IN RE:  SEC DOCKET NO. 2015-06
Joint Application of Northern Pass Transmission, LLC, and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility. (Hearing on the merits)

PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:

Chrmn. Martin P. Honigberg  Public Utilities Comm. (Presiding as Presiding Officer)
Dir. Craig Wright, Designee Dept. of Environ. Serv.
Christopher Way, Designee Dept. of Resources & Economic Development
William Oldenburg, Designee Dept. of Transportation
Patricia Weathersby  Public Member

ALSO PRESENT FOR THE SEC:

Michael J. Iacopino, Esq., Counsel for SEC (Brennan, Caron, Lenehan & Iacopino)
Pamela G. Monroe, SEC Administrator

(No Appearances Taken)

COURT REPORTER: Steven E. Patnaude, LCR No. 052
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CHAIRMAN HONIGBERG: All right. Good morning everyone. We're going to be resuming and finishing the questioning of Ms. Frayer this morning, before we move onto the next panel.

I think we're going to return to Commissioner Bailey right now.

(Continuation of the testimony of Julia Frayer.)

CMSR. BAILEY: Thank you. Good morning, Ms. Frayer.

WITNESS FRAYER: Good morning.

CMSR. BAILEY: I want to follow up on some line of questioning that the Chairman began yesterday in follow-up to my questions.

WITNESS FRAYER: Yes.

BY CMSR. BAILEY:

Q. Assume with me that the New England Clean Power Link, the TDI line, wins the RFP in Massachusetts. Would the savings in the energy market and the capacity market be about the same as if -- as you predicted would occur if Northern Pass wins, or, if Northern Pass gets
built and --

A. The savings as a consequence of the New England Clean Power Link?

Q. Yes. Like New England Clean Power Link wins, Northern Pass doesn't get built, isn't the savings going to be in the same ballpark?

A. I have not specifically studied the New England Clean Power Link, per se. But, if it were projectwise, in terms of its characteristics, like -- like for like with Northern Pass, I would agree with the conclusions you're making that the savings should be the same.

We do know, though, that it's a little bit different, in terms of -- and I should restate. Let me step back. In terms of its electricity markets impact, electrically, from a transmission system perspective, it's very similar. And I -- but I recall reading in its Vermont application that they had assumed only a 500 megawatt CSO. I don't know the details behind that.

Q. Okay.

A. So, as long as we assume it's a thousand megawatt CSO, as we're assuming for Northern
Pass. As long as we assume also that, in terms of energy flows, we had made a more conservative assumption. Again, and I believe in their Vermont application, they had assumed a much higher capacity factor on the line for energy flows than what we have.

But, assuming they're the same, I think the conclusion one would have to draw is that the electricity -- wholesale electricity market benefits would be the same. Of course, the local economics would not be the same.

Q. Yes.

A. Very different construction projects, locations, different local economies. Vermont and New Hampshire are very different, in terms of their ability to handle this type of project.

Q. Yes.

MR. IACOPINO: What is a "CSO"?

CMSR. BAILEY: Capacity Supply Obligation.

MR. IACOPINO: Capacity Supply Obligation.

WITNESS FRAYER: Good job.
CMSR. BAILEY: All right. Maybe we shouldn't talk in acronyms.

BY CMSR. BAILEY:

Q. All right. Do you have an active copy of the ORT -- the worksheet that the internal Market Monitor might use or would use to calculate the Offer Review Trigger price?

A. Yes.

Q. Okay. And that's the price by which you would have to -- the price that you would have to meet in order to clear the market -- well, why don't you tell me, so that the record is clearer.

A. So, the minimum offer price offer is developed in a workbook that ISO-New England actually puts out. This is the workbook we're talking about. So, ISO-New England publishes a workbook with fields that a project sponsor fills in. And, once all the fields are populated, it itself calculates, at the bottom of the workbook, FCM minimum offer floor price, in dollars per kW per month, which is representing the true economic costs of the project and what the project would have to bid
into the market in order to recover and earn a reasonable return on all those costs. And that cost will then be binding on that project and the sponsor in the next FCA. It will, if, as the auction moves from round to round and prices get lower, if the prices move to a point where they are lower, and the ISO is one that actually sets those round prices, once the ISO moves to the next round, and in that round of prices are lower than this FCM minimum offer floor price, then that project is removed from the supply, and it can no longer participate. So, it will not clear.

Q. Right. And, if that happens and it doesn't clear, there's no savings from the capacity market?

A. From this Project, yes.

Q. Okay. All right. Now, yesterday --

A. Well, actually, let me step back. There is no savings that year.

Q. Right.

A. The Project can actually reapply with the --

[Continued by the witness:]

[SEC 2015-06] [Day 16/Morning Session ONLY] {06-14-17}
A. The Project can reapply with the MOPR, M-O-P-R, in the next Forward Capacity Auction. And, if the next Forward Capacity Auction has a higher price than the MOPR, the Project will clear. So, then, there's a loss of one year's of capacity benefits. Or, not even a loss, it's more of a timing, a shift.

BY CMSR. BAILEY:

Q. Okay. And, just so the record is clear, the MOPR, the "Minimum Offer Price Rule", is the rule that establishes the Offer Review Trigger Price. So, the price that this worksheet is calculating is the Offer Review Trigger price, right?

A. I always -- so, this worksheet is actually calculating a project's -- a project-specific offer floor price.

Q. Right.

A. The concept of "ORTP", I usually use it more as a way to, when I explain it to clients, is that the ISO also, in advance of each auction, establishes those ORTP values generically for specific technologies, and that determines whether they then need to -- that determines

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whether a new entrant in a particular class of technology needs to go in and submit then this worksheet.

Q. Okay. So, if the ORTP that the ISO sets is higher than the cost that you believe is the true cost, then you can use this worksheet to convince the Market Monitor that your price -- your minimum price should be lower?

A. Exactly.

Q. Okay. Thank you. All right. So, yesterday we talked about opportunity costs, and that's the cost of the supply that you would not -- the second best alternative to investing in Northern Pass and selling the energy into the New England market, and, according to your analysis, that was the Ontario off-peak price, right?

A. Yes.

Q. Okay. So, and in the spreadsheet or in this workbook, I had said yesterday that I thought that that was input in the variable O&M block, and you said that variable O&M was operation and maintenance costs of maintaining and operating the Northern Pass Transmission line.
Do you remember that?

A. Yes.

Q. Okay. So, can you look in the spreadsheet, and I'm going to try to do this in the public record, in the "Project Inputs" tab?

A. Yes. And one should, in the "Project Inputs" Tab, one would go to Line 110 --

Q. Well, no. Wait a minute.

A. Oh.

Q. I don't want to go to 110 yet.

A. Okay.

Q. I want to go to Line 66, "Variable O&M". And then click on that dollar figure that's there, and look at the formula.

A. Yup.

Q. And where does that lead you? Well, I can't say it -- well, it leads you to Line 110.

A. Yes.

Q. Which is the cost of the Ontario energy. So, the variable O&M is where you input the opportunity cost, the supply cost?

A. The variable O&M in the financials, but there's a line item for it. So, I apologize. I mistook what you were saying. So, there's a
line item in our model. We're not burying it in the variable O&M. 110 specifies those opportunity costs.

Q. Right. But --
A. From our -- as an input from our perspective.
Q. Okay.
A. And, then, in terms of the DCF, Discounted Cash Flow calculations, that gets then aggregated in on the cost side. So, it's not a revenue line item, it's a cost side. And I think, though, it gets brought in, as you said, on the cost side in --
Q. Variable O&M?
A. -- under operating costs and variable O&M.
Q. Yes. And that's the cost -- that's the opportunity cost or the proxy for the cost of the supply, since you're not building a new dam?
A. Yes.
Q. Okay. So, assuming that the TDI line was a viable option, wouldn't that opportunity cost be the TDI line cost?
A. I don't believe that the IMM would be -- so, let's step back, and let's talk about where I
think the opportunity cost could be used in consideration of your hypothetical.

If, continuing the hypothetical you started, if the Massachusetts RFP is awarded to TDI, and TDI then gets a Forward Capacity Auction commitment. Let's say it's not even yet built. It's getting constructed. It's got the commitment, it's got the contract, it's getting constructed. And, then, Northern Pass comes in in the next Forward Capacity Auction, in that case, because there's already a commitment that the ISO can rely on for New England Clean Power Link, I then think they might consider that as the best alternative.

But they would not consider it as the best alternative today for HQ, because it's not a commercially realistic alternative today for the shipper, for Hydro-Quebec.

Q. If TDI won the Massachusetts RFP, and Northern Pass wasn't built yet, and didn't get a capacity supply obligation in the next auction, would the Market Monitor perhaps use the opportunity cost of Northern Pass in its calculation for the TDI minimum offer price?
A. I don't believe they would.

Q. Okay.

A. And, if I can extend the hypothetical a little bit further, let's say that, again, the TDI, with their New England Clean Power Link, hypothetically won the Massachusetts RFP, they cleared the Forward Capacity Auction. They've started construction, they built it. Energy is flowing on it. So, some time has past. Northern Pass then comes and says "I want to participate" at that time, and says "Here is our MOPR analysis." When they are at that point submitting their MOPR analysis, the sponsor, Hydro-Quebec, would need to again look very critically at its opportunity cost. Because, at that point, they can't use Northern -- TDI, because TDI is already fully loaded.

Q. Right.

A. There is no more room. So, again, they have to go back and think "Okay, but for the project that I'm trying to evaluate right now, what are my opportunities, subject to the limits of the transmission system, to flow energy?" And they
might go right back to square one, that "I do have opportunities", but it will be off peak, maybe sending to a less -- a lower price market, like Upstate New York or Ontario.

Q. So, what you're saying is that any of these projects would never use opportunity cost of another possible project, because it's not really possible yet?

A. It's not commercially realistic. Once it becomes commercially realistic, I think it's very plausible that it would be part of the discussion with the internal Market Monitor.

Q. Except if it's already filled, then there's no --

A. But, if it's filled, then it's no longer -- exactly.

Q. There's no transmission capacity available. Okay. All right.

If Northern Pass were granted a certificate, with a condition that it can only go forward if it receives a capacity supply obligation in the capacity market, without the substitution auction, what would the ramifications to your clients be of that
condition?

A. I can't speak for Eversource or Northern Pass specifically, or, for that matter, for Hydro-Quebec, what we believe to be the shipper on the Project. But, I think, from my perspective, if I was maybe in their shoes, and I'm not, --

Q. Okay.

A. -- I would say that, well, it is my business intent to sell capacity, and because the economics of just selling energy aren't very, let's say, aren't as convincing, because there's a lot of revenues to be made from selling capacity, and actually I have the capacity to sell that would otherwise literally be valueless. Because one other element of this, of course, is on the opportunity cost, we put in opportunity costs for energy sales. Hydro-Quebec today has no alternative channels for monetizing the value of its capacity. It can't sell capacity into Upstate New York or into Ontario. There are no capacity -- in Ontario, there's no capacity market. And, in Upstate New York, they don't have CRIS
rights --

[Court reporter interruption.]

WITNESS FRAYER: Oh, sorry. It's an acronym.

CONTINUED BY THE WITNESS:

A. They don't have -- New York-ISO requires capacity rights to sell capacity. And capacity rights on the interties was essentially auctioned off a very long time ago. Sometimes they become available, but Hydro-Quebec doesn't own capacity rights on a year-round basis to sell capacity into Upstate New York. And their other market opportunities, New Brunswick, again, no capacity market.

So, for them, there is -- they have a resource that has capacity value. They can't monetize it but for a project like this.

So, just a long-winded way of responding to your answer, I think that they are very much aligned with a view that they need to be -- they need to have an economic project that can take advantage of the ISO-New England capacity market, provide value to ISO and to consumers, in terms of reliability, but also monetize a
value for themselves.

BY CMSR. BAILEY:

Q. But, as a Committee member, I want to be really sure that the savings that you're projecting are robust. And, so, one way to do that would be to make a condition that they have to clear the capacity market.

A. And I appreciate that. I don't know what the legal ramifications of that is. It's probably above my expertise and --

Q. I'm not asking you for a legal opinion.

A. Okay.

Q. I'm asking you for an opinion as an advisor to the client, with all your knowledge, and you're really sure that this is going to clear the capacity market, so that condition wouldn't be a problem?

A. I am highly confident that it should clear the capacity market. And I think there, as alignment with the Project about the value of those capacity -- they're interested in clearing the capacity market, not -- for their own economic rationale, not because of the benefits that are created for consumers.
I just can't anticipate right now, sitting here today, off the cuff, if there are other ramifications of that type of condition. I suspect that everybody needs to think through it and make sure that it doesn't create unintended --

Q. Right.

A. -- and negative consequences.

Q. Do you think that they would build it if they didn't have a capacity supply obligation? Would it make sense?

A. I think they would say that they could be -- they'd be open to evaluating all commercial opportunities. I think that's what they would say.

Q. Okay.

A. And that's a little bit of a no answer to your question. Personally, I think that the capacity revenues are a large element of this Project. On a dollar basis, of course, energy revenues are bigger than the capacity revenues that a shipper would be making. But they're still significant dollars, and we discussed how big those dollars are in my Rebuttal Report.
CMSR. BAILEY: Right. Okay. Thank you.

CHAIRMAN HONIGBERG: Ms. Weathersby, I think, has a few more questions as well.

MS. WEATHERSBY: Good morning,

Ms. Frayer.

WITNESS FRAYER: Good morning.

MS. WEATHERSBY: Welcome back. The danger of giving us more time is we think of more questions.

BY MS. WEATHERSBY:

Q. Mine concerns back on jobs. It's my understanding that the national unemployment is now around 4.2 percent, and New Hampshire is below 3.

MS. WEATHERSBY: I'm sure Mr. Way could tell me exactly what it is?

MR. WAY: 2.9.

MS. WEATHERSBY: 2.9.

BY MS. WEATHERSBY:

Q. So, I'm wondering, this job -- the Project is anticipating creating a lot of jobs. Are those jobs -- does New Hampshire need those jobs?

A. Even with -- even as New Hampshire seems to be
in an envious position of generally low
unemployment rates, relative to perhaps other
parts of the U.S. economy, or even
internationally, I think, to the individual who
gets the job, those jobs are gold. And I think
New Hampshire does, in that perspective, need
to take into account the point of view of the
individual and the jobs that are created.

To the more macro question you're asking,
given the fact our unemployment -- and maybe
you're not even asking this, I'm sorry. But,
given our unemployment rate is so low, do we
have the bandwidth to create the jobs? And the
answer to that is "yes". These are New
Hampshire -- when we -- actually, I should
probably even take the opportunity to kind of
clarify on the discussion yesterday we had.
When New Hampshire -- when the client told me
that "these number of jobs I expect to source
from New Hampshire", they didn't simply mean
that the jobs themselves would be located in
New Hampshire. They were looking to give
preference to New Hampshire residents. And my
understanding is that that's part of their PLA,
the labor agreement that they have. And my understanding is, even the national -- international firm that's won the EPC, is going to be subject to that PLA, and that they will be using local offices -- local people living in New Hampshire today for those jobs in New Hampshire.

So, I think it is important. We're not talking about eliminating the unemployment rate to zero, but it is contributing to those individuals that will get this opportunity.

Q. So, you partially answered my next question, is that -- that is whether or not we think there's an adequate supply of workers, you know, even if New Hampshire residents are given first priority, etcetera, are those workers out there to fill this, to fill the need?

A. And I believe that was exactly the question that was before us when we were initially talking to Eversource about the data that we would need in order to do these estimates. The labor spending, we wanted to be realistic to the labor markets here in New Hampshire.

