

In The Matter Of:

*SEC DOCKET NO. 2015-06 NORTHERN PASS TRANSMISSION, LLC
ADJUDICATORY HEARING*

*DAY 6 - MORNING SESSION ONLY
May 1, 2017*

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1 STATE OF NEW HAMPSHIRE
2 SITE EVALUATION COMMITTEE

3 May 1, 2017 - 9:08 a.m. DAY 6
4 49 Donovan Street Morning Session ONLY
5 Concord, New Hampshire

6 {Electronically filed with SEC on 05-8-17}

7
8 IN RE: SEC DOCKET NO. 2015-06
9 Joint Application of Northern
10 Pass Transmission, LLC, and
11 Public Service Company of
12 New Hampshire d/b/a Eversource
13 Energy for a Certificate
14 of Site and Facility.
15 (Hearing on the merits)

16 PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:

17 Chrmn. Martin P. Honigberg Public Utilities Comm.
18 (Presiding as Presiding Officer)

19 Cmsr. Kathryn M. Bailey Public Utilities Comm.
20 Dir. Craig Wright, Designee Dept. of Environ. Serv.
21 Christopher Way, Designee Dept. of Resources &
22 Economic Development
23 William Oldenburg, Designee Dept. of Transportation
24 Patricia Weathersby Public Member
Rachel Whitaker Alternate Public Member

ALSO PRESENT FOR THE SEC:

Michael J. Iacopino, Esq., Counsel to the SEC
Iryna Dore, Esq.
(Brennan, Caron, Lenehan & Iacopino)

Pamela G. Monroe, SEC Administrator

COURT REPORTER: Susan J. Robidas, NH LCR 44

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I N D E X

WITNESS PANEL: NATHAN SCOTT
 LYNN FARRINGTON
 SAMUEL JOHNSON
 KENNETH BOWES
 DERRICK BRADSTREET
 SAMUEL JOHNSON

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1 P R O C E E D I N G S

2 CHAIRMAN HONIGBERG: All
3 right. Good morning, everyone. Welcome
4 back. While all of us were away, I decided
5 to bring with me a really fun cold. So if I
6 have to step out, I'll leave either
7 Commissioner Bailey or Attorney Iacopino in
8 charge.

9 I know we have a panel that's
10 already in place. Are there any preliminary
11 matters we need to deal with before the panel
12 gets sworn in?

13 [No verbal response]

14 CHAIRMAN HONIGBERG: Oh, how
15 nice.

16 (WHEREUPON, JOHN KAYSER, DERRICK
17 BRADSTREET, KENNETH BOWES, SAMUEL
18 JOHNSON, LYNN FARRINGTON AND NATHAN
19 SCOTT were duly sworn and cautioned by
20 the Court Reporter.)

21 CHAIRMAN HONIGBERG: Mr.
22 Needleman.

23 MR. NEEDLEMAN: Thank you. I
24 think what I'm going to do is just work my

1 way down the panel, one witness at a time.

2 That will probably be most efficient.

3 DIRECT EXAMINATION

4 BY MR. NEEDLEMAN:

5 Q. So, Mr. Kayser, let's start with you. If you
6 could identify yourself and where you work,
7 please.

8 A. (Kayser) My name is John Kayser, and I'm a
9 project manager for Burns & McDonnell.

10 Q. And what is your role in this project?

11 A. (Kayser) I am the construction project
12 manager on the Project.

13 Q. I've given you two exhibits. The first one
14 is Exhibit 14, and that is your October 16th,
15 2015, prefiled testimony, and I've given you
16 Exhibit 89, and that is your April 17th,
17 2017, supplemental testimony. Do you have
18 both of those?

19 A. (Kayser) Yes, I do.

20 Q. And do you have any corrections to either of
21 those documents?

22 A. (Kayser) No, I do not.

23 Q. All right. Then do you adopt both of those
24 and swear to them?

1 A. (Kayser) Yes.

2 Q. All right. And then next is Mr. Bradstreet.
3 Could you identify yourself and where you
4 work, please.

5 A. (Bradstreet) Yes. I'm Derek Bradstreet. I
6 work for Burns & McDonnell Engineering. I'm
7 a project manager there. I'm solely
8 responsible on this project for design
9 engineering.

10 Q. And I've given you two exhibits. You have
11 Exhibit No. 12, which is your October 16th,
12 2015, prefiled testimony, and you have
13 Exhibit No. 87, which is your April 17th,
14 2017, supplemental testimony. Do you have
15 both of those?

16 A. (Bradstreet) Yes.

17 Q. Do you have any changes to either one of
18 those?

19 A. (Bradstreet) No, I do not.

20 Q. Do you adopt both of those and swear to them?

21 A. (Bradstreet) Yes.

22 Q. Then next we've got Mr. Bowes. Again, just
23 for the record, could you identify yourself,
24 please.

1 A. (Bowes) Kenneth Bowes, Vice-president of
2 Transmission Performance for Eversource
3 Energy.

4 Q. And Mr. Bowes, could you identify your
5 purpose with respect to this panel.

6 A. (Bowes) For technical and managerial
7 capability, as well as construction
8 activities and operations and maintenance for
9 the NPT line.

10 Q. I've given you four exhibits. Exhibit No. 4
11 is the October 16th, 2015, prefiled testimony
12 of Jerry Fortier; Exhibit No. 9 is the
13 February 26th, 2016, prefiled testimony of
14 Ken Bowes; Exhibit 53 is a May 4th, 2016,
15 letter from me to Ms. Monroe indicating your
16 adoption of Mr. Fortier's testimony; and
17 Exhibit No. 90 is an April 17th, 2017, copy
18 of your supplemental prefiled testimony. Do
19 you have those four?

20 A. (Bowes) Yes, I do.

21 Q. Do you have any changes or corrections to any
22 of the pieces of prefiled testimony?

23 A. (Bowes) Yes, I do.

24 Q. Could you explain those, please.

1 A. (Bowes) For Exhibit No. 9, which is my
2 prefiled testimony, dated February 26th,
3 2015, on Page 11 of 20, Lines 17, there's a
4 typographical error. It should read -- that
5 line should read, "the exact number of field
6 inspectors" instead of "the exact number of
7 filed inspectors."

8 Q. Any others?

9 A. (Bowes) No, there were no others.

10 Q. Subject to that one change, do you adopt the
11 three pieces of prefiled testimony and swear
12 to them?

13 A. (Bowes) Yes, I do.

14 Q. All right. Mr. Johnson next. Could you
15 identify yourself, please.

16 A. (Johnson) My name is Samuel Johnson. I'm a
17 senior project manager at Burns & McDonnell
18 Engineering.

19 Q. And what is your role in this project?

20 A. (Johnson) I'm the senior manager of the
21 Project, and all Burns & McDonnell employees
22 report to me.

23 Q. I've given you two exhibits: Exhibit No. 11,
24 which is your October 16th, 2015, prefiled

1 testimony, and Exhibit No. 86, which is your
2 supplemental prefiled testimony of
3 April 17th, 2017. Do you have both of those?

4 A. (Johnson) I do.

5 Q. Do you have any changes or corrections to
6 either one?

7 A. (Johnson) I do not.

8 Q. All right. Then do you adopt both of those
9 and swear to them today?

10 A. (Johnson) I do.

11 Q. Next, Ms. Farrington, please identify
12 yourself.

13 A. (Farrington) I'm Lynn Farrington. I'm a
14 traffic engineer with Louis Berger.

15 Q. And what is your role in this project?

16 A. (Farrington) I'm advising the Project on
17 traffic management.

18 Q. I've given you two exhibits: Exhibit No. 15,
19 which is which is your October 16, 2015,
20 prefiled testimony, and Exhibit No. 91, which
21 is your April 17th, 2017, supplemental
22 testimony. Do you have both of those?

23 A. (Farrington) Yes.

24 Q. Do you have any changes or corrections to

1 either one?

2 A. (Farrington) No.

3 Q. Do you adopt both of those and swear to them
4 today?

5 A. (Farrington) Yes, I do.

6 Q. And finally, Mr. Scott, could you identify
7 yourself, please.

8 A. (Scott) Yes. My name is Nathan Scott. I'm a
9 senior transmission engineer for Burns &
10 McDonnell. I'm responsible for underground
11 design and design review for this project.

12 Q. I've given you two documents: Exhibit
13 No. 13, which is your October 16th, 2015,
14 prefiled testimony, and Exhibit No. 88, which
15 is your April 17th, 2017, supplemental
16 testimony. Do you have both of those?

17 A. (Scott) Yes, I do.

18 Q. Do you have any changes or corrections to
19 either one?

20 A. (Scott) I do not.

21 Q. Do you adopt both of those and swear to them
22 today?

23 A. (Scott) I do.

24 MR. NEEDLEMAN: All set, Mr.

1 Chairman.

2 CHAIRMAN HONIGBERG: All
3 right. Anybody here from the Business and
4 Organizations? Attorney Beliveau?

5 [No verbal response]

6 CHAIRMAN HONIGBERG: All
7 right. City of Franklin, City of Berlin. I
8 see Attorney Boldt.

9 MR. BOLDT: Thank you, Mr.
10 Chairman.

11 CROSS-EXAMINATION

12 BY MR. BOLDT:

13 Q. For the record, my name is Chris Boldt. I'm
14 with Donahue, Tucker & Ciandella. Sorry.
15 Over here.

16 And the purpose of my questions are on
17 behalf of the City of Berlin addressing the
18 Coos Loop upgrades. So, some of you will be
19 likely ignored, and I apologize, but that
20 might be a good thing over the length of
21 time.

22 Mr. Bowes, from the 10,000-foot view,
23 can you confirm for me the general nature of
24 the upgrade for the northern and western legs

1 of the Coos loop? What will happen on the
2 ground?

3 A. (Bowes) So in order to install the new
4 Northern Pass transmission line, the existing
5 115 kV AC transmission lines have to be
6 rebuilt and relocated to, in general, the
7 northern part of that right-of-way. It's
8 about 31 miles of reconstruction of existing
9 wood H-frame transmission lines to, again, in
10 most cases, steel monopole structures located
11 along the edge of the right-of-way, and the
12 Northern Pass line will be in the center or
13 to the south part of the right-of-way.

