that shows all of the public culvert crossings in -- or stream crossings -- road stream crossings in Maine where there are culverts or other road stream crossings. The private -- data for private lands is proprietary as was mentioned yesterday, but there are, you know, I don't know the exact number. I would say north of 2,000 at least public culvert replacements, I mean, culverts that we have identified and they are ranked in terms of whether they are an impediment to fish passage and how significant that impediment is and so there are

publicly available data to look at how many municipal culverts are there out there that have been identified as an impediment to fish passage. But I think the overarching point is that, you know, it requires a minimum of say 50,000 roughly to do a Stream Smart Culvert replacement on even a private road and for, you know, municipal culvert replacements it can be substantially more than that. And so, you know, I think we would argue that if there is going to be significant work done as mitigation for impacts that require habitat connectivity there would, you know, need to be significantly more amount of compensation. Do you want to add onto that?

BRIAN EMMERSON: Yeah, I'll add a little bit. I think I remember testimony from the first day way back on Monday where I was just watching on the live-stream, but I think that number of the 20 to 35 culverts that was included in the application I believe was I think, and correct me if I'm wrong, but that was based on, I think, a 20 inch culvert was what I heard -- I heard someone say in CMP's testimony. And from -- from our understanding that's -- that size culvert is not going to be large enough to pass the vast majority or to include the vast

majority of a 1.2 bankfull on a stream, so I think that may be where the number comes from. But, again, to echo Rob's point we think that number is not going to get to that -- that $200,000 will not get to that number of culverts. I think others have testified to that fact, too. But in terms of prioritization, as you said, I think I would offer that we certainly have the folks back in our office who could answer that question a little better if we needed follow-up there could be people who could -- would know that region in terms of streams that we could provide a little more information on that.

MR. BERGERON: Going back to these wildlife corridors, I'm trying to kind of wrap my head around what that would ultimately look like on the ground if that's something that the Department conditioned and I guess my question relates to a big metal pole in the middle of it. So obviously if the pole is roughly 100 feet tall with the wires up tall and then tapering down and in theory if there could be some length along the corridor, 100 feet, 200 feet, 500 feet whatever it might be, does anybody have a sense of what a big metal pole in the middle of that would do to impede any of the wildlife crossing in that area?

BRIAN EMMERSON: Yeah, and that's a good question and I think that we -- it does come down to the details of what those crossings are going to look like and I think that it gets to our -- I mean, from my understanding, you know, there will be, and I don't know the exact number, but there will be X amount of feet around that pole where that equipment needs to be, you know, a separate pole in the ground. And maybe even -- I haven't -- I'm not sure, but maybe even a travel corridor from pole to pole as the equipment moves down the line it would at least be initially cleared as it moves down the line and I think that speaks to the -- to the point that Mr. Cutco made a minute ago and that's why we still feel that regardless of the mitigation measures there is still going to be a habitat fragmentation impact sort of regardless even if -- even the use of these minimization measures they may, you know, make the situation incrementally better, but we do still feel that there is a need for additional, you know, land conservation to offset those particular impacts.

ANDY CUTCO: I would just add that I think another consideration is the types of habitats that wildlife are often using as corridors and I think the research shows that something like 85 percent of

furbearing species in Maine use wetlands and riparian systems at some point during their life cycle so, again, alignment a lot with the brook trout concepts that were presented earlier this week and the value of having riparian or wildlife movement corridors along riparian systems that also makes it a little bit challenging when you think about having a pole kind of right in the middle of that, so that's -- there is an issue there that obviously needs to be balanced about -- about pole location and sort of protecting the integrity of that travel corridor along with the riparian systems, trout streams, et cetera.

MR. BERGERON: Thank you.

MS. MILLER: Okay. Thank you. Any redirect?

MR. TURNER: Phelps Turner, Conservation Law Foundation. There have been some questions this morning for the panel about the impact of linear corridors including the U.S./Canadian border and various utility corridors including the Stud Mill Road corridor and my question goes to anybody on the panel, can you describe the Stud Mill Road corridor in terms of where it's located and in terms of connectivity and resiliency?