So, for example, I agree that there might
be very specific technical jobs, splicing of
cable I think came up on the construction
panel, that will not be sourced in New
Hampshire. We were realistic about that. But
there are many other jobs that are necessary
during the installation and construction of the
Project that can be sourced from New Hampshire,
and that New Hampshire workers will be given a
preference, as my understanding of the PLA. I
might not be using the exact words, but that's
my interpretation.

Q. So, your answer to my question is that you feel
as though there's enough New Hampshire workers
to meet the demand of this Project?

A. Yes. And, in fact, the REMI model helps us
also gauge that. Because I have done similar
analysis in other states, where the REMI model
basically said "No, we can't fill it. So,
you're asking me to spend this much in this
sector of our state economy, and I don't have
labor to fulfill that need." So, the REMI PI+
model is also kind of a sanity check on those
inputs. It didn't tell us that it's -- it's
basically then dragging in jobs from
neighboring states because it can't fulfill that demand for labor within New Hampshire, for those sectors that were affected.

Q. Does your answer change when you take into account the number of other transmission line projects that are underway or scheduled to go? Merrimack Valley, Seacoast Reliability, perhaps the TDI, which I know isn't a reliability project, but if the -- the New England Power Link goes. Are there sufficient workers in New England, or even nationally, that can come and, I guess, New England for the not highly specific jobs, but even nationally, are there enough folks that can, you know, do the HDD drilling for three, four or more projects just in this region, never mind what else is going on in the country?

A. So, let me speak a little bit to that. We -- I think the term I like to use to the issues you're raising is "supply chain pressures", where the entity, Northern Pass, is trying to hire workers and is competing with other projects. I don't think that will be an issue, relative to some of the ongoing
reliability/transmission-related work, at all. In fact, I think it's actually a positive, because most of that work, timingwise, has -- some of that work, because it's been more ongoing, there are other transmission projects, reliability transmission projects in the region that have been completed. That has actually created some of the more trained employment for this Project. So, it's actually a positive, that we've had that build-out in other states in New England and in this state.

I think, in terms of competition with other projects, frankly, I don't think there's a lot of direct overlay with the TDI/NECPL Project. That's an underwater project, and very much so, the skill set for that underwater cable-laying that's not here in the region. There is some undergrounding, just like there is in Northern Pass as well. But I think that there shouldn't be a crunch on the labor market from having, let's say, two projects over the same time frame, when we look at it on a regional basis.

Q. Do you anticipate then any effects on the
Project regarding perhaps project scheduling, in that maybe there -- it may take a while to find enough qualified workers, or will they have to pay more for the workers, and therefore affects project budget, due to the low unemployment?

A. I'm not an expert on their construction costing. But my understanding is that, unlike perhaps traditional utility projects that were kind of built with utility -- direct labor or contracted labor through the utility, I think that the budget here is more contained, because of the presence of the EPC, which is the more -- the more common way of doing it.

I think, also, on the flip side, to the extent that there is more labor spending spent in New Hampshire, that's a benefit to New Hampshire. Because it's more dollars in the pockets of New Hampshire residents to spend on other goods and services in the region.

Q. But it can also affect project viability?

A. At the margin -- oh, I shouldn't say the word "margin". At a certain point, I would definitely agree it could. But I think there
are controls in place in their agreements for
the construction of this Project that hopefully
would prevent that.

MS. WEATHERSBY: Okay. Thank you.

Nothing further.

CHAIRMAN HONIGBERG: Mr. Way.

MR. WAY: So, I just -- Ms. Frayer,

thank you. And I just want to follow up a
little bit on what Ms. Weathersby said.

BY MR. WAY:

Q. So, in terms of the REMI model, you seem to
suggest that that REMI model takes into account
the skill set that we have here in the state.

Is that what I heard?

A. The skill set and the labor pool by sector that
we have in this state. Yes.

Q. The labor pool. And that data comes from,
because we were talking yesterday about whether
state data was used, so that would make it --
that would say to me that state data was used
in the REMI model?

A. That's my understanding, yes. I'm still
checking on your more local data use question.

But my understanding is that it is reflective
of the differences between the state economies. And, again, I've run into this issue where I've put perhaps the same project, in terms of labor spending, in another state and it has a different impact.

Q. All right.

A. And because of the lack of resources, local resources.

Q. Is it also the understanding that, when we look at the state as a whole, as a labor pool for this Project, versus, as Mr. Oldenburg said, if they came from Texas, and they brought their own specialized people, it's assumed that they're going to come here, they will stay in local establishments and vouchers and all that. But, for the state pool, let's say I'm in Keene, and I'm traveling up to Berlin, is it assumed that I'm going to move temporarily up to Berlin? Or is it I'm going to commute or --

A. I don't think the model is at the level of detail that it provides that granularity regarding decisions on commuting within the state or temporarily moving within the state. And I, frankly, don't know what the specific
plans might be as part of the construction, to
accommodate the construction crews.

Q. And because that's somewhat of an important
point, because we have an idea of how far
people will commute to a job under lots of
circumstances. And, if you get past a point,
they won't take that job. Even though it may
seem very lucrative, they just can't afford to
do the distance, unless they're living right
there in the vicinity.

So, once again, that would be the regional
concern. How far from the footprint of the
Project do you have the skill set and the
people available to be able to accommodate that
Project?

A. I will -- I understand your question, and I
will have to take it away. But my
understanding is the granularity of the model
isn't that specific. Because, again, the
analysis is being done on a state level.

Q. Okay.

A. But I will take it away and think about it.
And, if I can come back with more details, I
will definitely do so, as part of our record
requests from yesterday.

MR. WAY: Thank you.

CHAIRMAN HONIGBERG: Mr. Oldenburg.

MR. OLDENBURG: Thank you. I think

it was said, you give us more time, we come up

with more questions.

BY MR. OLDENBURG:

Q. When Mr. Quinlan was up testifying, I asked him

a question, and I'd like to repeat it, because

you're probably the better person to answer the

question. And, at that time we called them

"ancillary jobs", jobs that would be created to

support the Project. Now, I think the term you

used is "indirect jobs". Not -- and

understanding the fact that all these

specialized people probably won't be hired from

the New Hampshire workforce, but the ancillary

jobs, the ones -- so, the people that might

supply security or the porta potties or the

hotels or, you know, the waitstaff at the local

restaurants.

And, previously, we talked about the range

that people -- that the crews are going to be.

So, you're in Colebrook, and you're supplying
porta potties for the Project, there's only
going to be, and you have, say, a range, I
don't know what a range of a porta potty
supplier is, 30, 40 miles maybe. So, that work
takes a certain time that you're in the area.

And, so, maybe the crews are only in that
area and need those porta potties for three
months. Does that company hire a person to
supply the porta potties or do they just say
"It's so short-term, I don't want to have to
hire somebody. They might need a CDL license,
because of the vehicle they drive. I got to
train them, I've got to do this. I'm just
going to suck it up and I'm going to work nine
hours a day, instead of eight hours, for the
three months. I'll take the money, sure. But
I'm not going to hire somebody to do that. I'm
just going to -- I'll just work with the staff
I have."

Is there any of that? Like we said, the
work -- the pool of people is sort of low, and
the incentive might not be there to go through
the hassle of hiring somebody temporarily for
three months.
A. So, if you -- I appreciate that there are probably businesses that do need to make those types of, I would say, very difficult decisions, kind of lay out the options.

I think, in terms of the modeling and the predictions, the model has some flexibility, because it doesn't need to assume right away, when you're hiring somebody, you're hiring somebody full time. So, the model has probably a little bit more flexibility in thinking about those jobs than what a business has to practically go through in making that decision.

That said, let's think about the alternative. Let's say that the model predicted there would be an additional part-time job made, but that business decided "No additional part-time job. I'm going to work more, I'm going to collect more profits."

Those profits eventually also help the economy. So, although the model didn't model it as a profit, didn't capture -- assumed there would be a part-time job or predicted a part-time job, it didn't capture then the additional profits that are pocketed by the local business.
owner, that local business owner, with that additional money in his pocket or her pocket, would be able to go and spend on other goods and services.

So, I think what the trade-off is is actually between indirect and induced jobs in the modeling, where we may have maybe more indirect jobs, but what you're suggesting is less indirect jobs, but then more induced jobs.

Q. Okay.

A. So, on a total job basis, I really still think that the estimates are quite pragmatic, and reasonable, given the scale and scope of the investment required here.

MR. OLDENBURG: Thank you.

CHAIRMAN HONIGBERG: I believe that's it.

Mr. Needleman, do you have any further questions for your witness? It appears that you do.

MR. PAPPAS: Mr. Chairman?

CHAIRMAN HONIGBERG: Mr. Pappas.

MR. PAPPAS: Before Mr. Needleman begins, I'd request that the witness identify
the website that she and Commissioner Bailey
were referring to, so the record is complete.
Because they were referring to a website --

MR. ROTH: A spreadsheet.

MR. PAPPAS: A spreadsheet, I'm
sorry, a spreadsheet from -- I believe from a
website.

CMSR. BAILEY: It's an exhibit. It's
the Applicant's Exhibit 140 - confidential.
Sorry. I meant to put that on the record, but
thank you for --

MR. PAPPAS: Thank you.

CHAIRMAN HONIGBERG: Mr. Needleman,
you may proceed.

MR. NEEDLEMAN: Thank you. Yesterday
afternoon, Chairman, you were asking Ms. Frayer
about other examples of 40-year amortization
schedules, and she talked about several
eamples in the New York-ISO market. We have
exhibits that we will submit, which she
referenced yesterday. And those will be
Exhibit 165, Applicant 165, and we'll direct
people to the specific pages in there of those
eamples.
And, then, Mr. Iacopino also asked Ms. Frayer yesterday about links for exhibits that she was relying on with respect to her statement about the availability or lack of availability of room on the Phase 2 line. We will submit links to the ISO website. And, in addition, Ms. Frayer has reminded me that, in her October 2015 Report, at Page 34, Footnote 29, there's also relevant information about that issue.

**REDIRECT EXAMINATION**

**BY MR. NEEDLEMAN:**

Q. Ms. Frayer, I want to call up a couple of exhibits, and I want to start with some questions that Mr. Baker and Ms. Birchard were asking you yesterday about press releases. And we'll start with Mr. Baker.

He referred to the March 8th press release, and suggested, in going through that with you, that there is some question about whether HQ is committed to paying for the Project in the United States. This was the subject of substantial testimony from Mr. Ausere.
And I want to direct your attention to Applicant's Exhibit 83, which is a later press release that deals with this same topic. And ask you if there is information in this release relevant to the responses that you were giving yesterday?

A. I believe so. I think that this exhibit categorically refutes the presumption that somehow the agreement between Northern Pass and an affiliate of Hydro-Quebec has now been terminated and canceled. If you go to the fifth paragraph, and the last sentence, really, it says "The Transmission Service Agreement would" -- sorry. "The Transmission Service Agreement...remains in effect today", and "will be amended and supplemented to reflect the outcome of the Massachusetts solicitation".

And I think, even more generally throughout this press release, it talks about Northern Pass and its partnership with, I guess -- or, commitment with Hydro-Quebec to move forward on Northern Pass, and submit the Northern Pass Project into the Massachusetts solicitation, the RFP that we were talking
Q. And, if we could put the exhibit up that Ms. Birchard used yesterday, that is NGO Exhibit 30, that was an April press release. Ms. Birchard highlighted those two paragraphs in yellow and asked you about those. I actually want to ask you about the second paragraph, and ask you to explain if there's information there that's relevant?

A. Very much so. I think Ms. Birchard asked me just to read the highlighted sections, so I couldn't read the middle paragraph. But I think the middle paragraph, basically, again, goes on to say that the most immediate opportunity is the Massachusetts RFP, and "NPT's advanced stage and comprehensive cost control measures", I'm reading from the last sentence, "make it a good fit with the technical requirements of the Massachusetts RFP".

So, I think that press release -- when reading that press release, one can't overlook the fact that Hydro-Quebec is saying that it is behind Northern Pass, and believes it is a
great candidate for that RFP.

Q. I want to take you back now to some questions that Mr. Pappas was asking you. Counsel for the Exhibit -- Counsel for the Public Exhibit 146 was the Kavet Rockler report. And, in particular, Mr. Pappas was asking you about this highlighted sentence, and we went through this a fair bit.

During the discussion of this paragraph, you attempted to explain why you disagreed with the claim that you had overstated employment impacts by 20 percent. You called it -- you called Kavet Rockler's assertion a "silly mistake", but you didn't get a chance to elaborate. And I want to ask you to do that now.

A. Thank you. We actually discussed this also in the Rebuttal Report, in Section 5.5, on Page 32 [Page 52?].

But, in a nutshell, once we received KRA's workpapers, and loaded up their REMI workbook, which is kind of a customized input file that gets loaded into the model. It's called an "RWB" file. That's its file extension. Once
we loaded it up, we realized there’s a
discrepancy. And it’s a significant
discrepancy. I believe it’s just a data entry
problem. And I think we have some copies of
that.

Q. Yes. So, what I want to do is I want to call
up Exhibits 167 and 168, which I understand are
screen shots of the Kavet Rockler workbook, and
ask you to explain these and explain what you
mean by "discrepancies".

A. So, the screen shot that you’re looking at, at
the left is our workbook. And were we also
going to load up the --

Q. Yes.

A. -- screen shot of the KRA workbook? Yes.

Q. Right. And we want to blow those up so people
can read them please.

A. Perhaps what we can do is maybe even just blow
up KRA, that side, so I can talk a little bit
through that.

But the issue we discovered is, as we were
looking into a category of labor spending, and
specifically it’s labeled -- I think it’s in
relation to "professional services".
"Professional, scientific, and technical services", I should be using my glasses. What we realized is that, for incremental labor spending, for New Hampshire, you can see that there's a column that dictates which state input you're looking at. But, for New Hampshire, we had zero dollars. And that struck us as very, very wrong and very problematic. Because, in fact, as we all know, within the New England, a majority of the labor -- local labor spending is in New Hampshire.

And, then, we realized that, in fact, it wasn't just New Hampshire. What had happened is that the correct data was transposed across four different states. There was a mix-up in rows. So, Rhode Island, we had zero labor spending, as an input from Eversource for Rhode Island, and that ended up in KRA's workbook as the input for New Hampshire. That's why the zeros. New Hampshire's input ended up in Connecticut. Connecticut's input ended up in Maine. And Maine's input ended up in Rhode Island.
So, that created a problem. That is the primary reason why KRA's results suggested a much lower impact number during construction. And it's a problem not just for New Hampshire. Clearly, if you have labor spending in New Hampshire, jobs, but you're paying them zero dollars, that's going to not work out very well.

But the problem also happens in other states, and it magnifies also across the region, because you're mixing apples and oranges, in terms of inputs, where you have potentially an implicit number of direct jobs, but with a zero incremental labor spending or compensation rate.

So, it rippled through their analysis for the construction period. And, in my opinion, that's what's responsible for the conclusions they draw.

Q. At one point Mr. Pappas asked you about property taxes, and how you used them in the REMI model. And you said that you allocated 100 percent to municipal spending. Can you clarify that?
A. That was incorrect. I think I got a little confused myself. If you go to Page 51, in my Rebuttal Report, it goes through the details. But, essentially, we took 50 percent, only half of the property tax revenues collected from Northern Pass, and assumed those would go into local government spending. The remaining amount was assumed not to create any increases in economic activity. Essentially, they would be debt reductions without any effect.