14 Q. And in that relocation within the
15 right-of-way of the existing 115 kV line of
16 the Coos Loop, the conductors are being
17 upgraded is my understanding; correct?

18 A. (Bowes) That is also correct. As part of the
19 rebuild, we're going to a standard Eversource
20 standard conductor size.

21 Q. And that conductor size, I believe, ends with
22 775, I believe is the designation?

23 A. (Bowes) Subject to check. I think it's 795.

24 Q. Thank you. And the purpose of that upgrade

1 in that conductor size increases the capacity
2 of the amount of power able to flow around
3 the loop; correct?

4 A. (Bowes) Yes, it does.

5 Q. And I believe the prior testimony is that it
6 basically deals with approximately 95 percent
7 of the thermal limits on that line that
8 creates approximately 27-percent increase in
9 the megawatt load that can traverse the line;
10 is that correct?

11 A. (Bowes) I wasn't here for that part of the
12 testimony. It sounds like you're talking
13 about what Mr. Andrew may have discussed. I
14 believe that's accurate. I mean, I've looked
15 at it maybe in a little bit different terms.
16 But it will certainly unlock the generation
17 that is feeding into that configuration
18 today, and it will allow the generation to
19 run more hours of the year.

20 Q. But also one thing it does not do is it does
21 not create more capacity for potential new
22 projects that would go on it. If another 100
23 megawatts of wind went on adjacent to the
24 Granite Reliable project, that would not have

1 enough capacity on that upgrade. A further
2 upgrade may be needed; correct?

3 A. (Bowes) So, in general, yes. However,
4 additional generation could be added to the
5 loop. It would just curtail or constrain
6 existing generation on that loop, and that
7 would have to be done through the ISO-New
8 England market. And it would be a bidding
9 issue rather than a technical limitation.

10 Q. Thank you.

11 As part of the reconstruction and
12 reconfiguration of the Coos Loop, there will
13 obviously have to be some amount of time that
14 the existing line is disconnected and the new
15 line connected to the remaining portions of
16 the loop. Approximately how long, from an
17 engineering standpoint, is that anticipated
18 to be?

19 A. (Bowes) So the plan today is to rebuild the
20 existing line prior to taking -- let me back
21 up -- to build a new line prior to taking
22 apart the existing line. So the entire
23 structures would be built, the conductor run,
24 and it would just be cutovers at each end, at

1 Whitefield and at Paris substations to
2 accommodate removal of the old line and
3 installation of the new. So I would estimate
4 probably one to two weeks would be the total
5 time where there would be constraints for
6 operation on that loop.

7 Q. And during that time, however, of the one- to
8 two-week cutover, the remaining portions,
9 though, the eastern and the southern segments
10 of the Coos Loop, are still functional?

11 A. (Bowes) Correct. There will be no
12 interruptions to customers. There might be
13 some curtailment of generation.

14 Q. And that curtailment would obviously be
15 coordinated with the generators and with
16 ISO-New England, I assume; correct?

17 A. (Bowes) That is correct.

18 Q. One element that's been discussed previously
19 is the potential of an SVC or voltage
20 regulator being added at the Berlin
21 substation. It's my understanding that a
22 voltage analysis study -- and I may be using
23 an incorrect term, but I believe that's what
24 was referenced -- has to be performed. Is

1 that a correct understanding, that that study
2 has to be performed?

3 A. (Bowes) That, as well as maybe other studies.
4 But there would have to be studies performed
5 to determine what other upgrades are needed.

6 Q. To the best of your knowledge, sitting here
7 today, have those studies been done yet?

8 A. (Bowes) They have not.

9 Q. Have they been ordered yet?

10 A. (Bowes) They have not.

11 Q. How long -- or what is the trigger event that
12 needs to occur for those studies to be
13 ordered?

14 A. (Bowes) I would think all the permits
15 necessary for the Northern Pass Project would
16 trigger the start of those studies. I don't
17 anticipate they would be very lengthy. The
18 necessary upgrades could all happen within
19 the construction cycle of Northern Pass.

20 Q. But as you're sitting here today, is it
21 anticipated that once the permits are in
22 place, those studies would occur due to the
23 nature of the generation along the Coos Loop?

24 A. (Bowes) Yes.

1 Q. And if the study concludes that the SVC is
2 necessary, I believe the prior testimony is
3 that's approximately a \$20 million asset;
4 correct?

5 A. (Bowes) It's probably the high end cost. It
6 may not necessitate, you know, a dynamic
7 device. We may just be able to use capacitor
8 banks, which would be a fraction of that
9 cost.

10 Q. And how long would that asset take to order
11 in the process of your construction of the
12 Northern Pass line?

13 A. (Bowes) Again, we haven't gone out to bid yet
14 for that. But it's similar equipment to the
15 SVC at Deerfield, although much smaller in
16 scope and scale. So I would say it's
17 probably a 12- to 18-month process to order
18 and install.

19 Q. And how large is that asset on the ground in
20 general size?

21 A. (Bowes) So, again, without knowing all the
22 technical specifications of it, it's probably
23 1 to 2 acres would be my estimate.

24 Q. Okay. In connecting the -- or improving,

1 rather, the Coos Loop, that runs through the
2 Whitefield substation. And currently power
3 can flow out of the Whitefield substation
4 either west to Littleton and over towards
5 Vermont, or south through Bethlehem and down
6 the existing Eversource-PSNH line into
7 central New Hampshire. One aspect of the
8 current project is a new substation in
9 Franklin. And my question is: Will there be
10 any interconnection between the existing
11 central line running from Bethlehem south to
12 that new Franklin substation for
13 interconnectivity?

14 A. (Bowes) No, there will not.

15 Q. Is the Franklin substation being built with
16 the potential of adding interconnectivity,
17 whether from the central line or from the
18 line running from the west along 89?

19 A. (Bowes) So the site is clearly large enough
20 to expand for other uses. There are none
21 planned for at this point, or none in a study
22 phase which goes out more than ten years with
23 ISO-New England.

24 Q. Turning to Exhibit 90, which is your

1 supplemental prefiled testimony, and
2 particularly to Page 11, Lines 23 through 26,
3 where you discuss decommissioning -- let me
4 know when you reach there.

5 A. (Bowes) Yes, I have it.

6 Q. Generally you're discussing there the fact
7 that transmission lines are typically
8 reconductored and refurbished rather than
9 decommissioned. Is that the gist of that
10 statement in your testimony?

11 A. (Bowes) Yes, it is.

12 Q. Okay. Is that your opinion of what will
13 happen not only for the Northern Pass line,
14 but also for these upgrades to the Coos Loop?

15 A. (Bowes) So, clearly for the upgrades to the
16 Coos Loop, there's customer service needs
17 there. There are generation service needs
18 there as well. The Northern Pass is slightly
19 different. It's an electric transmission
20 project. So there may be portions that after
21 their useful life are removed and
22 decommissioned, thus the need for a
23 decommissioning plan.

24 Q. And do you have an opinion on the anticipated

1 life of the Coos Loop upgrades?

2 A. (Bowes) Yeah. So they're going to be rebuilt
3 with steel structures and, you know, the
4 latest conductor. They'll have a
5 depreciation life of 40 years and probably a
6 useful life several decades beyond that.

7 Q. Is the upgrade to the Coos Loop included in
8 your decommissioning plan figure referenced
9 on Page 13, Line 3?

10 A. (Bowes) No, it is not.

11 Q. Okay. And Attachment A to your Exhibit 90
12 is, I take it, to be a number of conditions
13 imposed by DOT if this project's approved by
14 the SEC. Am I correct in concluding that
15 those similar conditions would apply to the
16 work done to upgrade the Coos Loop, things
17 like the road crossings, the safety factors
18 that DOT is concerned with?

19 A. (Bowes) Yes, it includes all of the AC
20 upgrades for the PSNH transmission and
21 distribution lines.

22 Q. Thank you.

23 Mr. Bradstreet, I believe your
24 supplemental prefiled testimony is

1 Exhibit 87; correct?

2 A. (Bradstreet) That's right.

3 Q. Turning to Page 2, Lines 6 and 7 of that
4 testimony, you make reference to 13
5 structures being moved to lessen wetland
6 impacts. Do you recall, as you're testifying
7 today, whether any of those 13 structures are
8 within the Coos Loop structures, or are we
9 talking only Northern Pass overhead line
10 segments?

11 A. (Bradstreet) I would have to double-check. I
12 don't recall, off the top of my head.

13 Q. Is there a list of these 13?

14 A. (Bradstreet) Yeah, the Project does have a
15 list, yes. I don't know if it's been put in
16 the record, but...

17 Q. Okay. That was going to be my next question.

18 A. (Bradstreet) I guess just to maybe further
19 clarify your question, in many cases,
20 especially in the Coos Loop where we have the
21 Northern Pass structure, there would be a
22 Coos Loop structure, an existing 115 kV
23 structure that is closely adjacent to the
24 Northern Pass structure. And in many cases,

1 if we were looking to move one, we would also
2 be looking to move the other. So, should one
3 of those been one of the 13 that was moved,
4 there's a good chance that the adjacent 115
5 also was moved. But I'd have to
6 double-check.

7 Q. Also on Page 2, at the very bottom and carry
8 over to Page 3 -- so we start on Page 2, Line
9 30 and go to Page 3, Line 2 -- you're making
10 reference to the FAA requiring 31 of the
11 towers to have obstruction lights added to
12 the top, the red blinking lights. Do you
13 know, as you sit here today, if any of those
14 are the Coos -- within the Coos Loop
15 segments?

16 A. (Bradstreet) To my recollection, there are
17 none in the Coos Loop area.

18 Q. But I assume there's also a list of which of
19 those structures as well --

20 A. (Bradstreet) Yes.

21 Q. Page 3, Lines 5 and 6 make reference to a
22 "preliminary assessment" is the phrase, of
23 the potential electrical interactions with
24 the Portland Natural Gas transmission system

1 gas line that runs for approximately 12 miles
2 parallel to the existing Coos Loop. It's my
3 understanding that those are in the townships
4 of Stark and Dummer, along the northern
5 quadrant of the Coos Loop. Has that
6 interference study been done yet?