MALCOM HUNTER: Well, the corridor runs from the Bangor area over to the Canadian border. It was originally, I described earlier, a large sort of logging road artery that was put in in the '70s and, oh, boy, how long ago, 10 or 15 years ago, something in that area, the -- I think first came the gas pipeline and then the utility, the electric transmission line. It is unquestionably a very conspicuous feature. I used to know it well. I rarely go there anymore. It's not much fun to drive along the Stud Mill Road any longer because of the width of it and all of the infrastructure that is there. Have there been any studies of the impact of that on movements in wildlife? Not that I know. One can extrapolate that, you know, the wider the opening the more the impact and it has gone from quite wide to extremely wide, but what its impact has been, I don't -- I don't know.

MR. TURNER: And anybody else have any questions, or sorry, answers to that? Does -- is anybody on the panel aware of the studies of connectivity or resiliency in that area?

ROB WOOD: Well, if you're speaking to the -- where it all is kind of interconnected with landscapes...

MR. TURNER: Yes.

ROB WOOD: Do you -- can you speak to that, Andy?

ANDY CUTCO: Not off the top of my head. If we brought up a map I think we could all probably figure out where the Stud Mill Road is, but --

MS. MILLER: Can you speak into the mic, I'm sorry.

ANDY CUTCO: Yes, the question was am I familiar off the top of my head with the connected and resilient lands mapping in relation specifically to the Stud Mill Road and I said that's not embedded in my head. If we brought up the map, I'm sure we could try to figure out where the Stud Mill was, but I'm not sure if that's where you want to go or not.

MR. TURNER: Okay. Thanks. No further questions.

MS. MILLER: Any recross?

MS. GILBREATH: No, thank you.

MS. MILLER: Anyone else? Okay. So I think we are at the point where we are going to conclude. So I just want to say thank you all for your participation in this adjudicatory hearing. I really appreciate everybody's flexibility and willingness to repeat who you are throughout the process because it

really helps us keep names and groups straight for the transcript, so a very big thank you to all of you for that.

As you know, the hearing will not conclude today as it will continue on May 9 and that's going to be up in Bangor. After the hearing closes on May 9 no more evidence may be submitted by the parties, however, the parties do have the opportunity to submit closing briefs, proposed findings of fact and reply briefs. At this time, it is my understanding that the transcript will be ready in approximately 30 days and then for the portion we have on May 9 my understanding is that it will be ready about a week after that, so that will allow folks to have a chance to look at -- start looking at the transcript for this week just prior to the May 9 date.

Closing briefs will be due after the transcript has been provided to the parties. Typically we allow two weeks for closing briefs, but in this case due to the volume of information I'm thinking perhaps three weeks is more appropriate. As a reminder, with closing briefs you may submit proposed findings of facts. So I'd like to hear from all of the parties what your thoughts are on the timing of the closing briefs and the findings of

facts and we'll start with the Applicant on that.

MR. MANAHAN: Thank you. So we believe that we've had plenty of time to be able to and we will have time between now and May 9 to be able to analyze what's happened here at this hearing and pull together briefs and findings of fact, so we would request that all post-closing briefs and finding of facts be due no later than two weeks after the May 9 hearing date.

MS. MILLER: Okay. So I'm just going to clarify that it will be two weeks after everybody receives the transcript because I want -- I expect parties to have --

MR. MANAHAN: I'm sorry, I misspoke.

MS. MILLER: Okay.

MR. MANAHAN: Two weeks after the transcripts are available.

MS. MILLER: Okay. Thank you. Group 1.

MR. HAYNES: So it would be five weeks. We have three weeks for transcript and then two weeks after?

MS. MILLER: No, so the transcripts are going to be coming sort of at two different times. We're expecting the transcripts to be ready for this particular week just before May 9 and then after May

9 it will be another week before we get the transcripts from that particular day of the hearing, so after everybody receives all of the transcripts, which I think is going to be, what, about May 16 for sake of reference. That's what we're talking about. After everyone receives the transcripts, you know, what is the amount of time that you would need to have your closing briefs and findings of fact and I'm just suggesting --

MR. MANAHAN: Could I just --

MS. MILLER: -- I'm suggesting, you know, typically we do it in two weeks and I'm asking in this case if you think you'll need three weeks.