Q. Mr. Pappas and Mr. Baker, at various times, asked you "what would happen, given lower electricity consumption projected by ISO-New England in the CELT 2017 Forecast?" And you said, at various times, "the energy market benefits would be lower, but that, in turn, would make capacity prices higher." And at one point you said "ISO-New England was well aware of that".

I don't think that you had the opportunity to point to anything in support of that. And, so, I want to put on the screen, as Exhibit 169, the May 25th, 2017 ISO PAC presentation, and ask you to identify where in
here there is something that supports that position?

A. I think we are now looking at it. It's Slide 9 of a presentation that Mr. Bob Ethier made at the PAC, in the context of ISO's own analysis of the Forward Capacity Auction, within the area of system planning. And, as you can see, by his figure, it's not too subtle, there is this linkage or relationship that he's also speaking to, in terms of shifts in revenues, which come because of price effects, that then create pressures on the overall market costs.

Q. We've had several discussions about the 40-year amortization issue. When Mr. Anderson was questioning you, he cited to a long list of resources that ISO has used a 20-year amortization for. And, during that questioning, you implied -- or, he implied that virtually everything at ISO uses a Easton0-year amortization and questioned your 40-year usage.

At one point, you mentioned that there is a workbook that you use to assess this issue, which is an ISO workbook. Is that correct?

A. That is correct. That's the workbook we were
speaking about with Commissioner Bailey.

Q. And, in that ISO workbook, they offer a
drop-down menu for amortization choices. Is
that right?

A. Yes. They call it "Estimated Project Life".

Q. And one of the choices in the ISO workbook in
that drop-down menu for an amortization period
is "40 years", is that correct?

A. Yes. That's a choice that ISO permits to be
selected.

Q. And, so, in your view, is it reasonable to
conclude that, if ISO gives you the choice to
use "40 years" as an amortization period in its
own workbook, that they might expect it would
be used by parties at times?

A. I think so. That sounds reasonable.

Q. Mr. Pappas asked you about resources retiring
as a result of Northern Pass coming on line,
and we've heard you say that, in your Base
Case, you don't expect that to happen. But
people have asked you what would -- "if it did
happen, what would the consequences be?" And I
want to ask you, if that did happen, if
Northern Pass caused retirements, wouldn't it
be because Northern Pass is lower priced and more economically competitive than the retired resource?

A. Yes.

Q. And wouldn't that mean that consumers are getting lower energy prices as a result of the competitive market doing what it's supposed to do?

A. Definitely.

Q. And, to that point, I want to call up the next exhibit. Mr. Iacopino asked you yesterday about a report/comment that was submitted by someone named Sue Tierney. And this is a Union Leader article that followed up on that report, and they interviewed Ms. Tierney. And, at the bottom of the article, I think Ms. Tierney said something that is actually relevant to this issue. Can you read that statement?

A. "In an interview, Tierney acknowledged consumers will see lower prices with Northern Pass. She just said the drawbacks were not considered. "Consumers will love it (Northern Pass), for sure," she said."

Q. Okay. And, then, speaking of Ms. Tierney, I
want to go back to the report that Mr. Iacopino
was questioning you about yesterday. Did you
have a chance to go back and look at that
report last night?

A. Yes. I did a quick scan of it in the evening.

Q. So, now that you've reviewed it, can you expand
on the answer you gave Mr. Iacopino yesterday
about your reactions to the report?

A. It became very clear to me that, and I, for a
fact, knew this also before, but Sue Tierney is
not a party to this case. And she hasn't had
access to the volumes of information and data
we've provided. I believe she only reviewed
the redacted version of my October 2015 Report,
and hadn't had access to anything -- or, hadn't
reviewed, because there are other public
reports and testimony available, haven't
reviewed anything since then.

So, I believe her conclusions are wrong,
based on the fact that she hasn't reviewed
additional information, hasn't had access to
the full data. For example, she had concerns
about outdated assumptions. Well, that has
been addressed in the Updated Analysis. In the
[WITNESS: Frayer]

Rebuttal Report, she had concerns about large areas being blacked out. There's a reason for redactions. But there's also, to the extent that a party is participating in this case, a mechanism by which they have access to all the information, all the data, all the discovery, and could have participated in the technical sessions to better understand our assumptions.

It generally boils down to the fact that, as she recognizes that my results are correct, that there are lower prices to consumers, there are electricity market cost savings, her concern is that -- about generators. She falsely concluded that I had simply assumed there were no retirements. I simply assumed there was no new entry. But, in fact, as we've discussed over the course of the last few days, and a third review of my materials, would suggest I didn't make those assumptions. That's actually a result of the modeling and analysis that we did. That we get to those conclusions.

And I think, if Ms. Tierney had the opportunity to review all these materials, she
might have come to a very different conclusion.

Q. When Mr. Anderson was questioning you, you at one point said something about ISO-New England "liking" or "favoring projects like Northern Pass". And you didn't have an opportunity to point to anything in support of that.

So, I want to put Exhibit 171 up now and ask you to look at that exhibit and speak to that issue.

A. I, on the fly, couldn't think of documents to respond to Mr. Anderson, but there are quite a few documents, in fact. If you go to ISO-New England's Annual Regional Outlooks that they publish, they have, for the last few years, talked about their challenges, fuel security is top on the list, because they believe security of fuel supply impacts their ability to manage the system in a reliable manner for resource adequacy. And Mr. Gordon Van Welie is the CEO of ISO-New England. And here, in an op -- I believe this is an op-ed that he put -- written for a magazine, he talks about those. And the highlighted paragraph here he states "The region's reliance on natural gas will only
intensify." And he then goes on a few pages later to talk about the fact that large transmission lines that deliver hydro and wind resources will essentially be extremely helpful in alleviating his concerns. In fact, he goes on to say that "Until large transmission lines are built", and I can skip on to the last portion of that quote, "we see a future with challenges that may require the ISO to comply" -- "employ suboptimal solutions."

So, from my reading of these words, I came to the conclusion that they are definitely interested and engaged in seeing such projects being built in the region.

Q. When Mr. Reimers was questioning you, there was a back-and-forth about the case before FERC, and the brief that ISO-New England lawyers filed critical of your positions. You were working for NEPOOL in that matter. What is "NEPOOL"?

A. "NEPOOL" is a voluntary stakeholder organization that -- the way I like to describe it is that it represents all stakeholders in the wholesale markets. It's representing IPPs,
renewable suppliers, municipal utilities, local
distribution utilities, transmission owners,
and end-users/consumers. So, it's representing
the marketplace. It actually predates, as an
organization, ISO-New England. But, when
ISO-New England was formed, the actual
day-to-day management of the markets were
handed over to ISO-New England. But NEPOOL
continues to coexist today and engage with
ISO-New England on various issues.

Q. And my understanding is that it can be unusual
for NEPOOL and ISO-New England to disagree on
issues. What is the nature of that particular
proceeding that Mr. Reimers took us through?

A. It was a jump-ball proceeding before the
Federal Energy Regulatory Commission, where the
debate was around ISO-New England's proposal
for performance incentives in the capacity
market.

And it is quite unusual. I'm not sure
I've seen anything like this before. But,
essentially, over 60 percent of the membership
in NEPOOL voted in disfavor of the ISO-New
England proposal, and that then triggered the
need to come up with an alternate proposal by NEPOOL, and to contemporaneously file their alternate proposal at FERC.

Q. And what was the substance of the testimony that you offered there that the ISO-New England lawyers seemed to be critical of?

A. Well, I was concerned that a comparison of the ISO-New England proposal, relative to the NEPOOL proposal, I was concerned that the ISO-New England proposal had unintended consequences in its aggressive stance on no exemptions. And that those unintended consequences could actually mean potentially low reliability or potentially -- and/or potentially higher costs to consumers. And, in fact, as part of this, it wasn't just NEPOOL, that we were representing several state regulatory utilities commissions also joined on the side of NEPOOL in this particular contest at FERC.

Q. And, in the ultimate order, did FERC echo or acknowledge any of the criticisms of your testimony that Mr. Reimers cited?

A. No. It did not.
Q. And how did FERC dispose of these two competing proposals?

A. FERC essentially chose bits and pieces of each. It started with a good portion, a majority of the ISO-New England proposal, but went in and acknowledged some of the concerns issued -- raised and alternatives presented in the NEPOOL alternative proposal. And, in fact, in one way, I think, although it's not by name or reference, FERC went back and said to ISO-New England that "perhaps some of your positions on no exemptions are not that reasonable. And, for example, a generator, in a constrained transmission zone, may not -- may not be suitably liable for those types of penalties that you have assumed would arise."

Q. You were asked about, moving onto a different topic, you were asked about your estimate of the minimum offer that a shipper over Northern Pass would have to pay pursuant to the MOPR rule. And you explained that you used a cost of construction in the Project of 1.6 billion. Did that amount include the cost of the upgrades to the AC system that Northern Pass
anticipates having to fund in order to connect to the grid pursuant to its I-39 approval?

A. Yes, it does.

Q. And how was your Northern Pass able to estimate those costs?

A. Those costs are estimated in the ordinary course of developing a project and taking it through the interconnection process. So, it was part -- my understanding, it's part of the overall construction budget at the moment.

Q. And we've also heard about a separate set of improvements to the AC grid that may be required, in order for an NPT shipper to qualify for a capacity supply obligation in the Forward Capacity Market. How are those improvements identified?

A. So, after the ISO receives, in its cycle, applications for the show of interest, which is applications from new resources who want to participate in the next Forward Capacity Auction, it takes all that information, and looks at the existing system with existing generators, and all those new potential suppliers, and does something called the...
"Overlapping Impact Test". And I think we had a little bit of a discussion with Mr. Anderson about that. It conducts a preliminary test. And then gives an opportunity for participants who want to -- participants who may need to make some reinforcements to the grid to fund those.

Interestingly enough, I think the ISO also does a restudy after the auction clears. Because the way the test works, it can't be definitive until the ISO knows for sure which resources are on the system. So, it needs to actually look at -- wait for the results of the Forward Capacity Auction to refine its estimate of the reinforcement needs.

Q. Does the $1.6 billion assumed cost that you used in your workbook include an allowance for the cost of these OIT upgrades that might be required?

A. No, it does not.

Q. And why didn't you include those costs?

A. Because they are not known at this time.

Q. And are you concerned that adding in the OIT costs to the capital costs of the Project might
inhibit the Project's qualification for the Forward Capacity Auction when those costs are determined?

A. No. I'm not concerned.

Q. Why?

A. Well, frankly, there's a lot of cushion in between our minimum over price calculated and our projected capacity price. So, even if you were to say, hypothetically, throw in an additional, I don't know, 25 million or 50 million, or even as much as 100 million of additional OIT-related upgrade costs, it would not move the needle sufficiently to change any of my conclusions about the MOPR and whether it's binding on the Project from clearing the Forward Capacity Auction.

Q. Moving to another topic. Ms. Pacik asked you about direct jobs during construction. And she was looking for a pie chart, similar to what you had for the indirect jobs in your October 2016 [2015?] Report. You directed her to your workpapers, but there wasn't a pie chart. And I understand that you've compiled one based on the information in your workpapers.
that was already furnished to the parties. And, so, could we put that up please. And I'm going to ask you to explain that now.

A. Yes. I thought it was a fair question. We only had indirect jobs presented in pie charts. So, we put together the direct jobs. This is by broad industry sector categories, not by necessarily additional detail beyond that.

So, what we see here, just as an example or a demonstration, in New Hampshire, for Figure 1 -- oh, and I can't read my own numbers, but -- oh, 47 percent of the jobs are in the Construction sector; 5 percent Manufacturing; 3 percent in Professional, Scientific, and Technical Services; small amount, 1 percent, in Administrative and Waste Management Services; and another 44 percent in the Forestry, Fishing, an Related Activities.

Q. And can you speak to the second one, too?

A. The second one is a depiction of what the breakdown is across all of New England. So, it's combining here all six New England states. And, as you could imagine, a much larger share of the direct jobs then across New England is
in the Construction sector.

Q. And, moving on, based on the jobs reported in your workpapers, which Ms. Pacik took you through, she concluded that 570 direct jobs -- or, she indicated that in your papers there were 570 direct jobs that you reported in 2017 and 436 direct jobs in 2018 in the logging sector. And there was a question about exactly what these jobs were. Were they purely logging jobs or did they relate to something else? And I want to ask you to expand on that.

A. So, Eversource, as an input to our analysis, provided us with a budget breakdown. And, for logging and site preparation, which is clearly labeled in those input files that have been -- and in our workpapers, that was -- there was a significant amount of dollars spent associated with labor spending in that category.

And, as part of our review, we thought that the forestry -- that forestry sector would be the most apropos to reflect that level of labor spending. But it isn't all loggers. In fact, the name of the budget line item is probably more reflective, if you want to think...
about the underlying jobs in there. There's truck drivers. There is going to be some loggers clearing land, but there's also workers working on road construction, access road construction, leveling of a site in preparation for installation.

So, there's a lot of different types of jobs. We could have, in fact, taken and broken down that budget line item further and put some of those dollars as jobs, direct jobs in, let's say, the road construction sector. But the impact on the results would be de minimus, less than one percent difference, in terms of total direct jobs. A classification difference in the industry, but, in terms of total direct jobs, and then indirect and induced jobs during construction, less than one percent.

Q. Last topic. When Mr. Anderson was questioning you, you were discussing something called "price separation" in the Northern New England market. Can you just very briefly, at a high level, describe what is "price separation" and why it's relevant here?

A. "Price separation" is an element of the
capacity market rules. It occurs when there
are too many resources in a designated zone or
part of the New England system for resource
adequacy, where they're not necessarily
contributing to resource adequacy of the entire
system.

Q. And -- sorry, go on.
A. I wanted to say that, although the last Forward
Capacity Auction had no price separation, and, in our analysis, we aren't predicting any
significant price separation. If it were to occur, it's actually a benefit to New
Hampshire. New Hampshire consumers would see lower capacity prices, holding all else
constant, which -- relative to their peers in other parts of New England.

Q. So, do you agree with Mr. Anderson's
characterization of how much price separation there should be?
A. No, I do not.
Q. Why?
A. I feel that Mr. Anderson put up a number of hypotheticals, and then created an interesting
illustration using one of my exhibits. But I
think that the hypotheticals together aren't properly reflecting the actual market rules and the actual details.

First, for example, although Mr. Anderson suggested that the MCL forecast projections being updated now by ISO-New England would be lower. His proposition that they would be with Northern Pass at FCA 11 levels for the MCL value, the Northern New England MCL value and the MRI is not correct. Because he overlooked the fact that I said in my testimony and in my report that Northern Pass would actually also positively affect the interface limit between Northern New England Zone and the rest of the pool.

He also hypothesized that there would be more resources in Northern New England, because I didn't anticipate the fact that, for FCA 12, some resources that I had retired in my Base Case, hadn't applied for retirement delist. But they could apply for a retirement bid in FCA 13. So, that focus on a single snapshot, with several hypotheticals, I think gives an incomplete picture.
And, more importantly, also there's a linkage between the Northern New England price and the rest-of-pool price that's important and can't be ignored.

MR. NEEDLEMAN: Okay. Thank you.

Nothing further, Mr. Chairman.

CHAIRMAN HONIGBERG: All right. I think you're finally done, Ms. Frayer.

WITNESS FRAYER: Thank you.

CHAIRMAN HONIGBERG: Mr. Needleman, who's next?

MR. NEEDLEMAN: We're going to ask the environmental panel to come up. While they're doing that, I wonder whether it might make sense for me to take a minute and talk about witness scheduling?

CHAIRMAN HONIGBERG: Why not.