7 A. (Bradstreet) It hasn't been completed, but
8 it's in process.

9 Q. Under way?

10 A. (Bradstreet) Yes.

11 Q. And is that the same as the interference
12 study that you made reference to in your
13 technical session testimony back on
14 September 12th?

15 A. (Bradstreet) Yes, it's similar.

16 Q. When will that study be complete?

17 A. (Bradstreet) So, right now we're targeting
18 sometime in May.

19 Q. And that's -- bottom line: That's studying
20 the interaction that can happen electrically
21 between the high-voltage direct current line
22 and the gas transmission line; correct?

23 A. (Bradstreet) It's analyzing both the existing
24 115 and the Northern Pass HVDC line. And

1 correct. It's checking any interference
2 between the pipeline and those lines.

3 Q. And that's because things can go boom?

4 A. (Bradstreet) No, it's not because things can
5 go boom. It's because -- so a pipeline has a
6 cathodic protection system --

7 (Court Reporter inquiry)

8 Q. Explain that phrase for us.

9 A. (Bradstreet) It can vary between an impressed
10 current design, which is a DC current
11 supplied to the pipeline to make sure it
12 doesn't corrode, or it could have anode beds
13 of zinc anodes to be sacrificial so that the
14 pipeline doesn't corrode. So we'll be
15 double-checking to make sure that our project
16 doesn't influence that, but also that our
17 project doesn't create unsafe conditions for
18 pipeline workers.

19 Q. And what are the ramifications if some
20 negative aspect is found in that study?

21 A. (Bradstreet) So if there was some negative
22 aspect, which we do not believe we will find,
23 there may be some mitigation required for the
24 pipeline.

1 Q. Such as?

2 A. (Bradstreet) In the case of if there was a
3 case where we found the overstress on the
4 coating of the pipeline or something like
5 that, we might have to bury a mitigation wire
6 to offset some of that voltage stress of the
7 coating of the pipeline.

8 Q. Basically, it takes the electrical impact and
9 grounds it some other place other than --

10 A. (Bradstreet) Spreads it out so that that
11 specific voltage isn't seen across the
12 pipeline coating.

13 Q. Thank you.

14 Mr. Kayser, your supplemental prefiled
15 testimony is Exhibit 89, I believe. And if
16 you would turn to Page 3 of your document.
17 Line 17 makes reference that a comprehensive
18 schedule will be developed. I take it to
19 mean that that means there is no
20 comprehensive schedule yet developed?

21 A. (Kayser) That is correct. The contractor,
22 PAR, the general contractor, will be
23 developing a comprehensive construction
24 schedule as they move to planning of the

1 Project.

2 Q. Okay. Does that mean that there is not even
3 like a Gantt chart preliminary saying it
4 takes us this long for these tasks, and you
5 just change the start date?

6 A. (Kayser) They are working on that. You start
7 with a very high-level schedule as you're
8 building it, put your milestones in there,
9 and then you develop it further as you
10 understand what the energization date is and
11 when you think you're going to start
12 construction. So they are in that process of
13 developing that detailed schedule.

14 Q. And I'm not sure if this is a question for
15 you or for others on the panel, but how long
16 does it take to receive the necessary
17 conductors that are being used for the
18 upgrade to the Coos Loop?

19 A. (Kayser) As far as delivery times, that
20 varies. But typically from the time you tell
21 the vendor that you need the conductor, it's
22 12 to 16 weeks from that. But we have
23 contracts -- and Mr. Johnson may have more
24 information. But we have contracts with all

1 of the vendors. So as we get approval, we
2 will work on a delivery schedule, and that
3 will be incorporated into the contractor's
4 schedule for the conductor, the lattice
5 structures, the steel poles and all of the
6 other materials.

7 Q. Okay. So where are those conductors coming
8 from, by the way?

9 A. (Johnson) Southwire is the name of the
10 company. They have manufacturing facilities
11 in the U.S.

12 Q. What about the tower elements for the
13 monopoles for the new segment of the Coos
14 Loop?

15 A. (Johnson) Both the 115 and 345 kV monopoles
16 will be manufactured in the U.S., and the
17 lattice structures will be manufactured in
18 Montreal, Quebec.

19 Q. Are the workers installing the towers New
20 Hampshire residents, or are they coming from
21 outside as well?

22 A. (Johnson) It will be a combination. As you
23 are aware, there is the New Hampshire First
24 priority for hiring. And for the IBEW, when

1 that bench strength, if you will, of New
2 Hampshire employees is depleted, they will
3 then go outside of New Hampshire to get more
4 workers.

5 Q. And is a separate set of workers used to
6 install the conductors, you know, one team
7 doing the towers and another team doing the
8 stringing of the lines?

9 A. (Johnson) Yes, sir.

10 Q. Okay. And are those workers similarly coming
11 first from New Hampshire and then from the
12 region, if necessary?

13 A. (Johnson) Yes, sir.

14 MR. BOLDT: No further
15 questions at this time, Mr. Chairman.

16 CHAIRMAN HONIGBERG: All
17 right. Anyone from Wagner Forest Management
18 to ask questions?

19 MR. NOVELLO: Yes, I'm here.

20 CHAIRMAN HONIGBERG: Wave your
21 hand. Okay.

22 MR. NOVELLO: My name is Mike
23 Novello. I'll be addressing the panel.

24

1 CROSS-EXAMINATION

2 BY MR. NOVELLO:

3 Q. My concern is primarily the construction
4 along the areas managed by Wagner Forest. If
5 I use that colloquially, are you aware of
6 which sections I'm referring to?

7 A. (Kayser) Yes.

8 Q. So can you describe how the existing roads
9 will be used in those plans?

10 A. (Kayser) As the contractors develop their
11 access plans, if there are existing roads,
12 logging roads that are there today, they
13 would use those to the maximum extent
14 practical and then do any necessary upgrades,
15 depending on the size of their equipment.
16 They would look at that to determine if they
17 need to add any gravel or do any matting to
18 use those roads.

19 Q. Okay. Do you expect there will be any
20 restrictions on use of existing roads during
21 construction?

22 A. (Kayser) I guess undetermined at this time.
23 They would have to look at it to see if the
24 roads -- as far as town roads, there could be

1 some postings. But the roads in the Wagner
2 Forest, they'd have to look at that and work
3 with the Forest on the timing of
4 construction.

5 A. (Johnson) I will add one thing. The
6 Department of Environmental Services has
7 requested that we do a culvert study to fully
8 understand the sizes and strengths of the
9 culverts along the access roads that we've
10 identified that we would use. That study has
11 been completed and submitted to the DES, and
12 we will comply with the upgrades that are
13 required for the roads that we've identified
14 as being used.

15 Q. And then beyond what you've just discussed,
16 do you have any other plans for improvements
17 to the existing roadways, either pre- or
18 post-construction?

19 A. (Johnson) We do. Typically it's the last
20 half- to quarter-mile from that logging road
21 into our right-of-way. For the majority of
22 the work that we will be doing, we are
23 planning on traversing up and down the
24 right-of-way as opposed to, you know, sort of

1 leaving and then coming back on logging
2 roads. However, the main sort of access
3 areas, if you will, are part of our
4 Application.

5 Q. Okay. So can you describe any restoration
6 plans for those roads, for the roads on the
7 Wagner lands post-construction?

8 A. (Johnson) So we will work with the Wagner
9 Forest to see if any of the improvements that
10 we made -- the culverts themselves have to
11 stay. Those are permanent upgrades. If
12 there are areas where we've enhanced the
13 roads with gravel or anything else of that
14 nature, we will work with the Forest to
15 determine whether they would like those roads
16 left as is or they would like them taken out.
17 And if so, we'll remove them just as we would
18 remove any other access road on the Project.

19 Q. So in the prefiled testimony there was some
20 discussion of public outreach prior to and
21 during construction. Can you confirm there
22 will be someone available to coordinate work
23 on the Wagner lands with other work going on
24 in the working forest which would primarily

1 be forestry activities?

2 A. (Johnson) Absolutely. Obviously, with the
3 logging trucks and the amount of equipment
4 that you have, we want to stay as far away
5 from your activities as we can so that
6 there's no interference.

7 Q. And then can you describe any either standard
8 practices, best practices, or special
9 practices that you might expect to ensure
10 safety on the lands? So, for example, would
11 there be CB communication, flagging, those
12 type of activities?

13 A. (Johnson) Absolutely. One of the issues we
14 have up in the forest area is that
15 communication is very poor just because there
16 aren't cell towers. And CB is typically line
17 of sight or, you know, when you can't be over
18 a ridge kind of thing. We do expect to
19 employ satellite communications just so that
20 there are at all times communications
21 available.

22 Q. Okay. If there are satellite communications
23 that foresters wouldn't have necessarily in
24 their trucks, are there portable units or

1 temporary units that can be loaned out?

2 A. (Johnson) Yes. Absolutely.

3 Q. Okay. Are there particular seasons that
4 you're planning to focus on for different
5 phases of construction?

6 A. (Johnson) Yes. Typically the tree-clearing
7 will be done in the winter months where the
8 ground tends to be more frozen. Obviously,
9 there are also some other restrictions that
10 are biological and ecological that we must be
11 sensitive to. So there are certain
12 construction activities that need to be
13 phased, depending on how that all comes
14 together. And that's exactly the process
15 that we're in right now is trying to figure
16 out that. But from a general perspective,
17 it's clearing access roads in the winter, and
18 then the construction activities would follow
19 usually post-mud season to avoid, obviously,
20 the major impacts and take that going
21 forward.

22 Q. At this point, are you expecting those
23 activities to each be one season, or are you
24 expecting this to last for multiple years of

1 construction?

2 A. (Johnson) Good question. It really depends I
3 think on the productivity that we get through
4 one or more seasons. Conceivably the
5 24 miles that are in the forest could be done
6 in one season. But I don't think we're going
7 to limit ourselves at this time. But
8 obviously we'll work with you as the Forest
9 to come up with a most appropriate solution
10 for that area.

11 Q. Okay. What are your plans for sourcing
12 materials related to construction there,
13 notably gravel and matting you mentioned
14 earlier?