MR. MANAHAN: Could I just clarify what you just said, Ms. Miller? The transcripts for this whole week will actually be 30 days from now, so that will be available like a --

MS. MILLER: About May 6.

MR. MANAHAN: May 6 and then so May 9 plus a week and then, what, May --

MS. MILLER: About May 16.

MR. MANAHAN: May 16. Okay. So I guess I'm just trying to calculate how much time we'll have the transcripts for this week, so I guess my point being we'll only have one day of transcripts that would

be -- that we would only get two weeks prior to or whatever it is prior to the briefs being due is all I'm saying.

MS. BENSINGER: Also, the record does remain open for 10 days plus 7 days after the May 9 hearing for members of the public to submit comments, so the briefs should not be due definitely before that final closure.

MR. MANAHAN: Although public comments could be addressed in reply. We're going to have reply briefs, right, due maybe after the post-hearing briefs.

MS. BENSINGER: That -- so that's your -- that's your position, right?

MR. MANAHAN: That we could address public comments in the reply brief.

MS. BENSINGER: That's -- that's one idea. Let's hear from all parties.

MS. MILLER: Yeah, what I'm trying to do is solicit information from all parties to take under consideration. I'm not going to make a decision today, but I just want to hear, you know, what your positions would be, so I appreciate that. So I'm sorry, did I help clarify for you Group 1?

MR. HAYNES: I guess a date would be good

instead of so many weeks after. So we're looking at two submissions of briefs for this hearing and another one for the 9th?

MS. MILLER: No. So it's all the same hearing. It's just that for purposes of getting the transcript ready they are going to do it in two separate batches. So even though we have an extra day of the hearing on May 9, it's still part of the same proceeding, the same hearing, and so my -- my feeling was once all of the transcripts are in for the entire proceeding, which is both what we have for this week and the May 9 date that's when I start to look at how much longer do we provide everybody for a chance to put the closing briefs and findings of fact together and so my suggestion was two weeks or three weeks and so I just want to find out what your preference would be.

ROBERT HAYNES: Like June 1?

MS. BENSINGER: We -- we don't have an exact date when the transcript will be ready, so we -- we are just going to go with the amount of time you would like following when the transcript -- the last of the last transcript comes in, so what would be your preference? How much time do you need after?

ROBERT HAYNES: Let's go for three weeks

after the last information is available.

MS. MILLER: Thank you. I apologize this is so confusing. We have that wonky closing schedule and with an extra day of hearing and it gets a little confusing. How about Groups 2 and 10?

MS. BOEPPLE: So first of all, I'd like to clarify again. Elizabeth Boepple speaking, counsel to Groups 2 and 10. The briefs and the findings of facts and the proposed conclusions are related to all of the criteria; is that correct?

MS. MILLER: Yes.

MS. BOEPPLE: Okay. That's for the purpose of those who are unrepresented here to make sure they understand the scope of the brief. So other --

MR. MANAHAN: Can I just -- I'm sorry --

MS. BENSINGER: No, they would be related to the hearing criteria. The hearing criteria.

MS. BOEPPLE: Only.

MS. BENSINGER: Yes.

MS. BOEPPLE: So you won't be accepting any written brief related to the additional criteria?

MS. BENSINGER: Just -- you can submit comments into the record on that.

MS. BOEPPLE: Okay. Thank you for that clarification. Our position is that we'll need at

least three, at least three weeks and four weeks would be preferable after the final deadline whether that is receipt of the transcript or the close of the public comments after the May 9 date.

MS. MILLER: Thank you. Group 4.

MS. JOHNSON: We will be busy getting ready for the May 9 hearing, so we'll have no opportunity to look at the transcript before the May 9 hearing, so I think as a practical matter we would request four weeks after all of the information that is part of the record has closed and no more information is coming in. One of the things that has been very difficult about this process is that we think we know all of the information and then suddenly we get another 500 pages, so. And I am also a little bit unclear about the written comments whether -- so the -- I had assumed that we could address issues that are raised in the written comments in the briefs, if not, then the question is is there a rebuttal opportunity for written comments?