MR. NEEDLEMAN: So, we've made an effort to discuss with as many of the parties as we could what we're anticipating for witness scheduling. I think as everyone knows, we presented an initial schedule of witnesses for Phase 2. And one of the major premises underlying that schedule was the estimates that...
people had of time, for how much time they
would need for witnesses and panels.

And, as a consequence of things going
a fair bit slower than had been anticipated, we
have some issues emerging, and we're going to
need to shift witnesses around a bit. And I've
tried to work with folks. What I want to do is
try to be transparent about this, and let
people know what we're thinking and the
variables associated with it.

But the short version of this is that
I believe that the various estimates for the
environmental panel average end up at about
three to three and a half days. Speaking with
some folks, there seems to be some consensus
that it might take longer than that, and I
don't believe that that accounts for Committee
questioning either, or redirect.

So, that's a long way of saying that,
if the environmental panel takes four days or
more, then we could move to Ms. Shapiro next.
And, then, after that, to Mr. Nichols, who has
a fairly narrow availability window.

And I will say that we did intend to
go to aesthetics next, but the problem is that, if the environmental panel finished in four days, our aesthetic witnesses would only be available for two days, and then run into conflicts. And I don't believe there is any chance they will be done in two days, and I don't want to start a panel and then interrupt it. So, I'm trying to manage that.

And then I would say the only caveat to all of that is that in some way the environmental panel takes fewer than four days, Ms. Shapiro would not be available to go on on the 23rd. And I don't want there to be any gaps. So, the only individual witness we would actually have to go on on the 23rd would be Mr. Chalmers.

My best guess, and everyone can make their own best guess, is that the environmental panel will take those four days, which means we can turn to some combination of Shapiro and Nichols afterward. But that is the best thinking I can give at this point as to who's coming up next.

CHAIRMAN HONIGBERG: All right. Does
anyone out there have comments or concerns or praise for that alternative? I mean, we show up either way. I know some of the parties have specific lawyers or members of their coalitions that would be asking questions. And I don't know who Mr. Needleman has conferred with, but I can guess at some of them.

Mr. Pappas, Mr. Roth, what's the feeling, at least at your table?

MR. PAPPAS: First of all, we can sympathize with the need to juggle and witness availability, and understand there will be issues. And everything that Mr. Needleman said is understandable.

My only question would be this. If Mr. Chalmers starts on June 23, there is only June 23 and June 26, and then we jump to July 18. And I don't know off the top of my head what the estimates were for Mr. Chalmers. But, if there's any concern that he would take more than two days, that could be an issue, in terms of splitting his testimony, literally, several weeks, start to finish his testimony. I know he flies in from somewhere out west.
MR. ROTH: And, Mr. Chairman, I have a somewhat more pedestrian concern. And that is the Applicants have previously provided to all the parties, and I believe the Committee, kind of a schedule of who's going to be coming in what order, not necessarily on what day. And we've all kind of pieced together when we thought who was going to be next based on that schedule.

And I understand the difficulty in the "if/then" kind of problem that he has, or that they have, but I would like to see a similar program be filed by the Applicants, which perhaps shows the "if/then" scenarios, so that we can all work with that. Because there is some uncertainty about how things are going to play out beyond these, this, you know, the month of June, and going into July and August.

MR. NEEDLEMAN: And I'm happy to try to do that, as long as people understand that there are two critical limitations. The first one is that, again, we'll be in a position where we're going to have to predict how long witnesses will take. And, if
we don't get those predictions right, or, if
the numbers people have predicted turn out not
to be right, that will affect it.

And the other issue is, it appears as
though it's possible that it may take beyond
August 3rd for the Applicant to finish
presenting its case. And, without knowing what
the next hearing days are, I can't know whether
the remaining witnesses would have any
conflicts.

CHAIRMAN HONIGBERG: Yes. All of --
both of you have said things that are true.
And it doesn't seem unreasonable at all for
you, Mr. Needleman, to be able to map out the
tree of possibilities, based on the various
scenarios.

And, yes, that may mean people are
going to have to be ready for things in a
slightly different order than they anticipate,
but they're going to have to do that, I think.
You're going to have to identify, you know,
specific problems, specific individuals who are
essential, and their unavailability, to make a
legitimate objection about changing the order,
especially if Mr. Needleman is able to map out
the most likely possibilities.

I don't know that there's anything
more we can do about it right now. I do think
that it would be wise for all of the people who
have mapped out lines of questioning for
witnesses to look at them carefully to see if,
in fact, all of the lines of questioning they
have planned for a particular witness or a
particular panel will really advance the case
they ultimately want to make. You know, decide
what arguments you think are the ones that are
going to help you win the argument in front of
this panel, and think long and hard about
whether the other things you have on there
advance those, that case or not. Because you
might be able to cut out some lines of
questioning, if you conclude that they are not
ultimately going to help you, even if you get
all the answers you plan on getting.

But we can only ask people to do
their best job of estimating how long they
think they will take with a panel. I think,

 based on the experience people have had so far,
that may give them some indication of how long it takes them to do what they want to do.

We all have a problem, when asking questions, of adding commentary in between, we do it up here, I do it, we all do it. But, to the extent you can limit that, and focus on the questions, and getting the witnesses to answer those questions, the better off you'll be, the cleaner the transcript will look, and the easier it will be to work through that transcript at the end of the process.

I guess, if there's others who have comments about the schedule, we'll take them. But, other than that, I think, you know, I think, Mr. Needleman, you're doing what you need to do to work with, you know, the folks all around you on what the schedule is going to look like.

Yes?

MR. NEEDLEMAN: And I can make one other suggestion. We've got the environmental panel today and Friday. Maybe at the end of the day Friday we can all assess where we are, and maybe that will give us a better sense of
what's going to come next.

CHAIRMAN HONIGBERG: And I will -- I agree. And I will say that I think Ms. Monroe has sent out a scheduling poll to the Subcommittee members to try and identify dates when a Subcommittee quorum can be assembled for additional dates, which I think is clear to everyone we're going to need going forward. And we'll assess that as people's schedules come into focus.

Are there others who want to comment on this discussion?

MR. IACOPINO: Mr. Chairman, I would just point out that there was reference to Mr. Chalmers' testimony possibly being moved. The estimate that we had at the end of the prehearing conference was two and a half days for Mr. Chalmers.

CHAIRMAN HONIGBERG: Anyone else?

MR. ROTH: Mr. Chairman.

CHAIRMAN HONIGBERG: Mr. Roth.

MR. ROTH: With respect to the last bit of information that you've provided, in terms of polling the Subcommittee for
additional days, and, you know, perhaps this is asking for a show. But do you know whether those dates include dates in July? Because I think folks need to make vacation plans.

CHAIRMAN HONIGBERG: I think we had exhausted July dates at this point.

MR. ROTH: Okay.

CHAIRMAN HONIGBERG: I think we already knew, based on the earlier Committee availability about what in July was possible. I think we had exhausted all possible dates in July and had moved into August.

MR. ROTH: Thank you.

CHAIRMAN HONIGBERG: Anything else? Ms. Monroe, can you confirm that we've already also eliminated the first week of August?

ADMIN. MONROE: Through -- I think we currently have through the 3rd scheduled, and the next week was not an option. So, we're beyond that.

CHAIRMAN HONIGBERG: Yes. That's the week I meant, the first full week in August?

ADMIN. MONROE: Yes. That is correct.
CHAIRMAN HONIGBERG: All right.

Thank you. So, for planning purposes, you can assume we will not be getting together during that week.

All right. Anything else?

[No verbal response.]

CHAIRMAN HONIGBERG: All right. It appears that Mr. Walker looks like he's going to be grabbing the microphone here.

MR. WALKER: Yes.

CHAIRMAN HONIGBERG: We're off the record for a minute.

[Short pause.]

(Whereupon Sarah Barnum, Lee Carbonneau, Dennis Magee, Jacob Tinus, and Robert Varney were duly sworn by the Court Reporter.)

MR. WALKER: Good morning, Mr. Chairman and Committee members. Again, my name is Jeremy Walker. I'm with McLane Middleton, on behalf of the Applicant.

SARAH BARNUM, SWORN

LEE CARBONNEAU, SWORN
DENNIS MAGEE, SWORN

JACOB TINUS, SWORN

ROBERT VARNEY, SWORN

DIRECT EXAMINATION

BY MR. WALKER:

Q. Why don't we just go one-by-one and introduce ourselves to the Committee, starting with Mr. Magee. Could you just state your name to the Committee and explain where you're employed please.

A. (Magee) Dennis Magee, employed at Normandeau Associates.

Q. Mr. Magee, have you filed prefiled testimony in this matter?

A. (Magee) Yes, I have.

Q. Have you also filed supplemental testimony in this matter?

A. (Magee) Yes, I have.

Q. And your testimony deals generally with rare plants and rare or exemplary natural communities, is that right?

A. (Magee) Correct.

Q. Do you have any changes that you would like to make to your testimony?
A. (Magee) No.

Q. Do you swear by and adopt your testimony?
A. (Magee) Yes, I do.

Q. Next, to Mr. Varney, could you introduce yourself to the Committee please.

Q. And you, too, have filed prefiled testimony and supplemental testimony in this matter, Mr. Varney?
A. (Varney) Yes, I have.

Q. And your testimony deals generally with the benefits to air quality anticipated by the Project, is that right?
A. (Varney) Yes.

Q. Do you wish to make any changes to your testimony?
A. (Varney) Yes, I do.

Q. And, to your prefiled testimony, do you have changes to make?
A. (Varney) Yes. To my April 17th testimony.

CHAIRMAN HONIGBERG: Before you do that, Mr. Varney, Mr. Walker, why don't you
tell us what exhibit numbers we're talking
about here, for those who are trying to
feverishly to pull them up on thumb drives and
databases.

MR. WALKER: Thank you.

CHAIRMAN HONIGBERG: So, why don't
you start with Mr. Magee, and tell us which
exhibits constitute Mr. Magee's testimony, and
then deal with Mr. Varney.

MR. WALKER: And I can do that, just
to move that forward. Thank you, Mr. Chairman.
Mr. Magee's prefiled testimony is Exhibit 24,
Applicant Exhibit 24, and his supplemental
testimony is Exhibit 100.

BY MR. WALKER:

Q. And, then, turning to Mr. Varney, your prefiled
testimony is Exhibit 19, and your supplemental
testimony is Exhibit 141. And do you have
copies of those before you, Mr. Varney?

A. (Varney) Yes, I do.

Q. And you mentioned that you had some changes to
make. Was that to your prefiled testimony or
your supplemental testimony?

A. (Varney) Only to my supplemental testimony.
Q. Which is Exhibit 141, correct?
A. (Varney) Correct.

Q. And could you please explain slowly to the Committee, by page number and line number, where your changes are?
A. (Varney) Yes. Page 1, Line 23, should read "nitrogen oxide", rather than "nitrous oxide". And the amount should read "663 short tons", and striking the "565 - 650", replacing that with "663", a single number. And Line 24, striking the "107 - 198", and replacing that with the number "136".

And that would be all of my changes.

Q. With those changes, Mr. Varney, do you swear by and adopt both your prefiled testimony and supplemental testimony?
A. (Varney) I do.

Q. Thank you. Ms. Carbonneau?
A. (Carbonneau) I'm Lee Carbonneau, with Normandeau Associates, Incorporated.

Q. And you, too, have filed prefiled testimony, which you have before you, Ms. Carbonneau?
A. (Carbonneau) Yes, I have.

Q. And that is "Applicant Exhibit 22", correct?
A. (Carbonneau) That's correct.

Q. You also have before you your supplemental testimony, which is "Applicant Exhibit 98", correct?

A. (Carbonneau) Yes.

Q. And your testimony, Ms. Carbonneau, deals generally with wetland and aquatic resources, is that accurate?

A. (Carbonneau) Yes.

Q. Do you have any proposed changes to your testimony?

A. (Carbonneau) I do.

Q. And, again, do you have changes to your prefiled testimony?

A. (Carbonneau) It's to the prefiled testimony only.

Q. Okay. If you could just describe to the Committee, and slowly please, where that is, where the changes are, by page and line number.

A. (Carbonneau) Yes. On Page 5, Line 14, I would strike the word "moved", and replace it with the words "modified to reduce wetland impacts".

Q. Do you have further changes?

A. (Carbonneau) I do. On Page 12, Line 18, --
CHAIRMAN HONIGBERG: Hang on, just a minute. It's on Page 5, Line 14, it's the word "movement" that gets changed, correct? Whereas I think you had said "moved".

WITNESS CARBONNEAU: It's "moved".

CHAIRMAN HONIGBERG: All right. Then, we're looking at the wrong testimony here. Go to the first page. What exhibit number is the prefilled testimony?

MR. WALKER: It's Exhibit 22.

CHAIRMAN HONIGBERG: That would explain the problem. Got it. Thank you.

BY MR. WALKER:

Q. So, Ms. Carbonneau, your next change?
A. (Carbonneau) Yes. It's on Page 12, Line 18, the number "34 percent" should be replaced with the number "52 percent". And, in parentheses, "66 miles" should be replaced with "100 miles".

Q. Do you have any further changes?
A. (Carbonneau) I do not.

Q. And do you have any changes to your supplemental testimony?
A. (Carbonneau) No.

Q. With those changes, Ms. Carbonneau, do you
swear by and adopt your prefiled and supplemental testimony?

A. (Carbonneau) I do.

Q. Okay. Dr. Barnum, could you introduce yourself for the Committee please.

A. (Barnum) Yes. I'm Sarah Barnum, and I work for Normandeau Associates.

Q. And, Dr. Barnum, you have filed both prefiled testimony and supplemental testimony in this matter, correct?

A. Yes.

Q. And your prefiled testimony, which is before you, is "Exhibit 23", correct?

A. (Barnum) Correct.

Q. And Exhibit 99 is your supplemental testimony?

A. (Barnum) Correct.

Q. Do you have any changes you would like to make to either your prefiled or supplemental testimony?

A. (Barnum) Yes, I do. To my prefiled testimony only.

Q. And that's Exhibit 23, correct?

A. (Barnum) Twenty-three (23), yes.

Q. Okay.
A. (Barnum) On Page 2, Line 3, currently it reads "I have flown the entire right-of-way". It should read "I have flown the entire existing right-of-way." And, then, on Page 10, Line 26, it says "The Project intersects 17 deer wintering areas." That should read "18 deer wintering areas".

And that's it for the two corrections.

Q. With those changes, Dr. Barnum, do you swear by and adopt your prefiled and supplemental testimony in this matter?

A. (Barnum) I do.

Q. Turning to you, Mr. Tinus.

A. (Tinus) My name is Jacob Tinus, and I'm employed with Burns & McDonnell.

Q. And, Mr. Tinus, you have filed prefiled testimony, which is "Exhibit 21", correct?

A. (Tinus) That is correct.

Q. And supplemental testimony, which is "Exhibit 97", correct?

A. (Tinus) That's also correct.

Q. And your testimony deals generally with the potential affects of the Project on surface water and groundwater quality?
A. (Tinus) Correct.

Q. Do you have any changes you would like to make to your testimony?

A. (Tinus) I do not.

Q. And do you swear by and adopt your testimony in this matter?

A. (Tinus) Yes, I do.

MR. WALKER: Nothing further at this time, Mr. Chairman. Thank you.

CHAIRMAN HONIGBERG: All right. Is there anyone from the Business Organizations Intervenor Group? Cate Street Capital, the IBEW, etcetera, anybody here who wants to ask questions?

MR. RAFF: Thank you, Mr. Chairman. No. We're all set.

CHAIRMAN HONIGBERG: All right. City of Franklin/City of Berlin? I don't see Mr. Boldt.

[No verbal response.]