15 A. Gravel will all be local. Obviously, the
16 less truck time we have, the better.
17 Matting, we've been working with several
18 vendors in the area, all New Hampshire-based.
19 So it will be most likely somebody in New
20 Hampshire that will provide the matting.

21 Q. Okay. And it sounds like from your prior
22 answer there's going to be both temporary and
23 permanent bridging structures potentially.

24 A. (Johnson) Potentially. At this point,

1 anything that's on one of the major access
2 roads would be permanent, and anything along
3 our right-of-way would be temporary.

4 Q. Okay. Will there be a minimum height above
5 the road that lines will be strung? In
6 particular, I'm worried about collisions with
7 forestry trucks.

8 A. (Bradstreet) So, yes, all of our design
9 accommodates road-crossing clearance
10 requirements. So as long as vehicles aren't
11 taller than over-the-road, I guess,
12 non-permitted load, clearance will be
13 adequate.

14 Q. And then my final question: Do you
15 anticipate there will be any gating of the
16 roads or line corridors during construction
17 or after construction?

18 A. (Johnson) Only if required by the Forest.

19 MR. NOVELLO: Thank you.
20 That's my last question.

21 CHAIRMAN HONIGBERG: All
22 right. I think we're up to Counsel for the
23 Public.

24 MR. PAPPAS: Mr. Chairman,

1 we're going to allow Mr. Bilodeau to go in
2 front of us. He only has a limited amount of
3 time, and he'd like to leave to go to work,
4 and then I'll follow him.

5 CHAIRMAN HONIGBERG: While Mr.
6 Bilodeau's coming up, is there anybody else
7 who has a particular time constraint today
8 that we need to work around? If so, at the
9 next break, either tell Ms. Monroe or
10 Attorney Iacopino, and we'll try to work that
11 out. Mr. Pappas will be more than
12 accommodating.

13 Q. Bill dough Exhibit 18 is now up on the
14 monitor.

15 CHAIRMAN HONIGBERG: Mr.
16 Bilodeau, you may proceed.

17 MR. BILODEAU: Good morning.
18 Thank you, Members of the Committee, and
19 thank you, Attorney Pappas, for the few
20 minutes to get me in and out of here. Thank
21 you.

22 CROSS-EXAMINATION

23 BY MR. BILODEAU:

24 Q. And good morning, gentlemen and lady of the

1 panel. I guess I want to ask you all
2 individually if you are familiar with the
3 existing Deerfield substation. And answer in
4 any order or whatever.

5 A. (Kayser) Yes.

6 A. (Bradstreet) Yes.

7 A. (Bowes) Yes.

8 A. (Scott) Yes.

9 A. (Farrington) Yes.

10 A. (Johnson) Yes.

11 Q. Have you been there, to the Deerfield
12 substation?

13 A. (Kayser) Yes, I have.

14 A. (Bradstreet) Yes, sir, I have.

15 A. (Bowes) Yes.

16 A. (Johnson) Yes.

17 A. (Farrington) I have not.

18 A. (Scott) No, I have not.

19 Q. Thank you.

20 And as you'll see on the screen, there's
21 a representation there of what's there now
22 presently that I just asked you about. And
23 now I will replace that with a representation
24 prepared by --

1 A. (Johnson) Could you spin that around?

2 Perfect.

3 Q. Sorry. I'm not used to this.

4 A. (Johnson) Neither are we. It's okay.

5 MR. IACOPINO: Mr. Bilodeau,
6 it would also be helpful if you referred to
7 your exhibits by their number so that the
8 record knows what exhibit you're speaking
9 about.

10 MR. BILODEAU: Okay.

11 Eighteen.

12 BY MR. BILODEAU:

13 Q. Can any one of you -- so that's a
14 representation of what's proposed from the
15 documents prepared by the Applicant. Can one
16 of you, or any one of you, confirm that the
17 plans and supporting documents that have been
18 proposed is a 16- to 18-acre clear cut?

19 A. (Kayser) I don't remember the exact acreage,
20 but we will be clearing that area where the
21 SVC and capacitor bank area are shown on your
22 exhibit.

23 A. (Bowes) I was under the impression it was
24 about 8.4 acres of clearing.

1 Q. I'm only reporting what I heard at one of the
2 public meetings that had taken place by one
3 of your experts.

4 A. (Johnson) Sure. I believe the existing
5 substation has 8 acres, and there's an
6 additional 8 acres that will be cleared for
7 the total of 16.

8 Q. Thank you.

9 Can you confirm, can any one of you
10 confirm that there's a 22-foot cut and a
11 14-foot fill section that will be necessary
12 to flatten the hill to make a flat spot for
13 this SVC thing, station?

14 A. (Kayser) I don't have the plans in front of
15 me, but there are some cut and fills to make
16 that flat for where the SVC and capacitor
17 bank areas are.

18 Q. Okay. Can anyone of you who would be most
19 comfortable describe the sequence of putting
20 that SVC station there, you know, from
21 initiation to you drive away and all we see
22 is your taillights?

23 A. (Kayser) I guess I can start on it and then
24 maybe Derrick or Sam can jump in.

1 The first thing the contractor would do
2 is to come in and clear the area, clear the
3 vegetation for the capacitor bank and also
4 where the relocated 345 kV line will go.

5 Q. Could we just do this sequentially so I
6 don't -- we don't remember at the end?

7 A. (Kayser) Okay.

8 Q. How will that take place, the clearing? What
9 type of equipment and what do you expect?

10 A. (Kayser) Yeah, the contractor will have
11 typical clearing equipment, the feller
12 bunchers. Depending on the area, there may
13 be some hand clearing that needs to be done.
14 But they'll come in there and take the trees,
15 either chip them and dispose of the chips, or
16 take the trees out if there's any marketable
17 timber.

18 Q. Thank you.

19 A. (Kayser) Then, once the clearing's done,
20 they'll start the site development work.
21 Again, the equipment for site development
22 would be bulldozers, excavators, dump trucks,
23 normal site development. As they're doing
24 that -- prior to starting the site

1 development, they would set up all the
2 necessary environmental controls to control
3 that site development. Then they would put
4 the subbase down there, and then foundations
5 for all of the equipment in the area would
6 follow that.

7 Q. I'm sorry again to interrupt. The cut and
8 fill, has there been boring done? Is there
9 ledge there, and would ledge need to be
10 blasted?

11 A. (Kayser) They've done some soil borings. I
12 don't know what those soil borings showed.

13 Sam, I don't know if you know if they've
14 completed all of them.

15 A. (Johnson) They have. There's a potential for
16 a small amount of blasting, but that has not
17 been determined at this time. The contractor
18 still believes they can remove some of that
19 with mechanical means as opposed to blasting.

20 Q. That would be part of the site preparation?

21 A. (Johnson) That's correct.

22 A. (Kayser) Yeah, the cut and fill would be part
23 of the site preparation. Once the site is
24 done, then they would start with the

1 foundations, any of the foundations for the
2 equipment, and also the ground grids that
3 would go in there that are required for that.

4 Q. A lot of concrete?

5 A. (Kayser) Yes, for -- yeah, the foundations
6 would be concrete. Any of the stands for the
7 bus work are concrete foundations. The
8 transformer has a concrete foundation. And
9 then SVC building itself would have a
10 concrete foundation.

11 Q. On-site material production or trucked-in
12 concrete?

13 A. (Kayser) Most likely trucked in from a batch
14 plant locally.

15 So, after foundation, then they would
16 start erection of the steel, get the
17 equipment in there and then start with
18 installing the electrical lines to energize
19 the equipment.

20 Q. The line relocation and station, is that the
21 same firm doing that, or is that two separate
22 activities taking place at the same time?

23 A. (Kayser) The SVC would be done by a separate
24 firm. And then the lines and the electrical

1 equipment and the existing substation will be
2 done by PAR Electric as the general
3 contractor. ABB would be installing the SVC
4 capacitor bank.

5 Q. So as you describe this activity, could you
6 surmise -- or summarize how long all of this
7 would take from start to finish?

8 A. (Kayser) They don't have the exact schedule,
9 but I would say you're probably in the
10 18-month time frame, give or take a few
11 months on either side.

12 Q. So would that 18-month period be consistent
13 throughout the 18 months? You start in month
14 one and just keep working until you're at the
15 end and it's continual?

16 A. (Kayser) Yes, I would say it's fairly
17 continuous work.

18 Q. That's the overall. What's the daily
19 activity like?

20 A. (Kayser) Depends on what type of work they're
21 doing there. So, during the site
22 development, a lot of site-development
23 equipment. Work hours would be similar for
24 most of the Project, which would be the

1 daylight hours doing construction, Monday
2 through Saturday.

3 Q. So in previous testimony -- and I'm pleased
4 to hear you say that, Mr. Kayser -- it was
5 six days a week. Saturdays are an included
6 workday?

7 A. (Kayser) Yes, Monday through Saturday. Yeah.

8 Q. In some of the previous discussions over the
9 past year and a half we've heard it's like
10 from 7:00 to 7:00?

11 A. (Kayser) Yeah, that's probably about the
12 timing of that.

13 Q. Okay. Would you consider any of this work to
14 be quite noisy?

15 A. (Kayser) It would be typical noise for a
16 construction site. During the site
17 development there would be more noise than
18 during the other parts of that because you've
19 got more equipment that will be doing the
20 cutting and fill. And then, if there is any
21 potential for blasting, that will be done
22 during that time period.

23 Q. Thank you.

24 MR. BILODEAU: And thank you

1 again, Mr. Pappas.

2 And one last thing. I just
3 wanted to show with my finger here where my
4 house is on the sketch so you can kind of get
5 the sense of my questions.

6 Thank you very much.

7 CHAIRMAN HONIGBERG: Mr.
8 Pappas.

9 MR. PAPPAS: Thank you.

10 CROSS-EXAMINATION

11 BY MR. PAPPAS:

12 Q. Good morning, gentlemen, Ms. Farrington.

13 Attorney Needleman went over your areas,
14 but I want to just make sure I understand
15 what each of you are going to -- the areas
16 you'll cover during the testimony. So I'll
17 start with you, Mr. Bowes.