MS. BENSINGER: Members of the public -- this has been added to our process because the LUPC's rules requires that it has this wrinkle in its process, so members of the public are allowed to submit written comments for, I think, 10 days

following the hearing and then the members of the public are allowed to submit responsive written comments for 7 days after that. Certainly if those written comments address hearing topics, the parties are free to reference them, they're part of the record, in their briefs and proposed findings of facts.

MS. JOHNSON: Okay. So I would summarize by saying we would like four weeks after the last date that comments are being accepted, whatever that date ends up being. But I had a related question and since I have the mic I'll ask it. Written comments by the Intervenors and the Applicant, could you clarify what your thinking is about the schedules for those and whether there is an opportunity to respond to those written comments after the deadline? It's my understanding the deadline for those written comments by Intervenors and the Applicant are the close of hearing potentially or that's what it would have been.

MS. BENSINGER: That's correct and there is not an opportunity to respond to those.

MS. JOHNSON: Okay. Thank you for that clarification.

MS. BENSINGER: And those would be on

non-hearing topics.

MS. JOHNSON: Okay. Thank you for that clarification. Actually, one other clarification, I think you just said it, but I just want to be really clear, so the briefs and the findings of fact are only on the hearing testimony and not on the written comments put in by the Intervenors --

MS. BENSINGER: The hearing topics. They're on the hearing topics.

MS. JOHNSON: Hearing topics. Got it. Thank you.

MS. MILLER: Okay. Group 5. I don't think we have Group 5 here. Group 6.

MR. TURNER: We would respectfully suggest four weeks.

MS. MILLER: Group 7.

MR. SMITH: Ben Smith for Group 7, I think we could work in within any of the time frames that has been suggested.

MS. MILLER: Group 8.

MS. TOURANGEAU: I believe -- this is Joanna Tournageau for NextEra, also Group 8. I believe that there is still a motion pending on whether there is going to be additional engineering information that's submitted or witnesses that are called at the May 9

hearing. There is also new rebuttal testimony that is going to be coming in on April 19 and I wouldn't be surprised given how these proceedings have gone if there is additional mitigation compensation avoidance information that comes in, so it seems to me that a minimum of four weeks is going to be necessary given the volume of stuff that is as yet unknown for the May 9 hearing that hasn't been in front of us yet, so I would say a minimum of four weeks is necessary.

MS. BENSINGER: Thank you for that input.

MS. JOHNSON: Excuse me, can I just clarify? I had said four weeks from the written -- deadline for all of the written stuff. My assumption was that the transcripts would be available before that time. If the transcripts come in after the written comment deadline then it would be four weeks from the transcripts.

MS. BENSINGER: Okay. Thank you.

MS. JOHNSON: Thank you.

MS. TOURANGEAU: Can I ask a clarifying question too? I'm sorry, I meant to ask it a minute ago.

MS. MILLER: Yes.

MS. TOURANGEAU: This is Joanna Tourangeau again. You had said earlier just a moment ago that

the findings of fact could only be -- the draft findings of fact could only be on the hearing topics, is that accurate or would the draft findings --

MS. BENSINGER: We were thinking that the briefs and proposed findings of facts would be on the hearing topics only.

MS. TOURANGEAU: Okay.

MS. BENSINGER: So thank you all for that input. I just wanted to talk about the timing of the ruling on the motion. It was Groups 2 and 10, right, the motion requesting the CMP engineers present at the May 9 hearing to answer deferred questions. We are -- we have scheduled for 12:15 a consultation with our LUPC colleagues to discuss a ruling on that motion, so we will get a rule on that motion out as soon as possible. We also have to include Mr. Worcester, the Chair of the LUPC, so the scheduling is a little tricky, but I wanted you to know that we hadn't forgotten about it and we're working on getting a ruling on that. There was only one other document that I think we discussed trying to get submitted, which is pretty impressive given the length of the hearing. Usually there are all sorts of loose ends, but and that was the -- Jim will address that.

MR. BEYER: The -- in the Harris Dam relicensing it was the Indian Pond fish habitat restoration study plan. I have asked Kathy Howatt, our hydropower coordinator, to see if she can track that down in the file. We'll -- she obviously can't do it instantly and as soon as we find that we will make it available to the parties.

MS. BENSINGER: Thank you.

MS. JOHNSON: Excuse me.