CHAIRMAN HONIGBERG: Wagner Forest Management?

[No verbal response.]

CHAIRMAN HONIGBERG: Counsel for the
MR. ROTH: Mr. Chairman, for Counsel for the Public is Doreen Connor of the Primmer firm.

CHAIRMAN HONIGBERG: Whose appearance arrived in our in-boxes yesterday, I believe.

Ms. Connor, you may proceed.

MS. CONNOR: Thank you, Chairman.

Before I begin, I wanted to clarify a housekeeping matter dealing with confidential filings. Am I correct that any questions and exhibits with regard to those should be held until the end of the panel, as you have been doing with other witnesses?

CHAIRMAN HONIGBERG: Not necessarily at the end of all questioning of the panel. It may make more sense for you to do all of your public, and then do your confidential. I'm not really sure who else is going to have confidential. But, generally, the goal is for you to do your questioning and be done.

MS. CONNOR: Okay. Well, with that in mind, I will hold all of my confidential to the end of my proceeding.
CROSS-EXAMINATION

BY MS. CONNOR:

Q. Can we bring up Exhibit 322? No. That's 307.

CHAIRMAN HONIGBERG: 307 is a great picture.

(Laughter.)

CHAIRMAN HONIGBERG: I think we'd like that left on the screen. Whenever that screen is blank, we would like that picture up.

MS. MERRIGAN: On my screen, it's 322.

MS. CONNOR: All right. Well, we'll move on.

BY MS. CONNOR:

Q. Mr. Magee, I was going to bring up a picture of wild lupine. Can you explain for the panel the protected status of the wild lupine in New Hampshire?

A. (Magee) It's threatened. It's on the threatened list.

Q. Am I correct that the lupine we often see on the side of the highways and dividers is different than the wild lupine that is a threatened species?
A. (Magee) No, it's the same. It's the *Lupinus perennis*.

Q. Okay. But is there a difference between the domesticated lupine and the wild lupine that are implicated by the Project?

A. (Magee) There's *Lupinus perennis* and *Lupinus polyphyllis*, and they're distinguished on the basis of the number of leaflets per leaf.

Q. Which one is the wild and which one is the domesticated?

A. (Magee) *Lupinus perennis* is the wild, *polyphyllis* is the other one.

Q. Thank you. How many populations of wild lupine have been located and inventoried in New Hampshire?

A. (Magee) I think there were three.

Q. Okay. Three that are implicated by this Project, but not three total in the whole state, correct?

A. (Magee) I think that's correct.

Q. Okay. Would it be correct that there are approximately 17 wild lupine populations that have been inventoried in the entire state?

A. (Magee) Perhaps more than that. In my general
experience, I see it not infrequently, especially on roadsides.

Q. Am I correct that two of the populations implicated by this Project are located in Concord and Pembroke?

A. (Magee) Correct.

Q. Is the Concord population the largest?

A. (Magee) Yes.

Q. And am I correct that that particular population includes fifteen patches of plants totaling 529 individual plants?

A. (Magee) I believe that's correct.

Q. And what about the Pembroke site? Can you tell the panel the size of that particular population?

A. (Magee) It was about the third -- a third of the size of the one in Concord.

Q. So, approximately 143 plants?

A. (Magee) Approximately.

Q. Based upon the current path of this Project, you have estimated that 62 percent of the Concord population will be adversely impacted, and 17 percent of the Pembroke population, is that correct?
A. (Magee) That's correct. But we have new information. As I had stated previously, I think during the technical sessions, we're doing all we can to work with the Project engineers to reduce Project impacts, as the design and the scheduling are being refined. And we've been able to do that. We've been able to reduce the impact to the Concord population by 5,500 square feet. Temporary impact reduces from the 60 percent, down to something like 40 percent. And we will continue ongoing efforts to further reduce impacts.

Q. Can you explain that math for me? Because I understood that, by changing the access road in Concord, you changed the square footage impact from 17,451 to 15,625. How does that change the percentage from 62 percent to 40?

A. (Magee) I'll have to defer to Lee Carbonneau on this.

A. (Carbonneau) Yes.

Q. Okay.

A. (Carbonneau) Thank you. There have been two efforts to reduce impacts to wild lupine. The
one that you probably are familiar with is one that happened during the Winter of 2017, where some shifts in the work pads and the access roads in the larger lupine population in Concord were made, and the reduction was on the order of 1,600 square feet or thereabouts.

Since that time, we have worked with the engineers to actually relocate two of the structures in the lupine patch in Concord. It hasn't shown up on the plans yet. It's something that we have discussed with them. They have indicated that it is very likely that they can shift one of the Northern Pass structures and one of the relocated existing structures, to move them further away from the large lupine patch where the bulk of the impacts occur. We believe that that's going to reduce the impacts by between 5,000 and 5,500 square feet. But this is an estimate at this point.

Then, in Pembroke, we have discussed the possibility of relocating the access road that currently clips the lupine patch in Pembroke, to completely go around that patch. And the
engineers have so far indicated that they believe that can be done, pending a walk-down of the right-of-way by the contractors.

Q. But, currently, we don't have any guarantee that either of these changes are going to take place?

A. (Carbonneau) It's -- I wouldn't say, no, that it's guarantied.

Q. Okay. So, with the change that has yet to materialize on a plan, is Dr. Magee correct then that the percentage of the wild lupine at the Concord site, the adverse impact has been reduced to he said "40 percent", or is it in the 40s?

A. (Carbonneau) It's in that range.

Q. Somewhere between 40 and 50?

A. (Carbonneau) I think that's probably correct.

A. (Magee) And these are temporary impacts. The 7 percent or so of permanent impacts have been, I think, completely eliminated. So, it's 40 percent of temporary impact.

Q. Did Normandeau make any recommendation to the Applicant to reroute the path of the Concord site to completely avoid the wild lupine patch?
A. (Carbonneau) I can speak to that. It has always been a high priority to try to keep those impacts to a minimum. But it is not possible to avoid it completely, as the structures that are unable to be moved are angle structures, and those are sort of -- they have to be where they are planned to be, because of the angle of the right-of-way in that location. So, accessing those particular structures is really not possible, and working on those structures is not possible, without some impacts to wild lupine.

Q. So, I'm correct then that no recommendations were made about rerouting the path to completely avoid the Concord wild lupine?

A. (Carbonneau) I wouldn't say "we didn't recommend it." It's always a high priority. But we were told that it could not be done without some impacts to lupine.

Q. Am I correct that the preferred order of sequence with respect to a project that's going to impact a rare or threatened plant, such as the wild lupine, in the first instance, is to avoid -- attempt to avoid the adverse impact
altogether?

A. (Carbonneau) Yes.

Q. And I understand from what you just told me then that the engineers told you that that couldn't be done in Concord?

A. (Carbonneau) That's right.

Q. The square footage that we're talking about in Concord is less than a quarter of mile, is it not?

A. (Magee) Yes.

Q. And would it not be possible to direct drill a quarter of a mile to completely avoid the Concord wild lupine population?

A. (Magee) It would be depending upon, you know, what's feasible, as far as engineering design.

Q. Was the feasibility of putting a quarter of a mile of line underground to avoid impacting the Concord wild lupine considered?

A. (Carbonneau) We don't know.

Q. Were you asked to consider that?

A. (Carbonneau) No.

Q. Would you agree that putting a quarter of a mile under line underground is certainly something that could be done, since, in the
northern section of the state, we're putting 32 miles underground?

A. (Carbonneau) I don't know. We're not experts in the design --

Q. Okay.

A. (Carbonneau) -- of underground structures.

Q. The second option, after trying to avoid altogether, is to minimize the impact on the rare plant, correct?

A. (Carbonneau) Yes.

Q. And that's where we've gone from a 62 percent impact, to an impact between 40 and 50 percent, in terms of the Concord lupine patch, is that correct?

A. (Carbonneau) That's an approximate estimate at this time.

Q. And it's my understanding that you concluded, even when we were dealing with a 62 percent impact on the wild lupine population at Concord, that that was not an unreasonable impact, is that correct?

A. (Magee) Correct, because it's a temporary impact.

Q. What if it was an 85 percent impact, would that
be unreasonable?

A. (Magee) If it was a temporary impact, no.

Q. And, if it was 100 percent temporary impact, would it still be not unreasonable?

A. (Magee) Correct, because of the AMMs that we're implementing.

Q. And, again, by "temporary impact", you are assuming --

CHAIRMAN HONIGBERG: Wait, wait. We all want to know what's an "ANM"?

WITNESS MAGEE: Avoidance Minimization Measures.

CHAIRMAN HONIGBERG: So, it's "AMM"?

WITNESS MAGEE: Yes.

BY MS. CONNOR:

Q. Let's talk about those -- can I see, hopefully, Exhibit 341? Great. Dr. Magee, is Exhibit 341, which you were just talking about, in terms of avoidance measures, best practice measures?

A. (Magee) Yes. There are a number of these that apply to rare plants.

Q. Okay. Are these recommendations binding upon the Applicant?
Q. So, are they binding upon the Applicant?
A. (Magee) Depends upon engineering feasibility.

Q. If you look at Exhibit 341, dealing with wild lupine, I'm looking at the second column at the very bottom, perhaps we can zoom in a little, because my eyes aren't that good. Great. That introduction states "Where practicable, these particular minimization measures will be applied." Who gets to decide what's practicable?

A. (Carbonneau) If it's okay, I would like to respond to this, because I've been heavily involved in the development of these Avoidance and Minimization Measures, and in the meetings with the Natural Heritage Bureau as these were developed.

"Practicability", as we're using it, is a term that can encompass a number of different issues, whether it is possible, capable of being done, given technology. We use the "practicability" definition that's in the 44(b)(1) guidelines, basically.

And determining who -- determining whether
it's practicable is basically an issue that needs to be resolved between the Applicant and the contractor and, in this case, the Natural Heritage Bureau, as these are the plants' avoidance and minimization measures.

But practicability issues could include things like whether or not an outage is available. So, the practicability here typically is a seasonal restriction. If that seasonal restriction, for some reason, cannot be obtained because they cannot get an outage for the work during that particular time season, then the next best option for avoiding and minimizing impacts needs to be considered. So, it's a stepwise process.

Q. Okay. You mentioned three individuals that might be involved in deciding whether a particular course of action is practicable, correct?
A. (Carbonneau) Correct.
Q. And that is the contractor, the Applicant, and the Heritage Society?
A. (Carbonneau) The Natural Heritage Bureau.

Q. Can the Applicant and the contractor overrule?
A. (Carbonneau) I don't know. It's not intended to be something that is decided without input from the Natural Heritage Bureau. In fact, it states that the Natural Heritage Bureau must be consulted if these avoidance measures -- if there's any difficulty in implementing them.

Q. Well, as I understand it, these best management practices are what we're relying upon, so that the impact upon the wild lupine is temporary, as opposed to permanent. And I'm trying to get an answer as to how we can guarantee that these best management practices are actually applied?

A. (Carbonneau) Well, we can guarantee that we need to follow the steps that are outlined in this best management practices.

Q. Unless it's not practicable?

A. (Carbonneau) And, then, at that point, the Natural Heritage Bureau is consulted, and the best least-damaging method of moving forward is identified.

Q. But, ultimately, isn't it true that the contractor and the Applicant can decide what measures are to be followed, based upon what they deem to be practicable?
Q. But not ultimate control from the Heritage?
A. (Carbonneau) All I can tell you is, the way this is planned out is that Natural Heritage Bureau will may have major input into how this happens. They are the stewards of -- the ultimate stewards of the resource.

Q. This document also indicates that, with respect to construction work around the wild lupine, that it is "preferred" that the work be done under -- while the ground is frozen, correct?
A. (Carbonneau) Yes.

Q. Can you explain why it is preferred that the construction at the Concord wild lupine site be done while the ground is frozen?
A. (Magee) Well, if the ground is frozen, there's going to be less impact to underground structures.

Q. Correct. And "preferred" doesn't -- is not the same as saying that construction at the site "shall" be done under winter conditions, correct?
A. (Magee) Correct.
Q. And would you agree that "preferred" has a lot more leeway?

A. (Magee) It can have some leeway, yes.

Q. And, in fact, doesn't the BMP recognize that, because it goes on to outlined a condition of what might happen if it's deemed that winter construction is not practicable?

A. (Magee) If it's not practicable, then matting and other AMMs would be used.

Q. And you just indicated that winter construction is preferred, because it will have less impact. So, if the Applicant decides that that's not preferred or not practicable, we're going to see a greater impact on the wild lupine population, correct?

A. (Magee) That I can't say. I'm not as familiar with engineering practice. But I know that the matting, when properly applied and of the right kind and thick enough, can reduce the impacts.

Q. It can reduce it. But the very reason we're talking about a BMP with winter preference, in terms of -- is to reduce the impact on the wild lupine, correct?

A. (Magee) Correct.
Q. Okay. If winter construction reduces the adverse impact upon the wild lupine, shouldn't this document be rewritten to require that the condition be undertaken only when the ground is frozen and snow-covered?

A. (Magee) I think there has to be leeway to allow for other considerations. Impacts to rare plants aren't the only consideration. There's other factors. Seasonality, weather, all of these factors have to be taken into account.

Q. I understand that. But, with regard to this particular project, there is no other rare plant that is going to be as impacted to the degree as the wild lupine at the Concord site, is there?

A. (Magee) No.

Q. And, yet, even when we're talking about potentially having an adverse impact on 50 percent of that site, there is no firm commitment to require construction in the winter, is there?

A. (Magee) Not at this point.

CHAIRMAN HONIGBERG: Ms. Connor, sometime in the next five or ten minutes, we're
going to need to take a break.

MS. CONNOR: We can take it now, if
that's all right, or I can keep going?

CHAIRMAN HONIGBERG: If now is a good
time for you, then we'll take our break.

MS. CONNOR: That's fine.

CHAIRMAN HONIGBERG: We'll be back in
ten to fifteen minutes.

(Recess taken at 10:57 a.m. and
the hearing resumed at 11:14
a.m.)

CMSR. BAILEY: Ms. Connor, you may
resume.

MS. CONNOR: Thank you.

BY MS. CONNOR:

Q. Before we took our break, we were talking about
the impact this Project might have on the wild
lupine population at Concord. And, Dr. Magee,
I understood that you had indicated that,
hypothetically, an impact, even as much as
100 percent on the lupine population, would not
be unreasonable, so long as it was temporary,
correct?

A. (Magee) Correct. And I need to correct you,
I'm not "Dr. Magee". I don't have a Ph.D.

Q. Okay. My apologies. I want to pull up Mr. Kayser's testimony, was prefilled. Do we have the exhibit number on that?

[Court reporter interruption.]

MS. MERRIGAN: That's Applicant's Exhibit 14.

BY MS. CONNOR:

Q. And, we're at Page 22. And, in particular, Line 9, and I'm going to read that into the record. He was talking about what's involved to put in a crane pad site, "removing six inches of topsoil", "removing vegetation", a fairly detailed project.

Mr. Magee, would you agree that, in fact, any plant that is in the vicinity of the tower structure is going to be permanently impacted, not temporarily impacted, when it's removed in this fashion?

A. (Magee) Well, this is true. But it's important to remember that a crane pad or a tower is typically occupying a footprint of about 8 feet by 8 feet. So, the combined impacts within that area of these tower footprints are going
to be very, very small. I think we indicated around three or four percent, and it's going to be even less than that with the new calculations.

Q. But the suggestion that the impact to the wild lupine is "temporary", doesn't hold true when the fragile root system is destroyed, is that correct?