18 You indicated that you're the lead
19 technical expert. So I understand that
20 covers basically overall construction,
21 including summary of the construction plans
22 and the decommissioning plan. But you also
23 touch upon property rights; is that right?

24 A. (Bowes) Yes, as well as operation and

1 maintenance of the line.

2 Q. Okay. And Mr. Kayser, you're employed by
3 Burns & McDonnell as a project manager, so
4 you're going to be talking about both
5 managing this project, as well as some
6 specific construction items?

7 A. (Kayser) Yes.

8 Q. Okay. And Mr. Johnson, you are also employed
9 by Burns & McDonnell. I understand your
10 areas include land rights, public outreach
11 and some overall project costs?

12 A. (Johnson) That's correct, as well as overall
13 management of the program.

14 Q. Okay. And Mr. Bradstreet, you oversaw the
15 overhead portion of the Project; is that
16 right, initially?

17 A. (Bradstreet) Yes, from the design aspect.

18 Q. And you also oversaw the design of the
19 converter terminal in Franklin?

20 A. (Bradstreet) That's correct.

21 Q. And today your role has changed a little bit.
22 You're now the lead engineer for all the
23 engineering scopes; is that right?

24 A. (Bradstreet) Yeah. I mean, so my overall

1 role is engineering in general. Since the
2 inception of the Project, since we got
3 involved with Northern Pass, I have been
4 involved in all engineering aspects to some
5 degree. So I guess I would say it's not a
6 significant change, but yes.

7 Q. Okay. Are you licensed in New Hampshire?

8 A. (Bradstreet) Yes, I am.

9 Q. Okay. And Mr. Scott, you were initially the
10 primary underground engineer designer;
11 correct?

12 A. (Scott) Correct.

13 Q. And you're now going to review PAR's design
14 work on behalf of Northern Pass Transmission?

15 A. (Scott) Correct.

16 Q. And you're also going to review the design of
17 the underground cable system which will be
18 designed by ABB?

19 A. (Scott) Correct.

20 Q. Are you licensed in New Hampshire?

21 A. (Scott) I am not.

22 Q. And Ms. Farrington, you do not work for Burns
23 & McDonnell.

24 A. (Farrington) Correct.

1 Q. And you, I understand, were initially advised
2 to work on traffic issues and planning?

3 A. (Farrington) Yes, that's correct.

4 Q. And subsequently your firm has been retained
5 by PAR Electric?

6 A. (Farrington) Yes.

7 Q. And as with a contract with PAR, you've
8 developed the traffic control plans to date?

9 A. (Farrington) Yup.

10 Q. And you'll eventually develop a traffic
11 management plan?

12 A. (Farrington) Yes.

13 Q. Okay. So let me start with Mr. Kayser and
14 Mr. Bowes and ask some questions about the
15 overall project management.

16 Now, Quanta will be the overall general
17 contractor; is that right?

18 A. (Kayser) Yes.

19 Q. Okay. And Quanta will be responsible for the
20 entire project; correct?

21 A. (Kayser) Yes.

22 Q. Okay. And that includes final design, hiring
23 all the subs and actually constructing the
24 Project?

1 A. (Kayser) Yes.

2 A. (Johnson) Except for the portion that ABB is
3 going to build, they are responsible for
4 hiring their own subs.

5 Q. ABB hiring their own subs?

6 A. (Johnson) Yes.

7 Q. But ABB will be hired by Quanta to --

8 A. (Johnson) No, sir. ABB is direct-contracted
9 with --

10 Q. NPT?

11 A. (Johnson) Yes.

12 Q. When did NPT or Eversource first contact
13 Quanta with respect to Northern Pass?

14 A. (Kayser) We went out for overhead bids the
15 summer of 2015. I believe it was the June
16 time frame, but I don't remember exactly
17 when. I think it was June or July we went
18 out for bids in 2015.

19 Q. And when was Quanta selected?

20 A. (Johnson) January, approximately.

21 Q. January 2016?

22 A. (Johnson) January 2016, yes.

23 Q. And Quanta then hired PAR Electric?

24 A. (Johnson) So, PAR Electric is a subsidiary of

1 Quanta. That's correct. The bid was
2 actually bid by PAR Electric, not by Quanta.

3 Q. Ah, okay. And so PAR, then, will actually
4 oversee all parts of the construction.

5 A. (Johnson) Correct. The contract is with PAR
6 Electric.

7 Q. With PAR. Okay.

8 Now, PAR, as I understand it, has
9 retained SGC Engineering for the civil
10 engineering for open trench?

11 A. (Johnson) That is correct.

12 Q. And PAR has retained Brierley Associates for
13 the trenchless engineering?

14 A. (Johnson) That is correct.

15 Q. And you said a moment ago NPT hired ABB
16 directly for the underground cable.

17 A. (Johnson) That is correct.

18 Q. All right. So in terms of the overhead
19 construction, that will be done by PAR and
20 whatever subs it hires?

21 A. (Johnson) That's correct.

22 Q. And in terms of the underground construction,
23 the open trench will be by PAR and whatever
24 subs it hires?

1 A. (Johnson) That's correct.

2 Q. And the trenchless, which are either HDD
3 drilling or microtunneling, that's by
4 specialty contractors?

5 A. (Johnson) Correct. And those will be hired
6 by PAR as well.

7 Q. By PAR as well. Okay.

8 And I take it there are a limited number
9 of them available to do this kind of work?

10 A. (Johnson) Depending on the size of equipment,
11 yes. But there are at least 30, 40 in the
12 country that could do this kind of work.

13 Q. Okay. Now, as I understand it, NPT as the
14 owner is ultimately responsible for the
15 entire project; correct?

16 A. (Johnson) Yes.

17 Q. Okay. And NPT, in addition to hiring PAR to
18 bid for the construction work, NPT separately
19 retained PAR as NPT's agent on the Project;
20 is that right?

21 A. (Johnson) Yes, they are the general
22 contractor and will manage the entire
23 construction process.

24 Q. But apart from the general contractor, does

1 PAR also have an agency relationship with NPT
2 to oversee construction apart from the
3 contract for the general construction?

4 A. (Johnson) So the agency part that we're
5 referencing, their contract is effectively
6 managing the material deliveries from the
7 other vendors that have been
8 direct-contracted with Eversource, or NPT, as
9 well as managing the ABB installation, as far
10 as touch points and schedule and making sure
11 that they are all working harmoniously.

12 A. (Bowes) But it is a single agreement that
13 includes both the agent and the general
14 contractor.

15 Q. Okay. But the agency part is for overseeing
16 material procurement and overseeing ABB's
17 work?

18 A. (Johnson) Correct.

19 Q. Okay. Does the agency part include
20 overseeing PAR's work?

21 A. (Johnson) By definition, I would -- yes.

22 Q. Okay. So, essentially, PAR is going to be
23 the general contractor, plus they're going to
24 be NPT's agent to oversee the construction

1 work?

2 A. (Johnson) From the direct construction.

3 There would still be oversight from the owner
4 as well.

5 Q. Okay. But the owner doesn't have a separate
6 agent to oversee any of PAR's work direct?

7 A. (Bowes) Yes, we do.

8 Q. Who's that?

9 A. (Bowes) One of them will be Burns &
10 McDonnell. So there is an organization chart
11 actually on the last page of Jerry Fortier's
12 testimony that's actually color-coded as
13 well. And the areas in I'd say pink or light
14 red are really under the PAR general
15 contractor, and then there's two columns to
16 the left which includes the design
17 engineering and owner's engineer, project
18 controls, environmental project management,
19 and then various technical oversight for the
20 PAR contract and community relations and
21 environmental oversight for the work that PAR
22 does.
23 Q. Okay. So I want to walk through that a
24 little bit.

1 A. (Johnson) Sure.

2 Q. So as I understand it, Burns & McDonnell --

3 MR. IACOPINO: Before you do,
4 that's Applicant's Exhibit 4 for folks that
5 don't know, for the record. Attachment B, I
6 believe.

7 BY MR. PAPPAS:

8 Q. As I understand it, Burns & McDonnell was
9 initially retained to design the overhead
10 portion; correct?

11 A. (Johnson) Correct.

12 Q. And design the underground portion; correct?

13 A. (Johnson) Correct. There is also a project
14 development role as well.

15 Q. Okay. And the project development role, that
16 would include things like land rights and
17 public outreach and so forth?

18 A. (Johnson) And permit development and
19 everything else, yes.

20 Q. Okay. Now, has PAR also retained Burns &
21 McDonnell with respect to designing, doing
22 the final designs for the Project?

23 A. (Johnson) No.

24 Q. No. But will Burns & McDonnell work with PAR

1 in developing the final design of the
2 Project?

3 A. (Johnson) So, Burns & McDonnell's role is
4 that of, specific to design, is that of
5 owner's engineer, where we will check their
6 work, if you will, and make sure that they
7 are complying with the appropriate standards
8 and appropriate laws.

9 Q. Okay. So that's an agency role where Burns &
10 McDonnell will be the agent of the owner
11 checking PAR's work?

12 A. (Johnson) Correct.

13 Q. Okay. Now, Burns & McDonnell's also retained
14 for the construction part; correct?

15 A. (Johnson) The management side of it, yes.

16 Q. Right. And in your role in the management
17 side of construction, is that also as the
18 agent of the owner?

19 A. (Johnson) Correct.

20 Q. As the agent of the owner, will Burns &
21 McDonnell have any role in overseeing PAR
22 with respect to material procurement and the
23 ABB work?

24 A. (Johnson) In the sense that we will be making

1 sure that they're adhering to the schedule
2 that they've produced, in the sense that
3 they've -- that they are adhering to any
4 environmental requirements from any of the
5 agencies, in the sense that they're meeting
6 the designs that have been approved by the
7 agencies, yes, we will be overseeing them.
8 On a day-to-day basis, we will have, at least
9 as proposed right now, we will have field
10 monitoring from both an environmental and
11 construction management perspective. But,
12 again, those nuances are yet to be
13 determined. There will at least be somebody
14 out there, whether it's Burns & McDonnell or
15 an independent third-party vendor. That's to
16 be determined.