MS. MILLER: Yes.

MS. JOHNSON: Mr. Reardon just informed me that he did some research on the availability of this document last night and he'd be happy to share that information with you now if you would like it.

MS. MILLER: Sure.

JEFF REARDON: So I searched the FERC record for what I could find for reports of that, but I've never used that interface. It is not an easy interface to look at 12 years worth of information from. And I found the beginning of the process and the end of the process and not some of the middle missing pieces. So there is a -- there was a desktop study and a field study. I found the study plan for the desktop study, the reports of the desktop study, some of the results but not the study plan for the

field study and then I found a final record after two restoration projects were completed about how those had performed after several years, so there are some missing pieces along the way. I'm happy to send you what I found. The good news is most of it was in PDF format. There was one file that was in a .tif which is way too large to email, but I could bring it to the Department on a thumb drive.

MR. MANAHAN: Could I just add -- this is Matt Manahan. To the extent that Mr. Reardon is proposing to submit an incomplete document, he hasn't been able to find the complete document in response to your question, Mr. Beyer, I would object to that admission of an incomplete document for the record. Thank you.

JEFF REARDON: If I may finish, I also this morning emailed Kyle Murphy, who was the Brookfield contact on the project. Kyle is on vacation this week, but he did get back to me and say much of this preceded his time at then FPL. He said he would look for it when he's back next week in his files, but he passed on that the person from whom he had inherited the files had not been a great filer.

MS. MILLER: Okay. I'm going to just interject here and say the Department is going to do

what it can to track this document down, whether that's Mr. Beyer working with Mr. Reardon or working with Ms. Howatt within the Department and then we'll share that with the parties.

MR. MANAHAN: Thank you.

MS. MILLER: Okay. Thank you all for your input on closing briefs. Clearly, we can't make a decision quite yet, but I do appreciate your input on that, so we will confirm a deadline for that once we're a little farther along in the process. I just wanted to let you know that you did have that opportunity and we were trying to get a sense from you from what your time needs are going to be.

Okay. So as I -- as we mentioned just to get into the record a little bit more clearly, written comments from the public, not parties, will be accepted by the Department and Commission for 10 days following the conclusion of the hearing, assuming the conclusion of the hearing is May 9 that would be May 20. For an additional 7 days, members of the public, not parties, may file statements in rebuttal to those comments received in the above 10 day window, again, assuming the closing of the hearing is May 9 that would put those comments -- that comment deadline at May 27. Comments that do

not meet this criteria will not become part of the record. So written comments from the public should be sent to the Maine Department of Environmental Protection to Mr. Jim Beyer or the Land Use Planning Commission to Mr. Bill Hinkel. At any -- at this point, does anyone have any other questions?

MS. TOURANGEAU: My question is on scheduling for May 9 and so I don't want to ask this if it's better for me to talk to Peggy separately about the availability of Mr. Russo for that hearing.

MS. MILLER: Okay. I think we can have -- I can have you talk with Ms. Bensinger about that off-line. Any other questions? Okay. If not, then I'm going to officially close for this week's portion of the hearing and we will resume again on May 9. Thank you.

(Hearing continued at 12:00 p.m.)

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CELL PHONE VOICEMAIL LEFT FOR MR. BEYER

Yeah, I'm a voter in Maine and I would like to know if you are going to let the CMP corridor pay you off to let it go through. Seeing as how corrupt this government is even in the State of Maine. I would like to know if you're getting paid-off also as Janet Mills was paid-off before she even got into office and I am sure she will be investigated. She's corrupt and she should not be in office. I am sick of this corrupt government. I'm so tired of it, but I'm never going to waste my time by voting again because it doesn't do any good. This government is more corrupt than North Korea and Russia put together. I'm tired of white people having the privilege of doing whatever they want. Have a nice day.

C E R T I F I C A T E

I, Robin J. Dostie, a Court Reporter and Notary Public within and for the State of Maine, do hereby certify that the foregoing is a true and accurate transcript of the proceedings as taken by me by means of stenograph,

and I have signed:

_/s/ Robin J. Dostie_____

Court Reporter/Notary Public

My Commission Expires: February 6, 2026

DATED: May 5, 2019