A. (Magee) Well, for one thing, it's a perennial rooting structure. It's got a well-developed taproot, and it's got a short rhizome. And these things prefer disturbed, open conditions. Moreover, they develop a buildup of a seed bank in the soil. So, as long as the soil isn't regraded, then the perennating structures in the soil and the seed bank will give rise to repopulation.

Q. Can we bring back 341? You just indicated that, so long as the soil is not regraded, there is a possibility or probability that the wild lupine will come back. In fact, your best management practices anticipate regrading in the wild lupine sites, does it not?

A. (Magee) Yes. But the regrading, the way we've
specified regrading is to not do a cut, to do a fill with geotextile, then remove the fill when finished. Doesn't refer to a "cut", which would remove seed bank and rooting structure.

Q. You haven't provided any studies in conjunction with your prefilled testimony that talk about the survival rate of the wild lupine after they undergo a project like this, have you?

A. (Magee) No.

Q. Would you recommend that this panel impose a seasonal construction requirement as a condition?

A. (Magee) Again, I have to defer. No, I can't answer that, because there are so many other factors that need to be considered.

Q. Well, as a specialist with regard to training in the area of rare plants, including wild lupine, would you agree that the best probability of reducing the adverse impact on the wild lupine would be to impose a seasonal construction requirement?

A. (Magee) It's one of the AMMs that, as much as possible, the Project consider the reproductive cycle of the plants that are being impacted.
Q. I understand it's a best management practice to the extent practical. I'm trying to get a commitment as to whether, in fact, requiring that only -- that construction only take place in winter would reduce the impact?

A. (Magee) Given the narrow confines of that question, I'd have to say "yes".

Q. It's my understanding that the Applicant has proposed a mitigation parcel, is that correct?

A. (Magee) Yes.

Q. What length of time would it take to establish a lupine population on this new site that's similar in size to that which is going to be adversely impacted at the Concord Pine Barrens?

A. (Magee) I guess it would depend upon what the nature of that mitigation site is, whether it has any lupine population there now that might have over wintering structures and seed banks in the soil at present.

A. (Carbonneau) I'd like to jump in. If you're speaking specifically about the mitigation site that has been proposed for the Project, there's currently no lupine there. Part of the mitigation proposal is that New Hampshire Fish
& Game would manage this property and would
have lupine establish there.

Q. Do we know what length of time it would take to
establish a lupine population on the adjacent
site that is similar in size to the Concord
site?

A. (Magee) It would depend upon whether we use
seeding or whether we actually planted root
structures.

Q. Can you tell me the difference in time? Let's
start first with seeds. If we seed it, how
long will it take?

A. (Magee) It depends upon a host of factors.
What type of weather patterns we're in, whether
we're in droughty conditions, or whether
rainfall is ideal under the best conditions, I
would say, within about two years.

Q. And what about under the worst conditions, how
long might it take?

A. (Magee) I can't speculate. That's
hypothetical.

Q. Well, you gave me a number with regard to the
best conditions. What makes it different to
estimate for the worst conditions?
A. (Magee) Well, how worst? Do we have a drought for five years? Do we have a drought for ten years? I can't speculate.

Q. If we have a drought for ten years, sir, are you implying that it would take longer than that to get a lupine site --
A. (Magee) No.

Q. -- the same size as Concord?
A. (Magee) No. No.

Q. Okay.
A. (Magee) It wouldn't take longer.

Q. Would it take five years, sir?
A. (Magee) I'm not a horticultural expert. I can't speak to how long it would take.

Q. But your testimony implies that, certainly, wild lupine are susceptible to drought, --
A. (Magee) Yes.

Q. -- and they don't do well in drought?
A. (Magee) That's true. Well, drought stresses all plants.

Q. So, in terms of timing, the best we can do is is to understand that, on this mitigation site that currently has no wild lupine, that it would take somewhere between two and five years.
to establish a population similar in size to that at the Concord site?

A. (Magee) That is correct.

Q. Before you introduce lupine to the mitigation site, am I correct that site work has to be done there?

A. (Carbonneau) I can speak to that, please.
There is an old foundation on the parcel that will need to be removed.

And I would like to point out that the site wasn't identified specifically as a "wild lupine mitigation site". It was identified to mitigate impacts to the Karner blue butterfly primarily. To the extent that the Karner blue butterfly is dependent upon wild lupine, we expect that lupine will be planted. But there's been no requirement to establish an exactly similarly sized lupine population on the mitigation site as would be temporarily impacted by the Project.

Q. Do we have any estimate as to the amount of time involved to make this mitigation site susceptible for planting? In other words, how long will it take to remove the foundation and
whatever else is on it?

A. (Carbonneau) The Project has committed to removing that foundation prior to lodging the conservation easement on the land, which must occur I believe it's within 120 days of the SEC approval of the Project. So, it would be presumably ready for further management activities by Fish & Game, presumably, in 2018, I would estimate.

Q. And you've indicated that the entity that would be responsible for propagating the new lupine population on this mitigation parcel is New Hampshire Fish & Game?

A. (Carbonneau) That's our expectation. We don't have a formal agreement in place with them at this time.

Q. What would the cost of that project be?

A. (Carbonneau) I don't know.

Q. Who would fund the cost of that project?

A. (Carbonneau) We are expecting that the Project will make some type of contribution to the management of the parcel, as well as potentially a stewardship donation. But the details of that have not been worked out.
Q. So, the details, as I understand it, of the mitigation parcel, the purchase, have they been worked out?

A. (Carbonneau) The land has been purchased by the Project. So, it is in the ownership of the Project. The details of who will own the parcel in the future, or if there would be a conservation easement on it or a donation in fee, has not yet been worked out.

Q. And all of the details with regard to the establishment of lupine and the cost of that have not been worked out either, is that correct?

A. (Carbonneau) That's correct.

Q. Mr. Magee, we were talking a little bit earlier about the size of the structures that would be located in the Concord site. And you had indicated that Mr. Kayser's description was with regard to one of the larger towers, is that correct?

A. (Magee) As far as I know.

Q. Do you know what size the towers will need to be to cross over the lupine project in Concord?

A. (Magee) Height, I don't know. I understand
that the footprint is around 8-foot by 8-foot.

Q. And, obviously, if you were mistaken in that regard and the footprint was larger, it would have a more significant impact on the lupine, correct?

A. (Magee) Correct.

Q. I want to switch topics now and talk a little bit about the Karner blue, because, obviously, that is tied to the same location. Can we see Exhibit 316? Perfect. I understand that, Dr. Barnum, you are the butterfly expert?

A. (Barnum) Yes.

Q. Can you identify for the panel what Exhibit 316 is?

A. (Barnum) It looks like a male and female Karner blue butterfly.

Q. Okay. And can you describe for the panel the protected nature of the Karner blue?

A. (Barnum) The Karner blue butterfly is listed as "endangered" in the State of New Hampshire, and federally endangered as well.

Q. And can you confirm which Project site has impact on the Karner blue?

A. (Barnum) The location in Concord.
Q. The same one we were just talking about with the wild lupine?

A. (Barnum) Correct.

Q. In your report, Ms. Barnum, you talked about the fact that the Karner blue project at the Concord site, that prior to that project being undertaken, in 2000, the Karner blue were nearly extinct in Concord, is that correct?

A. (Barnum) The Karner blue was extirpated in Concord.

Q. Can you explain what you mean by "extirpated"?

A. (Barnum) "Extirpated" means that subpopulation was completely gone.

Q. Completely gone.

A. (Barnum) Right. However, other populations still existed.

Q. And am I correct that, since 2001, New Hampshire Fish & Game partnered with a number of other entities to reintroduce not only the wild lupine, but also the Karner blues to this site?

A. (Barnum) I can't speak to the wild lupine, but the butterfly was reintroduced.

Q. And Fish & Game has been responsible for
reintroducing how many Karner blues to this site?

A. (Barnum) They have a propagation project in place, and they have been releasing numbers of butterflies each year. I don't know exactly how many. I do know, for the last few years though, they haven't been doing any releases, because the population is self-sustaining at the moment.

Q. So, if the Karner blues went from being extirpated to being self-sustaining, is it fair to say that the Concord site is a success story, in terms of the Karner blue?

A. (Barnum) It is.

Q. In your prefilled testimony, you concede that the one endangered insect upon which this Project could have a long-term adverse impact is the Karner blue, correct?

A. (Barnum) That is correct.

Q. And that adverse impact from this Project includes direct mortality during construction?

A. (Barnum) Yes. That's correct.

Q. And does it also include -- or, include mortality due to the habitat loss?
A. (Barnum) If there's less habitat, it will support fewer butterflies. But the direct mortality occurs as a result of the construction activity.

Q. And you heard the earlier testimony with regard to the number of lupine plants that may be temporarily and/or permanently impacted. If it's as high as 50 percent, that would have a pretty dramatic impact on the Karner blues, correct?

A. (Barnum) The quality of lupine plants dictates the number of butterflies it can support. The larva is what need the plant, they eat the leaves. And the quality of those leaves varies with where the plant is growing, how much shade it receives, how much sun it receives, etcetera. So, determining exactly what impact loss of plants would have on the number of butterflies would also require then doing some kind of analysis of the quality of the plants that were available -- still available for the butterflies to lay their eggs on for the larva to eat.

Q. I understand that you did an egg count, which
we'll get to in a minute. But you did not do any type of study to determine the impact of a 50 percent loss of the wild lupine on the numbers of Karner blues, did you?

A. (Barnum) The agency did request us to do that. They simply requested the egg count, and that's what we did.

Q. So, if, in fact, there is a 50 percent even temporary loss of lupine at the Concord site, we don't know what impact that's going to have on the currently self-sustaining Karner blue population, do we?

A. (Barnum) That's correct.

CMSR. BAILEY: Excuse me. Off the record for one second.

[Brief off-the-record discussion ensued.]

BY MS. CONNOR:

Q. Dr. Barnum, you talked a little bit about the Karner cycle. Can you take us through it, and, in particular, the interaction between the Karners and the lupine?

A. (Barnum) Yes. So, Karner blue butterflies, their larva are dependent on wild lupine. It's
the only species of plant that they eat. So, they don't even eat the domesticated variety. Wild lupine is the only thing they eat. So, in the springtime, eggs that have been over wintering in the leaves and the duff below the plant -- where the plants were. Springtime the plants start growing. And, then, once the plants are there, conditions are right, the eggs that have over wintered hatch. And the larva crawl up the stems, and they feed on the lupine for some amount of time, a week or so. They pupate. The pupa metamorphose into butterflies. The butterflies have their first flight. They lay another set of eggs. Those hatch almost immediately, because they are being laid right onto the lupine leaves. Those set of larva do their thing. They eat, they pupate, butterflies emerge. And, then, they lay their eggs again onto the lupine, but at this point lupine senesces late in the summer, and it dies back. And, so, those eggs that got laid onto those leaves, those will fall to the ground, become part of the duff, the layer of the dead stuff there on the ground. And, then,
those things -- those eggs will go into sort of suspended animation, they won't hatch. They will spend the winter on the ground. And, then, in the springtime, once the next -- the next year, the following year when the plants are growing again, then those eggs -- that set of eggs hatches and the cycle begins again.

So, it's a butterfly with two flights per year, and then over wintering eggs to give rise to the next year's population.

Q. Thank you. So, based on that description, as I understand it, there is no time during the calendar year when a Karner blue, in some fashion, whether we're talking eggs, caterpillars, pupae, are not present?

A. (Barnum) That is correct. There are always going to be some life stage of the butterfly present in appropriate habitat.

Q. And, because of that cycle, there is no time during the year within which construction could take place at this site and not at least have some impact upon the Karner blue, is that correct?

A. (Barnum) Yes. That is also correct.
Q. It's my understanding that you were tasked with trying to determine how many eggs were present at the Concord site back in July of 2015, is that correct?

A. (Barnum) Yes. That's correct.

Q. Am I correct that the size of these eggs is like the size of a dot of a pen?

A. (Barnum) Yes. That's about right. So, --

Q. Pretty tiny?

A. (Barnum) Yes.

Q. Pretty hard to locate?

A. (Barnum) Well, before we went out and did our count, we worked with Fish & Game's Karner blue butterfly specialist. And we went to the place where they're running their propagation operation. And she has captive butterflies, and they're laying eggs. And, so, we went through a training with her to learn exactly what the eggs look like and the best way to search for them.

Q. Okay. And you did this egg count on a single day, is that correct?

A. (Barnum) Upon Fish & Game's recommendation, we followed her recommendation for the -- she
recommended a single day, and she also helped us identify the best day, in terms of when she thought the maximum number of butterflies had been available to lay eggs. So, we actually shifted the date a few times to get just the right day.

Q. It's my understanding you did an egg count in July of 2015, so that would have been the second laying of eggs?

A. (Barnum) The second, yes. Yes.

Q. Would you agree that insect populations are known to fluctuate due to the vagaries of weather, disease, etcetera?

A. (Barnum) Yes.

Q. And that a multiple sampling of eggs would provide the most reliable egg count?

A. (Barnum) Again, we followed Fish & Game's recommendation. They said a single day would be sufficient.

Q. I understand that you followed their recommendations. My question was a little bit different. My question was asked, first of all, do you agree that the number -- that the egg count could be affected by the vagaries of
weather, disease, and whatnot?

A. (Barnum) It could.

Q. And would you agree that multiple sampling days would, in fact, provide the most reliable evidence as to egg count?

A. (Barnum) That would depend on the conditions, potentially.

Q. Well, let's do this a different way. If you went out to the egg site -- right, "egg site" -- out to the lupine site next month, is it fair to say that there's no probability that you would come up with the same egg count?

A. (Barnum) It would not be the same.

Q. Okay. And it could vary wildly, could it not?

A. (Barnum) It would depend on the conditions.

Q. Could it be as high as 408, instead of 208?

A. (Barnum) It would -- that would depend on how many adult butterflies were available.

Q. So, as we sit here today, you're not able to give this panel information about what the July egg count might be, if we went out in July of 2017?

A. (Barnum) I would have to consult with Fish & Game to figure -- to learn about how the adult
flight is this year.

Q. If you had done an egg count over several years, you would be able to average and have a more accurate predictor, would you not?

A. (Barnum) Yes. I agree with that.

Q. Do you have an estimate, as we sit here today, on the current number of Karner blues at the Concord site?

A. (Barnum) I do not.

Q. We just know that they are self-sustaining?

A. (Barnum) Yes.

Q. Other than the fact that you have estimated, based on a one-day count, that 208 winter eggs might be destroyed as a result of construction, have you calculated what this Project will mean, in terms of a impact to the overall population?

A. (Barnum) I have not.

Q. Do you have an opinion as to whether the Karner blues will still be self-sustaining if this Project goes through?

A. (Barnum) The population of butterflies that the Project will impact is just one of a sub -- one of many subpopulations in the Concord area
surrounding in the airport. The Concord
Airport supports multiple subpopulations. The
population that will be impacted by the
Northern Pass is one of those associated
populations.

One of the ways that populations remain
sustaining is for there to be exchange of
individuals between the subpopulations. So,
trying to determine whether you've got a --
what the factors are that will make the
population self-sustaining is -- there's more
to it than just looking at what's happening to
a single population.

Q. Is it fair to assume that the loss of
50 percent of the wild lupine and at least 208
eggs will not increase the number of Karner
blues?
A. (Barnum) Not for that subpopulation, no.
Q. Right. Could it decrease the Karner blue
population by as much as 25 percent?
A. (Barnum) I don't know enough about the dynamics
of the entire population in the Concord area to
speculate on that.
Q. Wouldn't we need to know what's going to happen
to the Karner blue population at this site, in order to determine whether this Project is going to have an unreasonable impact upon an endangered species?