17 Q. So, just to summarize, for final design going
18 forward, that will be done by PAR, and Burns
19 & McDonnell will oversee that work on behalf
20 of the owner.

21 A. (Johnson) As the owner's engineer, yes. And
22 the actual construction will be done by PAR.

23 Q. And Burns & McDonnell will be the owner's
24 agent to help manage or oversee the

1 construction activity?

2 A. (Johnson) That's correct. In essence, we're
3 an extension of the owners, almost as staff
4 augmentation, if you will.

5 Q. And PAR will be doing the construction on
6 behalf of the owner, and under the same
7 contract, but separately will be the owner's
8 agent to procure materials and essentially
9 deal with ABB; correct?

10 A. (Johnson) Correct. One nuance there is some
11 of the major material is already procured.
12 It's just the management of the schedule of
13 delivery, et cetera. But essentially, yes.

14 A. (Bowes) I was just going to add, they're
15 assuming Eversource contracts for some of the
16 major materials, and they're assuming the
17 responsibilities for control of ABB to make
18 sure there are no seams within the Project.
19 So they kind of have a wrap around the entire
20 construction activities.

21 Q. Okay. Now, earlier you indicated the lattice
22 towers are manufactured in Canada; is that
23 right?

24 A. (Johnson) That's correct.

1 Q. And the monopoles, I understand, are
2 manufactured in Texas and Indiana?

3 A. (Johnson) That's correct.

4 Q. And the conductors are manufactured somewhere
5 in the Carolinas?

6 A. (Johnson) Yes, I believe so.

7 Q. Okay. And the capacitor banks are
8 manufactured overseas by ABB, probably in
9 Germany or Sweden?

10 A. (Johnson) Again, that sounds about right,
11 too.

12 A. (Kayser) Yeah.

13 Q. And the transformers are also manufactured by
14 ABB overseas?

15 A. (Johnson) Correct.

16 Q. And the steel for the substations, that will
17 be manufactured somewhere outside of New
18 Hampshire?

19 A. (Johnson) I don't believe there's any steel
20 capacity in New Hampshire. So, yes, it would
21 be somewhere outside of New Hampshire.

22 Q. Okay. And the cables, those would be
23 manufactured outside of New Hampshire?

24 A. (Johnson) Those are specialty equipment, yes.

1 Q. Yeah. The concrete will be both sourced in
2 New Hampshire and outside New Hampshire?

3 A. (Johnson) I would say almost entirely in New
4 Hampshire.

5 Q. Have you identified all the concrete batches
6 yet?

7 A. (Johnson) We have not. That's PAR Electric's
8 responsibility.

9 Q. Do you know if there's enough capacity in New
10 Hampshire to supply all the concrete for this
11 project?

12 A. (Johnson) I know that they're considering
13 developing temporary batch plants to make
14 sure there is enough concrete available, all
15 locally sourced of course.

16 Q. So would it be fair to say that, other than
17 the concrete and perhaps some local gravel,
18 the vast majority of the supplies and the
19 materials for the Project will be sourced
20 from outside New Hampshire?

21 A. (Johnson) Not necessarily. New Hampshire
22 does have some manufacturing capability for
23 hardware materials, if you like. There's a
24 fair amount of those types of materials that

1 need to be purchased and installed on this
2 project. In addition, there will be your
3 hand tools and your smaller type of
4 equipment, disposable equipment, if you will,
5 that will all be sourced from New Hampshire.
6 So there's a fair amount that will be still,
7 you know, made in New Hampshire, if you will.

8 Q. Percentage-wise, certainly on a cost basis
9 that's a pretty small percentage, isn't it?

10 A. (Johnson) On a cost basis, yes. And I'll add
11 that that's not atypical of any other
12 project. Most of the equipment that we're
13 purchasing is specialty-type equipment and is
14 built in relatively discrete locations all
15 around United States and abroad.

16 Q. Okay. Now, other than perhaps concrete
17 sourced locally, and perhaps some gravel, all
18 of this material needs to be shipped to New
19 Hampshire and stored until installed in the
20 Project; correct?

21 A. (Johnson) Correct.

22 Q. And I assume that will be stored in the
23 laydown areas?

24 A. (Johnson) That's correct.

1 Q. Okay. Let me ask a few questions about labor
2 on the Project.

3 Is it your anticipation that, in terms
4 of linemen, somewhere between 500 and 800
5 will be required during construction?

6 A. (Johnson) That seems about right, yes.

7 Q. And there are approximately 250 linemen in
8 New Hampshire?

9 A. (Johnson) That is correct, as far as I know.

10 A. (Bowes) I think actually during the public
11 sessions, I think we actually had a data
12 request, and I think the IBEW provided a
13 figure a little bit higher than that. But
14 approximately 250 are probably able to work
15 at this point.

16 Q. Actually, the data request was 250.

17 A. (Bowes) Okay.

18 Q. That's where I got the number from.

19 A. (Bowes) I remember a 269 number. So you're
20 probably correct then.

21 Q. Well, for the record, I'll let you know
22 Exhibit 160, Page 12, is the data request
23 response, and that indicates 250.

24 MR. IACOPINO: Whose exhibit?

1 MR. PAPPAS: Counsel for the
2 Public's Exhibit 160, Page 12.

3 MR. IACOPINO: Thank you.

4 BY MR. PAPPAS:

5 Q. Now, the HDD drilling is rather specialized
6 work; correct?

7 A. (Johnson) That is correct.

8 Q. And those crews will be coming from outside
9 of New Hampshire.

10 A. (Johnson) Yes.

11 Q. And the splicing of the underground cable is
12 also specialty work as well?

13 A. (Johnson) Very specialty, yes.

14 Q. And those crews will be coming from outside
15 of New Hampshire?

16 A. (Johnson) Yes.

17 Q. But in fairness, logging and land-clearing,
18 site work, to the extent possible, you'll try
19 to source that in New Hampshire?

20 A. (Johnson) As well as all the ancillary
21 things, like fencing and porta potties, food
22 and whatever else, yes.

23 Q. And to the extent you can't source those in
24 New Hampshire, obviously you'll have to

1 source them outside New Hampshire.

2 A. (Johnson) Yes, but we don't think that will
3 happen.

4 Q. Have you done a survey of all the available
5 New Hampshire sourcing for those items?

6 A. (Johnson) We've done preliminary surveys,
7 yes. And we expect as we get more towards
8 the construction process inevitably people
9 start contacting us to provide services.

10 Q. Okay. Now, along with this material -- it
11 involves a lot of heavy construction
12 equipment; correct?

13 A. (Johnson) Correct.

14 Q. And, for instance, all the specialty drilling
15 equipment, that will come from outside New
16 Hampshire?

17 A. (Johnson) I don't believe there are any
18 rigs --

19 Q. In New Hampshire.

20 A. -- in New Hampshire. That's correct.

21 Q. And a number of the heavy construction
22 equipment will likely be sourced from outside
23 New Hampshire as well; correct?

24 A. (Johnson) Most likely not, no. Transporting

1 heavy equipment is very expensive. So,
2 excavators, bulldozers, dump trucks, all that
3 will be locally sourced as much as possible
4 just to curtail costs. There are certain
5 pieces of equipment, like tensioners and
6 other things, overhead lines, that are
7 unique. But your standard bucket trucks and
8 those kind of things exist today in New
9 Hampshire, and we will, for the most part --
10 or the contractor will, for the most part, be
11 using local equipment, as it is cheaper.

12 Q. And, for instance, dump trucks. Have you
13 determined whether or not you can source a
14 sufficient number of dump trucks for this
15 project in New Hampshire?

16 A. (Johnson) I personally do not know the answer
17 to that. I would assume yes, but...

18 Q. How about concrete trucks for all of the
19 concrete, whether it's concrete slabs or the
20 FDB material? Do you know whether there's a
21 sufficient number of those sourced in New
22 Hampshire?

23 A. (Johnson) Same answer.

24 Q. You don't know?

1 A. (Johnson) Yeah, I don't know for sure.

2 Q. That's fair enough.

3 All right. So let me ask some questions
4 about construction time and construction
5 management, starting overall. I think, Mr.
6 Kayser, you touched upon this in your
7 testimony.

8 We have Counsel for the Public
9 Exhibit 1, which is a map showing the route.
10 As I understand it, there are essentially
11 seven major construction activities that will
12 take place. First is the HVDC overhead
13 transmission from the Canadian border down to
14 the Franklin converter station; correct?

15 A. (Kayser) Yes.

16 Q. And then there's also the HVDC underground
17 transmission within that area as well;
18 correct?

19 A. (Kayser) Yes.

20 Q. Okay. And then there are
21 overhead/underground transition stations
22 along the way where it transitions from
23 overhead to underground. And those
24 transition stations are really a separate

1 major construction item; correct?

2 A. (Kayser) Yes.

3 Q. Certainly the converter station in Franklin
4 is a major construction project; correct?

5 A. (Kayser) Yes.

6 Q. And then we have the AC overhead lines
7 running from Franklin down to Deerfield, and
8 that would be really a separate construction
9 segment; correct?

10 A. (Kayser) Yes.

11 Q. Okay. And then there's also the relocation
12 of existing 115 kV lines that occur in
13 several places throughout the route; correct?

14 A. (Kayser) Hmm-hmm. Yes. Right.

15 Q. And then the seventh item would be various
16 modifications to substations along the way;
17 correct?

18 A. (Kayser) Yes.

19 Q. So these seven major construction activities
20 really constitute the seven, if you will,
21 construction activities or construction
22 projects that make up this overall project;
23 is that fair to say?

24 A. (Kayser) Yes.

1 A. (Johnson) I would just clarify that No. 6,
2 which is the relocation of the 115 line, is
3 really in tandem with the installation of the
4 other. So, whether you call it discretely
5 separately, it'll occur at the same time as
6 the DC or the 345 line is built.

7 Q. Okay. Now, I understand it's anticipated to
8 take about two and a half years, start to
9 finish, for this transmission line?

10 A. (Kayser) Yeah, I think in general it's around
11 that time frame.

12 Q. Okay. And you plan on working on multiple
13 construction activities at the same time, I
14 assume?

15 A. (Kayser) Yes, in order to finish the Project
16 there will be multiple sites throughout the
17 state.

18 Q. Okay. The Franklin converter station itself
19 will take about two years?

20 A. (Kayser) Yeah, I believe that's in the
21 ballpark of what we think that's going to
22 take.

23 Q. So you're likely to start there early.

24 A. (Kayser) Yes.

1 A. (Johnson) That's the first or one of the
2 first places.

3 A. (Kayser) Yeah, they'll start site
4 development.

5 Q. And relocating the existing 115 line I assume
6 is an early activity?

7 A. (Kayser) It would be coordinated with the --
8 as they develop their schedule, they would
9 coordinate that with the construction because
10 you don't necessarily want to mobilize in the
11 same right-of-way. You know, they'd just
12 make sure they're ahead of their construction
13 there to relocate those lines.

14 Q. Yeah. And I also assume that an early
15 activity will be site work for the new
16 transmission line; correct?

17 A. (Kayser) Well, by "site work," they would be
18 working in those locations, you know, doing
19 the clearing, and then they would come in and
20 put their access roads, build their work
21 pads, then foundation, come along and set the
22 structures. So, yeah.

23 Q. That's what I mean by "site work." Getting
24 the land ready to receive towers.?

1 A. (Kayser) Yes. Hmm-hmm.

2 Q. Okay. Now, do I have it correct that you
3 anticipate having somewhere between 5 and 10
4 crews available to work on what I described
5 as sort of the site work?

6 A. (Kayser) I don't know if PAR has got their
7 exact number. But in general, yeah, you're
8 going to need 5 to 10 crews to do some of
9 that site development work, whether it be at
10 Franklin, Deerfield, Scobie, or along the
11 right-of-way building work pads, yeah.

12 Q. And it's anticipated that these 5 to 10 crews
13 will be working at the same time in different
14 locations?

15 A. (Kayser) Yes.

16 Q. All right. Now, in terms of the underground
17 construction, those will be separate crews
18 than I just described; is that correct?

19 A. (Kayser) Yes, there will be different
20 contractors and separate crews doing the
21 underground portion of the Project.

22 Q. And how many underground construction crews
23 do you anticipate?

24 A. (Kayser) Again, I don't think they have the

1 exact number, but I would assume you're in
2 the 10 to 15 crews.

3 Q. Okay.

4 A. (Kayser) As they further develop their
5 schedule, they'll determine exactly which
6 areas, and then, also in coordination with
7 the DOT, on which areas they can be working
8 simultaneously in.

9 Q. Okay. And the trenchless crews, they'll be
10 yet a different set of crews, correct, doing
11 the HDD drilling?

12 A. (Kayser) Yes, that is a separate crew.

13 Q. And how many trenchless crews do you
14 anticipate working at any one time?

15 A. (Kayser) I don't know if they've determined
16 the exact number on that, but --

17 A. (Johnson) I'm guessing five.

18 A. (Kayser) Yeah, I was going to say in that 5
19 to 10 area.

20 Q. All right. So it's possible that during
21 construction you would have 5 to maybe 10
22 trenchless crews, 10 to maybe 15 open-trench
23 crews, and somewhere in the 5 to 10 range of
24 crews doing what I've described as the "site

1 work" -- access roads, you know, leveling
2 both off site and the right-of-way access
3 roads and getting the areas ready to pour
4 foundations and erect towers. Is that fair
5 to say?

6 A. (Kayser) Yes.

7 A. (Johnson) A fair amount of those are discrete
8 areas, which means that they are not in the
9 public areas. So, for instance, any of the
10 substations, other than the abutters around
11 that area, anywhere along the right-of-way
12 typically would be, again, not in the general
13 view of the public. The road activities,
14 certainly that would be something that would
15 be more prevalent to people in the area.

16 Q. Okay. And I assume you anticipate throughout
17 the two and a half years there will be
18 construction taking place in multiple
19 locations. Maybe it'll require that.

20 A. (Kayser) Yes. In order to construct the
21 Project, there will be crews all along the
22 route.

23 Q. Okay. As I understand it, these construction
24 activities will be managed by a project

1 management team; is that right?

2 A. (Kayser) Yes. As far as the general
3 contract, they will have a project management
4 team managing each portion of the
5 construction.

6 Q. And a project management team would include a
7 project manager, assistant project manager,
8 construction manager, probably an
9 environmental manager and perhaps a community
10 relations manager?

11 A. (Kayser) Yeah, typically. Yeah.

12 A. (Johnson) And that would include safety and
13 project controls, managing the money, et
14 cetera, and the schedule.

15 Q. And will there be separate project management
16 teams for separate construction sites, or one
17 general one and then spread out?

18 A. (Johnson) So right now it's anticipated that
19 there is one general overseeing all, so
20 there's common document control, invoicing,
21 that kind of thing across the system. There
22 then would be a overall overhead, an overall
23 underground and an overall station set of
24 management. And then subject -- and then

1 further to that, specific for stations, there
2 would be a Franklin person, a Deerfield and
3 Scobie person, and then a transition station
4 person. So there are subsets of each, but
5 several layers of management.

6 Q. So it essentially sounds like six layers
7 under that overall layer.

8 A. (Johnson) Yes.

9 Q. Okay. And within this layer, you mentioned
10 earlier the construction field inspectors?

11 A. (Johnson) Yeah. So PAR will have its on
12 construction field inspectors, and then the
13 owner will have independent field inspectors.

14 Q. And who will oversee the independent field
15 inspectors?

16 A. (Johnson) Mr. Jerry Fortier will be the
17 direct report of those.

18 Q. And how about environmental inspectors?

19 A. (Johnson) Same. PAR Electric will have its
20 own, as will ABB. However, there will be an
21 owner tier, if you will, that will report
22 directly to Mr. Fortier.

23 Q. And would the same be for a safety
24 specialist?

1 A. (Johnson) Yes.

2 Q. Do you know how many construction field
3 inspectors, independent ones, are expected?

4 A. (Johnson) Depends on the time of the schedule
5 and how much activity is going on. In the
6 early year, we're anticipating very few
7 because we believe there will be very limited
8 activities. As the Project ramps up through
9 2019 and into '20, that number will grow.
10 The exact number is really dependent. But it
11 could be 10 to 20 of each, depending on the
12 number of activities around.

13 Q. Do you anticipate an independent field
14 inspector and environmental inspector for
15 each construction site because you'll have
16 multiple sites throughout the 192-mile route?

17 A. (Johnson) Not necessarily, no.

18 Q. So, some may cover more than one site.

19 A. (Johnson) Yeah. And if you think about the
20 way the Project's going, just from a regional
21 perspective and a geographical perspective,
22 there will most likely be a group in the
23 north, a group in the central and a group in
24 the south, again, yet to be determined. But

1 that makes the most sense. You wouldn't want
2 somebody in Deerfield checking on something
3 in Bethlehem. It's just too far away.

4 Q. And would the overhead inspectors be separate
5 from the underground inspectors?

6 A. (Johnson) Typically, yes. It's a slightly
7 different skill set. But some people have
8 the capacity to do both.

9 Q. Okay. And how about the environmental
10 inspectors? Would they be the same for
11 underground and overhead?

12 A. (Johnson) Yes. Typically there's not a
13 difference there.

14 Q. So if one of the field inspectors, say an
15 independent field inspector, sees something
16 that is not consistent with the plans or
17 specifications, who do they report that to?

18 A. (Johnson) So if they're on site, they report
19 that to the general foreman, who will then --

20 Q. The on-site foreman?

21 A. (Johnson) The on-site foreman, yeah. At the
22 same time, at the end of the day they would
23 report back to Jerry Fortier, who would then
24 figure out what kind of action to take.

1 Q. Okay. And would it be Mr. Fortier who has
2 the authority to take whatever action is
3 necessary?

4 A. (Johnson) If the action is egregious enough
5 that it needs work stoppage, that field
6 inspector could stop the work immediately at
7 that time. But yes, Mr. Fortier has the
8 overall authority to stop the work.

9 Q. And the discretion to stop the work
10 immediately is with the field inspector?

11 A. (Johnson) If it's egregious, yes.

12 Q. And what would constitute "egregious"? Can
13 you give an sample of "egregious"?

14 A. (Johnson) Yeah, please.

15 A. (Bowes) So I would break it up into several
16 segments. The first would be safety. If we
17 see something that's life-threatening,
18 failure to wear proper PPE, failure to
19 observe DOT restrictions or regulations, that
20 would be the first one, or OSHA regulations,
21 obviously.

22 The second area would be environmental.
23 If there's an uncontained release, oil from a
24 piece of machinery that they're not

1 addressing, if there's issue with an HDD that
2 they're not addressing, they clearly have the
3 right to stop that job.

4 On the community relations side, if we
5 get into a situation where there's
6 interactions with a customer that are not
7 acceptable, we would stop the job in that
8 case, too, and stand down the work crews.

9 Those are three examples I can think of
10 that kind of cover a broad range of topics.
11 There are probably dozens of others as well.

12 Q. And within the PAR contract, do these
13 independent field inspectors and
14 environmental inspectors recognize this
15 ability to stop work?

16 A. (Bowes) So it's actually -- I think maybe
17 you're confused. It's not under the PAR
18 contract. They obviously have their own
19 inspection. But this is the independent
20 construction inspectors --

21 Q. Right.

22 A. (Bowes) -- from either NPT or from Burns &
23 McDonnell.

24 Q. But I assume the contract with PAR would

1 recognize the right of NPT's inspectors to
2 stop the work.

3 A. (Bowes) That is correct.

4 Q. I take it that the field inspectors and the
5 environmental inspectors will be covering, by
6 my count, somewhere around 25 to 35
7 construction sites, depending on whether you
8 have 5 to 10 overhead, 10 to 15 underground
9 open trench, and 5 to 10 underground trench.
10 So it would be in that range.