A. (Barnum) Because the project will have an impact on the species, we were required to come up with a mitigation plan that would compensate for that.

Q. Why not avoid the Karner blue population?

A. (Barnum) There are multiple considerations for constructing the Project. Avoidance of impacts to endangered species is one of those considerations. There are other considerations. And, as Lee alluded to, we've got the corner structure there that can't be moved, so --

Q. But that doesn't answer the question about drilling, and putting this line underground for a mere quarter to a half a mile?

A. (Barnum) And, as a -- I'm a wildlife biologist, not a construction specialist, I can't address that.

Q. I understand. But will you agree, to what I think is the obvious, that, if that was done,
there wouldn't be an adverse impact upon the
Karner blues at the Concord site?
A. (Barnum) I don't know. I mean, there's
existing -- there's the existing line there.
So, I don't know how that plays into what they
would have to do when they're constructing.
So, I can't answer that.
Q. In addition to having an adverse impact on the
Karner blue, am I correct that putting this
Project through the Concord wild lupine site
will also impact the frosted elfin?
A. (Barnum) The frosted elfin also depends on wild
lupine for its larval food plant.
Q. Can we see Exhibit Number 315? Dr. Barnum, am
I correct that that is a photograph of a
frosted elfin?
A. (Barnum) Yes.
Q. Can you describe for me the protected nature of
that particular butterfly?
A. (Barnum) I believe it is listed as "threatened"
by the state.
Q. And, in your summary of impact risk, in
addition to indicating that the habitat loss
for the Karner blue is high, you indicated that
this Project will result in a high habitat loss for the frosted elfin, is that correct?

A. (Barnum) Correct.

Q. Did you do any inventory as to the number of frosted elfins that call the Concord wild lupine site home?

A. (Barnum) We did not. There are not established methodologies for doing that, like there are counting eggs for the Karner blue butterfly. And the Fish & Game didn't request that we do any inventorying of the species itself. That the Karner would provide a proxy for them.

Q. So, if we don't know how many frosted elfins are presently located at the Concord wild lupine site, is there any way to estimate the impact this Project is going to have upon their population?

A. (Barnum) No, there is not.

Q. Assume hypothetically that there's a small number of frosted elfins at the Concord site. Is it possible that this Project could end up in destroying the entire population?

A. (Barnum) I don't know. I have no basis to make that judgment on.
Q. How is it that we can conclude this Project will not have an unreasonable impact upon the frosted elfin, when we don't know the impact that this Project is going to have on them?

A. (Barnum) We assume that they will benefit from all the avoidance and mitigation measures being offered for the Karner blue butterfly.

Q. Well, as I understand it, the Karner blue we hope is going to be reintroduced at the mitigation parcel by New Hampshire Fish & Game. Does New Hampshire Fish & Game have a breeding program for frosted elfin?

A. (Barnum) They do not. And, to my knowledge, they haven't decided whether they're going to do any releases at the mitigation parcel, or if they're simply going to manage it to create habitat that's appropriate, and let existing populations find it.

Q. Is there, to your knowledge, any entity that has been successful in having a breeding program to develop and release frosted elfin?

A. (Barnum) Not to my knowledge.

Q. So, if the frosted elfin then are eliminated by virtue of this Project at the Concord site,
they're gone forever?

A. (Barnum) Well, we assume, and Fish & Game assumes, that frosted elfin are present wherever the Karner blues are present. And, since the Karner blue is present throughout areas around the airport where there is suitable habitat, the presumption is that frosted elfin are also there.

Q. I understand that. But the Karner blues are being reintroduced or we hope they're going to be reintroduced by Fish & Game through a breeding proposal, and I understand there is no similar proposal or protocol for the frosted elfin?

A. (Barnum) Fish & Game, like I said, to my knowledge, hasn't decided what kind of -- what steps they're going to take in terms of propagation and release of Karner blues. There are Karner blue butterflies around the airport in many other locations. Those subpopulations can repopulate the main site, which is the site we're impacting, as well as the mitigation parcel.

The continued persistence of the Karner
blue butterfly is not dependent upon their reintroduction efforts at this time. The population is self-sustaining in the wild.

Q. I understand. But it's self-sustaining before this Project, correct?

A. (Barnum) That's correct.

Q. And you haven't been able to give me an estimate as to what this Project is going to do to those numbers, other than it's certainly not going to increase them?

A. (Barnum) At the location where we're having an impact. The other subpopulations in the surrounding areas are not being impacted by Northern Pass.

Q. I understand that. Can we also bring up Exhibit Number 317? Dr. Barnum, can you identify Exhibit 317?

A. (Barnum) A Persius Duskywing Skipper.

Q. And can you describe the protected nature of this particular butterfly?

A. (Barnum) I believe this one is also threatened by the state -- listed as "threatened" by the state.

Q. And am I correct that you concluded that the
proposed Project at the Concord wild lupine site will have a high habitat loss with regard to the Duskywing Skipper?

A. (Barnum) Yes. This species also is dependent on wild lupine. Uses some other species as well, but wild lupine is one of its main larval plants.

Q. And was any type of inventory done to determine how many Duskywing Skippers might be present at the Concord wild lupine site?

A. (Barnum) No.

Q. So, if we don't know what number we're starting with, fair to say we don't know what number we're going to end up with after construction?

A. (Barnum) Correct.

Q. Other than the construction is going to have an adverse impact on the Duskywing Skipper?

A. (Barnum) It will, yes, adversely impact their habitat.

Q. Does Fish & Game have a breeding program to reintroduce the Duskywing Skipper?

A. (Barnum) No.

Q. Are you aware of any organization that has a breeding program to reintroduce the Duskywing
Skipper?

A. (Barnum) No.

Q. So, once the Duskywing Skippers that are adversely impacted at the Concord wild lupine site are gone, there's no way to bring them back through human means?

A. (Barnum) That is correct.

Q. We would simply be relying upon the hope that there are -- that there is another colony out there?

A. (Barnum) Yes.

Q. I asked Mr. Magee to give us a best estimate as to the number of years it would take for the wild lupine to be reintroduced onto this mitigation parcel, and his -- I believe we came up with two to five years. With that understanding, can you give -- do you have an opinion as to the number of years it would take for a self-sustaining Karner blue population to be present on the mitigation parcel?

A. (Barnum) I do not know how long it would take. There is a self-sustaining population directly adjacent to that parcel, however. So, presumably, there's a good source to provide.
Q. Would you agree that the Karner blues could not be reintroduced to this mitigation parcel until at least two years into the future, when the wild lupine is established?

A. (Barnum) Yes. The Karner blues do require the presence of the lupine.

Q. And, if there's no wild lupine for the caterpillars to eat, they're not going to be successful, correct?

A. (Barnum) Adults could go use other species to nectar on, but they would have to return to the parcel where they currently are present to lay their eggs.

Q. So, we are talking at least a two-year time frame before this mitigation parcel is suitable for introduction of Karner blues, is that correct?

A. (Barnum) Correct.

Q. And, then, two years -- how many years after the lupine are established would it take to have a population similar to that that currently exists on the parcel that's going to be affected by this Project?

A. (Barnum) I can't offer an opinion on that.
Q. Do you have any knowledge as to the cost that Fish & Game has incurred over the last two decades, in terms of breeding and reintroducing Karner blues to the site?

A. (Barnum) No, I do not.

Q. So, if we don't know how much money they have spent over the last 20 years to get to a self-sustaining population, fair to say we don't know how much money to set aside for the mitigation parcel?

A. (Barnum) There have been previous projects which impacted Karner blue butterflies. And Fish & Game and U.S. Fish & Wildlife have negotiated with the proponents of those projects to arrive at a agreeable dollar amount contribution. Using those projects as a guidepost, I'm confident that the agencies and the Applicant can come to an agreement of what an agreeable amount of contribution would be for this Project.

Q. But, thus far, apparently those negotiations have not been taken place, and we don't have a representation about how much money is going to be set aside for this project, do we?
A. (Barnum) We do not.

Q. Would it be required that any sum of money be set aside for this project?

A. (Barnum) I believe that the agreement is that there will be the parcel, and then the management of the parcel, and funds to support that management.

Q. We just don't know how much?

A. (Barnum) Correct.

Q. And we don't know how much it would actually take?

A. (Barnum) I do not.

Q. Dr. Barnum, do you agree that the least impact on the Karner blues, if construction has to take place at the wild lupine site in Concord, would be have construction occur during the winter?

A. (Barnum) Yes. That's correct.

Q. And that would be why?

A. (Barnum) Because, if construction takes place during the winter, and then construction is done by the time the growing season rolls around, the lupine would get a chance to start regenerating at that point, and we would have
suitable habitat, again, sooner. If the
construction takes place during the summer,
then you've got to wait the whole winter before
lupine has a chance to start regenerating. So,
it just minimizes the amount of time that the
habitat is unsuitable.

Q. Did you have any input in the recommendations
with regard to the best management practice as
it regards the Karner blue?

A. (Barnum) "Best management practice" in terms of
what?

Q. The recommendations?

A. (Barnum) Best management for construction or --

Q. Let's pull up Exhibit 336 please. If you could
zoom in on the "Karner blue" section, which is
the third column. Great.

A. (Barnum) Yes. I contributed to that
recommendation.

Q. You'll note that, in bullet number two, it
indicates that "clearing and site preparation
should take place in winter...to the extent
practicable". Do you agree with me that that
means that, if somebody, the Applicant and the
contractors decided it's not practicable, that,
in fact, construction can take place during
summer?

A. (Barnum) This is a very similar conversation to
the one regarding wild lupine. And I would
agree, wild lupine is actually a proxy for
impacts to Karner blue butterflies. So, the
situation would be the same. It is preferable
to do the construction in winter. It may not
be practicable.

But I would also like to point out that
these wildlife avoidance and minimization
measures, we're calling them "AMMs", as opposed
to "BMPs" at this time, are still in discussion
with New Hampshire Fish & Game.

Q. Dr. Barnum, would you agree that the least
impact on the Karner blue would be if this was
rewritten to require that "construction shall
take place during the winter months"?

A. (Barnum) Yes.

Q. Would you recommend that this be rewritten so
that it requires only winter construction?

A. (Barnum) When we have finished our discussions
with Fish & Game, then, at that point, there
will be a final determination.
Q. Let's assume for the moment that Fish & Game
doesn't require that. If we are concerned
solely with having the least adverse impact on
the Karner blues, shouldn't this be rewritten
to require that construction only take place
during the winter months?
A. (Barnum) If that were the sole consideration,
that would be correct.
Q. Thank you. Dr. Barnum, I had asked you about
whether you had done an inventory on the number
of Duskywing and frosted elfins at the Concord
site, and I believe you indicated you had not.
Do you have any information about the overall
populations of those species in the greater
Concord/Pembroke population in general?
A. (Barnum) I do not.
Q. So, since we have no information about the
greater population, we don't know if those
particular species are robust enough to
repopulate?
A. (Barnum) When I said "I had no information", I
think I misspoke. Natural Heritage does have
records of those species from throughout the
Concord area. I can't recall how many
locations. However, based on the Natural Heritage records, there are multiple locations where the specie is present. The robustness of those populations is information that's not available from Natural Heritage. So, I can't speak to that. But I do know that there are other populations around the Concord area.

Q. So, we know that there are other populations, but we don't know whether those populations will allow the insects to overcome the adverse impact, should this Project go through the Concord wild lupine site?

A. (Barnum) Correct. But, likewise, we don't know that this will be a truly devastating impact to the population, because we don't have that information either. So, --

Q. Don't you think that would be critical, in order to determine whether this Project is going to have an unreasonable impact upon these endangered species?

A. (Barnum) I was following the guidance given to me by the agencies. They requested that I evaluate the Karner blue butterfly, but they made no request for the other species.
Therefore, I can only assume that their concerns did not rise to the level that they would want me to do that.

Q. But that particular inventory and that particular study could have been done?

A. (Barnum) It could have, yes.

Q. And, similarly, with regard to the Karner blues, a specific study to determine the percentage to which the population will be impacted by this Project could have been determined, too?

A. (Barnum) Had it been requested, it could have been done.

Q. But it wasn't requested. So, we are being asked to vote on this proposal without that information?

A. (Barnum) That is correct.

Q. We've talked extensively now about the Concord site. Are there Karner blues located at the Pembroke wild lupine site?

A. (Barnum) There are no existing records of butterflies from that site.

Q. I want to turn then to another plant, licorice goldenrod. And I would ask for Exhibit 320?
Mr. Magee, am I correct that this is a photograph of the licorice goldenrod?

A. (Magee) Yes. It's one of only four that have the entire leaves, uh-huh. The rest of --

[Court reporter interruption.]

BY THE WITNESS:

A. (Magee) It's one of four species of goldenrod that have entire leaves. Based on this photo, I see that these leaves are entire. All the other goldenrods have serrated or toothed leaves.

BY MS. CONNOR:

Q. And am I correct that the licorice goldenrod is also a -- is a state endangered plant?

A. (Magee) Correct.

Q. And am I correct that there are 21 known sites of this in New Hampshire?

A. (Magee) Correct. Known presently. They're always discovering new sites. Also, the amount of fieldwork these days is becoming less and less. So, our knowledge of how many other populations there are is pretty limited.

Q. Am I correct, sir, that one of the largest populations of the licorice goldenrod is
located in the Project's path in the Town of Pembroke?

A. (Magee) Correct.

Q. It's my understanding that seven of the fifteen patches in Pembroke will be impacted by this Project?

A. (Magee) Again, these are temporary impacts.

Q. Am I correct that seven of the fifteen patches will be impacted in some degree?

A. (Magee) Yes.

Q. Did you make any recommendations to avoid the licorice goldenrod impacts?

A. (Magee) We did, and those recommendations are ongoing, to see whether or not more avoidance is possible.

Q. But, in terms of your current prefiled testimony, you have concluded -- you have not identified any avoidance of the Pembroke's licorice goldenrod?

A. (Magee) Measures to avoid licorice goldenrod were made known, to the extent that they could be made known, based on the design phase of the Project. As the design phase becomes more refined, we're looking for ways to further
reduce impacts. But, based on where the
Project was at in its design at that point in
time, they avoided as much as they could.

Q. And I appreciate the fact that you are
continuing to look at ways to avoid it. But,
at the moment, our understanding, in terms of
acting on the proposal as we sit here today, is
that seven of fifteen patches in Pembroke will
be affected?

A. (Magee) Right.

Q. Can we have Exhibit 341 please? Mr. Magee,
we're back to 341, which I understand is the
Applicant's proposal in terms of how to avoid
and/or minimize the impact upon the rare,
endangered, and threatened plants. This
exhibit, also with regard to the licorice
goldenrod, like the wild lupine, contains an
exception for the Applicant not to follow these
minimization efforts whenever it is not
practicable to do so, correct?

A. (Magee) Correct.

Q. With regard to the licorice goldenrod, like the
wild lupine, it's my understanding that it is
preferred that any construction at the site
involving this plant be undertaken in winter?
A. (Magee) Correct.
Q. And why is that?
A. (Magee) Again, the ground is frozen, and the impacts of heavy equipment on frozen ground would be less than if the ground was not frozen.
Q. And, although that makes perfect sense, if we're talking about digging into the ground, that's going to have an adverse impact on the plant, whether we do it in winter or summer, correct?
A. (Magee) Correct.
Q. Similar to the wild lupine, would it make sense to have Exhibit 341 redrafted to mandate a seasonal restriction, so the construction would only take place during the winter months to have the least impact on the licorice goldenrod?
A. (Magee) If there were no other considerations that the construction team had to think about, yes.
Q. So, purely from the standpoint of protecting the plant, that's what should happen?
A. (Magee) To have the least possible impact, again, other measures are provided for when frozen ground construction is impossible.

Q. Have you made any recommendations about a transplantation plan with regard to the licorice goldenrod, which, as I understand it, 50 percent is going to be impacted at the Pembroke site?

A. (Magee) We had discussions with NHB. And their favored approach was to allow a reseeding on-site to take place naturally. The plant does disseminate abundant seeds by wind dissemination. And, so, that's it's most prolific means of repopulating.

Q. So, I take it from that answer, there is no transplantation?

A. (Magee) That was not the NHB recommendation. We had discussions about that, but they said "No. Let natural reseeding take place at the site."

Q. In your opinion, would a transplanting plan work?

A. (Magee) It would -- certainly, it could. But it's unnecessary, given that the plant is
wind-disseminated, and it seeds in naturally
quite well. It's not done. I've never seen
this done in all the years I've been doing it.
We allow, especially with wind-disseminated
propagules, to allow the reseeding to take
place naturally.

Q. If we're relying on the natural repopulation
from seeds, and 50 percent of the plants had
been impacted, whether it's temporary or
permanent, it's going to take some time, is it
not?
A. (Magee) Again, there's a tremendous production
of seeds. And, even with a partial population,
there's certainly going to more seed than is
needed to repopulate.

Q. How many years do you anticipate it will take,
if 50 percent of the licorice goldenrod at the
Pembroke site are impacted by this Project,
before it rebounds to the level it exists
today?
A. (Magee) To the level that it exists today?
    Probably a couple of years, two or three years.
Q. And that estimate of "two to three years", I'm
going to assume is based, in part, upon good
conditions, as opposed to bad conditions?

A. (Magee) Average conditions.

Q. Average conditions. And, if we have bad
conditions, I'm assuming one of the things
might be a drought, which we had a few years
back, would that increase the length of time?

A. (Magee) Yes. Well, I need to modify that.

Some reproduction would occur anyway, because
some seeds have genetics that make them a
little more tolerant of drought than others
might. And, so, some reproduction is going to
take place, but may not be as full as it would
be if there were not a drought.

Q. Mr. Magee, your reliance that the remaining
50 percent of the population will reseed -- let
me rephrase that. Two to three years, your
opinion, in terms of how long it will take to
get back to the current potential size, which
we know is fifteen patches, what happens if
more than seven of the fifteen patches is
destroyed during construction?

A. (Magee) We have seed bank recruitment also.

There are seeds that have built up over the
years in the soil.
Q. And the seeds that are built up in the soil, are they not impacted by the digging and the regrading process?

A. (Magee) If the soil were regraded, yes. If regraded to a sufficient depth, yes.

Q. And, at the moment, we don't know anything about the extent to which regrading is going to take place at the Pembroke site, do we?

A. (Magee) If we think that -- no, we don't. But, if we think that it could be an issue, we can recommend that regrading not include cuts, it would only include fill with geotextile.

Q. But, as the mitigation sheet currently reads, Exhibit 341, there is no indication or no requirement, as there is with the lupine, to avoid that, is there?

A. (Magee) Right.

Q. And, even if there was, if it was deemed not to be practicable, it doesn't need to be followed, does it?

A. (Magee) Well, again, the NHB is going to have an interactive role throughout this process.

Q. I understand that they have to be notified. But they don't have veto power, do they?
A. (Magee) No.

A. (Carbonneau) And, if I might add, it's a little bit different to have an impact to a seed bank than it is to have an impact to the actual root system of a plant. If it were necessary to excavate in the area of a plant, the topsoil would be set aside, and then it would be reapplied once the construction is done. And the seed bank would still be in that topsoil that gets redistributed. So, it's a slightly different situation than impacting existing roots of a plant. It would have less of an impact on a seed bank.

Q. Am I correct that the degree to which that seed bank could potentially repopulate depends in large part in how the topsoil is handled and how long it sits in a pile before it is put back on site?

A. (Magee) The seeds can remain viable in the soil for a long time, even if it's stockpiled and then respread.

Q. Can the seeds also be destroyed during that process?

A. (Magee) I'd have to say not widespread
reduction, because they're going to be at different levels in the topsoil. Some near the surface of the topsoil could be subject to desiccation; others that are further buried in the topsoil wouldn't be.

Q. And, as we sit here today, we have no empirical evidence one way or another about the impact of the survivability of these seeds, when the topsoil is stripped off the Pembroke site, do we?

A. (Magee) I can say that seeds survive, in my experience, a very long time in the soil.

Q. I want to turn now to the spiked needle grass. Can we pull up Exhibit 324? Mr. Magee, is this a photo depicting a spiked needle grass plant?

A. (Magee) Well, you know, it's difficult to tell, because you need the spikelets. And the spikelet and spiked needle grass has three distinct awn, as the central one is not twisted. And I can't tell from this whether even if it's an aristida.

Q. Okay. Am I correct that the spiked needle grass is also known as "red three-awn"?

[Court reporter interruption.]

BY THE WITNESS:

A. (Magee) Known as "three-awn". Now, from this photo, it's a poor photo, you can't tell from that.

BY MS. Connor:

Q. Can you take --

A. (Magee) It's a poor photo. You can't see the spikelets or anything.

Q. Can you take a look at photograph 323, which at least is identified as a "red three-awn", and tell me whether you can identify it?

A. (Magee) Well, on the gestalt, I'd say it looks like it. But, you know, you always need to have the technical features to be sure.

Q. Okay. Am I correct that the spiked needle grass, also known as the "red three-awn", is on state endangered species list?

A. (Magee) Correct.

Q. And, according to your inventory with regard to this Project, three populations of that plant will be impacted by the Project?

A. (Magee) Correct.

Q. The first population to be impacted is located
in Concord?

A. (Magee) Yes.

Q. And I understand that all 498 plants in the main Concord population are going to be impacted?

A. (Magee) I believe so.

Q. And a second population in Concord is going to lose approximately 8 percent of its population?

A. (Magee) Yes.

Q. And, then, the Pembroke siting is going to suffer a 28 percent loss?

A. (Magee) Right.

Q. So, we have 100 percent, 8 percent, and 28 percent?

A. (Magee) Right.

Q. Did you make any recommendations to avoid the 100 percent impact at the Concord site?

A. (Magee) The recommendations we made is it would be that, to the extent practicable, allow the construction to take place during the non-reproductive period, which is between August 1 and October 15.

Q. So, no recommendations about rerouting or drilling under the Concord site?
A. (Magee) No. Again, it's a wind-disseminated plant, and it recolonizes and repopulates from wind-dispersed seed. And the plant requires and does very well in disturbed soil conditions.

Q. So, you're not concerned by 100 percent impact on this endangered species at the Concord site?

A. (Magee) Again, there's a big seed bank. And, once the topsoil is respread, the plants will grow, and they will wind-disseminate to other areas.

Q. And, once again, in terms of the minimization and best management practices with regard to this plant, just like the lupine and just like the licorice goldenrod, winter construction is preferred because it has the least impact, correct?

A. (Magee) Yes, I'd say so.

Q. And, even with winter impact, you have estimated that all of the Concord plants are going to be impacted?

A. (Magee) The above-ground parts, yes.

Q. And, as with all of the other plants, although winter construction is preferred, if the
Applicant deems it not practicable, they don't have to follow that, do they?

A. (Magee) Correct.

Q. So, in terms of Concord and Pembroke, it appears that those two locations are going to have an impact on three rare or endangered plants: The wild lupine, the licorice goldenrod and the spiked needle grass. Is that correct?

A. (Magee) Correct.

Q. And, along that route, we're also going to impact four rare or endangered insects: The Karner blue, the pine minion [pinion?], the frosted elfin, and the Duskywing Skipper?

A. (Barnum) Yes. That's correct.

Q. That's all right. And, although this panel has told me that the preferred order of sequence is first avoidance, and second minimization, these three plants and these four insects aren't being avoided, are they?

A. (Magee) Avoided to the extent practicable, and we're continuing to work with the Project proponents and developers and engineers to try to further minimize it.
Q. And, in terms of minimization, we're relying
upon Exhibit 341, which contains an exception
of allowing, basically, a work-out when it's
not practicable, correct?
A. (Magee) Correct.

Q. And, in terms of mitigation, which is supposed
to be the third step, not the first or the
second, we have a replacement parcel for the
lupine on which the Karner blues can be
introduced, but we have no mitigation plan for
the other plant species or the other insects,
do we?
A. (Carbonneau) I can actually speak to that.
There's an actual Pine Barrens Right-of-Way
Management Plan that has been proposed. And it
will dictate the way that the right-of-way, in
the Northern Pass right-of-way through Concord
and Pembroke, and outside of the right-of-way,
in other rights-of-way in Concord and Pembroke,
in the Pine Barrens region, are managed going
forward. And many of the plants and the
wildlife that we're talking about today are --
actually thrive in the right-of-way, because it
is managed as open habitat within the Pine
This Right-of-Way Management Plan actually refines what's already occurring, and tweaks it a little bit to make it even more valuable to those species that we're discussing here today. And it was developed in conjunction with both the Fish & Wildlife Service, the New Hampshire Fish & Game, and the Natural Heritage Bureau, and they have agreed that this will benefit these rare plants and rare lepidopterans in the right-of-way.

Q. So, certainly having a mitigation parcel and/or a mitigation plan is a good thing. But would you agree that simply having a mitigation plan doesn't avoid the adverse impact upon these insects and these plants, when no study has been undertaken to determine the exact decrease in the populations that are caused by this Project?

A. (Carbonneau) The quantification of exactly how many of these individuals will be impacted was not considered necessary to address the impacts generally. It's a habitat approach. The habitat will be restored. It will return after
construction. The mitigation site will also be suitable habitat. And it's used as a way of addressing the impacts to those species, whose specific reductions were not quantified.

Q. The Pine Barren plan that you just talked about, it's not complete, correct?

A. (Carbonneau) The Right-of-Way Management Plan?

It has been fully developed and submitted.

Q. To this panel?

A. (Carbonneau) Yes. It's included in the Mitigation Plan, the most recent version of the Mitigation Plan. It is an appendix to the Pine Barrens mitigation site portion of that Plan.

MS. CONNOR: I'd like to move on to Exhibit 321, unless this is an appropriate time for you to break for lunch?

CHAIRMAN HONIGBERG: It would be an appropriate time. Although, there also might be an appropriate time in five minutes or ten minutes. I'll leave that to you.

MS. CONNOR: I might actually be able to finish plants in three -- in five minutes.

CHAIRMAN HONIGBERG: Sounds like a plan.
MS. CONNOR: All right.

BY MS. CONNOR:

Q. 321 please. Mr. Magee, do you recognize, hopefully, Exhibit 321?

A. (Magee) That is pogonia verticillata.

Q. Great. Can you describe the protected status of this particular plant?

A. (Magee) It's federally listed.

Q. And am I correct that this is sometimes described as an "orchid"?

A. (Magee) Yes.

Q. And am I correct that it is a globally threatened plant?

A. (Magee) Correct.

Q. And, unbelievably, it's been documented to exist in almost all of the New Hampshire counties, except Coos, Sullivan, and Cheshire?

A. (Magee) Correct.

Q. Okay. This particular plant, as I understand it, is found where there's leaf litter, often near streams?

A. (Magee) According to the Sperduto Congalton model, there are several habitat parameters that serve as predictors for the occurrence of...
the species. These are slopes 10 to 17 percent, mixed deciduous/coniferous, and deciduous hardwood forests, and soils with a pan layer.

Q. And am I correct that that habitat is found along the path of the Project that brings us all here today?

A. (Magee) It is found -- there are four element occurrences in four different towns within five miles of the right-of-way.

Q. Before we get to that particular aspect of your testimony, am I correct that initially your plant report indicated that areas of route within 200 meters of a documented small whorled pogonia would be searched?

A. (Magee) Yes.

Q. You didn't end up searching within 200 meters of each documented small whorled pogonia population, did you?

A. (Magee) No. No. We had permission only to search within the right-of-way.

Q. You actually extended your search from 200 meters from known populations to 5 miles?

A. (Magee) Right.
Q. So, if there are additional pogonias within 200 -- between 5 miles and 200 meters of the known population, they haven't been looked at, have they?

A. (Magee) Well, let me clarify. The 5 miles, if there's an element occurrence within 200 meters, then we searched areas that had two out of the three habitat parameters present, the slope and the pan soil. If you have slope and pan soil, and an element occurrence within 200 meters, then we searched. For an element occurrence within 5 miles, we had to have three habitat parameters present to consider there to be a likelihood -- enough of a likelihood to search. So, it's adjacent right-of-way segments to an element occurrence. We weren't searching between the right-of-way and the 5 miles. We only had permission to search within the right-of-way.

Q. When I was asking you about the licorice goldenrod, you told me that, although there were only 21 known sites of that particular plant, that we're always discovering new ones, is that correct?
Q. And that's because you don't know and you can't inventory a plant unless somebody goes out and finds it?

A. (Magee) Correct.

Q. And, in this particular instance, as I understand it, you had found very few, actually, you found no pogonias?

A. (Magee) Right.

Q. That doesn't mean, does it, that there are no pogonias that are going to be impacted by this Project, it simply means you didn't find them?

A. (Magee) Correct.

Q. And, as I understand it, despite the fact that this is a globally threatened, very rare plant, because you didn't find any on your search parameters, nothing more is going to be done to look for them before this Project goes down the path?

A. (Magee) The process that we follow is to, first of all, if there's an element occurrence within 5 miles, we think there's a reasonable probability, of enough of a probability of the plant occurring within the adjacent

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right-of-way segment, we searched. And, on top
of that, we looked for the habitats that have
the three parameters listed in the model. And
there were 18 such areas that we searched,
covering a total of almost 13 miles. And this
is how it's done. In 40 years of doing this
type of work, this is how we do it. And that
protocol was approved by the agencies.

Q. And, in terms of best management practices
going forward under plants, I take it that
there are going to be no further searches for
the pogonia?

A. (Magee) Correct.

Q. And the contractors aren't going to be trained
to be on the lookout for this globally
threatened plant when they start construction
activities, are they?

A. No, they will. Two of the AMMs call for -- one
of them calls for a training program for
contractor field personnel to be able to
recognize these plants.

Q. So, if they recognize that a pogonia is going
to be impacted, what happens?

A. (Magee) If they identify what they think is a
pogonia verticillata, they'll call us, we'll come out and we'll confirm the identification, and then we will put protective fencing around it.

Q. Without any inventory as to whether there are pogonias located in the Project path, are you able to offer an opinion as to the impact of this Project upon this very rare and endangered plant?

A. (Magee) I'll say that using the protocols that are done in the business, we searched every location that had any reasonable probability of provided habitat for such species.

MS. CONNOR: I have nothing further. So, I think we can break for lunch maybe.

CHAIRMAN HONIGBERG: Sounds like a plan again, Ms. Connor. I appreciate it. So, we'll break now, and we will return in an hour.

(Lunch recess taken at 12:32 p.m. and concludes the Day 16 Morning Session. The hearing continues under separate cover in the transcript noted as Day 16 Afternoon Session ONLY.)
CERTIFICATE

I, Steven E. Patnaude, a Licensed Shorthand Court Reporter, do hereby certify that the foregoing is a true and accurate transcript of my stenographic notes of these proceedings taken at the place and on the date hereinbefore set forth, to the best of my skill and ability under the conditions present at the time.

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

____________________________
Steven E. Patnaude, LCR
Licensed Court Reporter
N.H. LCR No. 52
(RSA 310-A:173)

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