11 A. (Johnson) Give or take.

12 A. (Kayser) Yes.

13 Q. Is there an expectation of how often field
14 inspectors and environmental inspectors will
15 visit each site?

16 A. (Johnson) For the major construction site
17 such as Franklin and/or Deerfield, where
18 there's permanent activity, if you will,
19 there would be a designated person. So there
20 will be somebody there at all times. When
21 you get out to an access road, tree-clearing
22 crews, they may be staggered a couple miles
23 apart. So it's very easy for somebody to
24 traverse up and down and touch multiple

1 crews. But typically you like to see a
2 construction area daily, or every other day
3 at a maximum. You don't want to spread it
4 out. You want to touch each of those crews
5 as much as possible.

6 Q. So the expectation is to touch each
7 construction site at least daily or every
8 other day?

9 A. (Johnson) From the independent inspectors,
10 yes. PAR obviously has to have their own,
11 and those will be mandated daily.

12 Q. Where will these independent inspectors be
13 located?

14 A. (Johnson) Again, our thought process is
15 geographically. So, north, central, south.

16 Q. So, there will be offices north, central,
17 south?

18 A. (Johnson) Yes. Currently the Project has an
19 office in Northumberland, so they could be
20 staged out of the north there. I think the
21 center part of the state we do not. In the
22 south, obviously, in Manchester.

23 Q. And in terms of the community relations
24 managers, do you have a sense of how many you

1 anticipate having?

2 A. (Johnson) We do not at this point. Part of
3 it depends on where we are and the type of
4 construction we're doing. Right now our
5 focus is on the underground because we
6 believe that will be the most impactful. But
7 certainly we're not losing sight of the
8 amount of work that needs to be done on the
9 overhead and the stations themselves. My
10 thought, again, is north, central, south type
11 of management system where overall -- this is
12 just the independent -- with overall
13 management here in Manchester.

14 Q. And would these community relations managers
15 be responsible for interacting with residents
16 and businesses and town officials and first
17 responders, essentially everybody who needs
18 to be contacted?

19 A. (Johnson) So they will be responsible for it.
20 There will be a sub tier, if you will, doing
21 the actual door knocking and informing
22 residents on a, you know, daily basis or
23 weekly basis when construction activities are
24 there, or doing the preconstruction outreach

1 prior to construction activities being in
2 their neighborhood.

3 Q. Okay. So it's your anticipation that with
4 any one of these 20 or 25 crews working in
5 different areas, a public relations person
6 will be on the ground in those areas
7 contacting whether it's residents or
8 businesses or town officials or first
9 responders?

10 A. (Johnson) So as I stated earlier, there could
11 be two or three of those crews within a mile
12 of each other, and you can have one
13 individual managing that area. Typically
14 they are available if, as Mr. Bowes noted
15 earlier, if there are inappropriate
16 interactions between a landowner and a crew.
17 Then a community relations specialist will be
18 immediately dispatched in those cases. But
19 typically, once people are aware of the types
20 of construction that is upcoming and have
21 asked their questions, usually to their
22 satisfaction, then that's usually the touch
23 that's needed or required.

24 Q. I assume they will also be needed for

1 informing people about blasting activity?

2 A. (Johnson) Absolutely. Yes. Yes. That's a
3 unique situation, yes.

4 Q. Okay. Will the community relations managers
5 be responsible for the claims process we
6 heard about?

7 A. (Johnson) For initiating the process, yes.

8 Q. And by that, what do you mean?

9 A. (Johnson) So there is, I believe one of the
10 exhibits is a claims process that outlines
11 the information that's required. The
12 community relations person would typically be
13 responsible for making sure that information
14 is collected correctly. It would then be
15 submitted to the higher project management
16 team for -- well, I shouldn't say that. If
17 there are certain things that are very cut
18 and dry and very obvious, then the manager
19 can make the decisions then. If there's
20 something monetarily involved or is of a
21 higher escalation, if you will, it will be
22 brought back to the management team, and
23 ultimately Mr. Fortier would make a decision.

24 Q. Okay.

1 CHAIRMAN HONIGBERG: Mr.
2 Pappas, anytime in the next ten minutes.

3 MR. PAPPAS: In about three
4 would be good.

5 BY MR. PAPPAS:

6 Q. And will these community relations managers
7 be present throughout construction?

8 A. (Johnson) Yes.

9 Q. So they'll be able to process claims
10 throughout construction?

11 A. (Johnson) Yes.

12 Q. How about claims discovered after
13 construction is completed? How will those be
14 handled?

15 A. (Johnson) Sure. So the Project will have
16 project-close activities that will last
17 several months. But certainly if there's
18 something that goes beyond that, there is the
19 Eversource 800 number that people can call
20 into. And the Eversource staff will be
21 educated and the community relations staff
22 will be educated to handle these kinds of
23 process. The form itself is standard across
24 the Eversource system, so it's not a form

1 that's unique other than the title.

2 Q. Perhaps tweaked a bit for New Hampshire,
3 though.

4 A. (Johnson) Yes, it was. No question.

5 Q. So, just to wrap up my last question on
6 claims, does this claims process only involve
7 property damage, or does it include, for
8 instance, loss of business for businesses?

9 A. (Johnson) It includes both.

10 Q. Okay. And so they'll be project -- I mean
11 community relations managers throughout the
12 construction period that will be the
13 frontline folks for the claims process. And
14 after construction is done, anybody who has a
15 claim would then just contact Eversource
16 directly.

17 A. (Johnson) That's correct.

18 MR. PAPPAS: I think this
19 would be a good time to break.

20 MR. IACOPINO: Before we
21 break, that claim process form you're talking
22 about is Counsel for the Public Exhibit 41.

23 CHAIRMAN HONIGBERG: All
24 right. We're going to take our break and

1 come back as close to quarter to eleven as we
2 can.

3 (Brief recess taken at 10:33 a.m., and
4 the hearing resumed at 10:47 a.m.)

5 CHAIRMAN HONIGBERG: Mr.
6 Pappas, you may proceed.

7 MR. PAPPAS: Thank you.

8 BY MR. PAPPAS:

9 Q. Mr. Bradstreet, let me ask you some questions
10 about the design of the overhead segments.

11 So, in the northern section, the
12 transmission line will run through
13 approximately 80 miles from Pittsburg down to
14 Bethlehem; is that right?

15 A. (Bradstreet) Sounds about right, yeah.

16 Q. And within that 80 miles there are 32 miles
17 of new right-of-way; correct?

18 A. (Bradstreet) Yes.

19 Q. And we heard earlier this morning, 24 miles
20 through the Wagner Forest?

21 A. (Bradstreet) Sounds right, yes.

22 Q. And through the Wagner Forest it's a 120-foot
23 right-of-way?

24 A. (Bradstreet) That's correct.

1 Q. And then from Dummer to Bethlehem, the
2 transmission line is in an existing
3 right-of-way leased from PSNH; correct?

4 A. (Bradstreet) Correct.

5 Q. And within that existing right-of-way, it
6 shares the right-of-way with either one or
7 two existing lines, typically.

8 A. (Bradstreet) Typically. There's a few areas
9 where there might be a little more,
10 specifically around the Whitefield
11 Substation, but...

12 Q. Okay. Now, the transmission line is
13 constructed using either lattice towers or
14 monopole towers, by and large; correct?

15 A. (Bradstreet) For the Northern Pass line, yes.

16 Q. Right. And each lattice tower is set on four
17 footings; is that right?

18 A. (Bradstreet) That's correct.

19 Q. And the footings themselves will either have
20 a caisson concrete foundation or a grillage,
21 basically steel foundation; correct?

22 A. (Bradstreet) Currently that's the thought,
23 yes.

24 Q. And the monopole themselves have one

1 foundation; correct?

2 A. (Bradstreet) That's right.

3 Q. And that also is either a concrete foundation
4 or there's some direct embedded into the
5 ground; correct?

6 A. (Bradstreet) For the Northern Pass line,
7 direct embed is not going to be typical. It
8 would be very rare if we did a direct embed
9 for the Northern Pass line just due to the
10 size of the conductors it's holding.

11 Q. Within that northern section, do I understand
12 that there are 280 lattice towers and 9
13 monopoles? Does that sound right to you?

14 (Witness reviews document.)

15 A. (Bradstreet) Yeah, I think that's... I don't
16 believe that's correct. I think there's a
17 few more monopoles than --

18 Q. That was in your Application. So tell me
19 what the change has been since.

20 (Witness reviews document.)

21 A. (Bradstreet) I guess I'd have to
22 double-check.

23 A. (Bowes) Do you have a reference in the
24 Application itself?

1 Q. I did not write that down.

2 A. (Bowes) Because we're looking at the data
3 request.

4 A. (Bradstreet) SEC 1-014.

5 Q. And what does that indicate?

6 A. (Bowes) By town, the number of --

7 A. (Bradstreet) It's by town, so it's not
8 necessarily broken apart in the same
9 segments. But from Pittsburg to I guess
10 Dummer, not including Dummer, we have one in
11 Pittsburg, 11 in Clarksville, 14 in
12 Stewartstown, 1 in Dixville and 2 in
13 Millsville. So...

14 Q. All right. So, predominantly lattice towers
15 and anywhere from 10 to maybe 15 monopoles.

16 A. (Bradstreet) I would say more like 30
17 monopoles.

18 Q. Okay. But --

19 A. (Bradstreet) Yeah, it's predominantly a
20 lattice line.

21 Q. Yeah. At least 250 lattice towers.

22 A. (Bradstreet) Yes.

23 Q. Now, they vary in height anywhere from
24 roughly 120-foot in this northern section?

1 A. (Bradstreet) That sounds in the range, but
2 I'd have to double-check it.

3 Q. Okay. Now, as I understand it, there are
4 several things that dictate the height of the
5 towers; is that right?

6 A. (Bradstreet) There's many factors.

7 Q. Yeah. One of them is because it's a
8 345,000-volt conductor, it has to be a
9 certain height off the ground?

10 A. (Bradstreet) Well, in the northern section
11 it's 320 kV DC line.

12 Q. Yeah.

13 A. (Bradstreet) But yes, the voltage that the
14 line operates does dictate or drive the
15 overall clearance requirements.

16 Q. And is there another requirement to be so
17 much distance from an existing 115 kV line or
18 another line in the right-of-way?

19 A. (Bradstreet) That is correct.

20 Q. And the distance between two tower structures
21 might also dictate the height of those
22 structures in order to have the line a
23 certain height off the ground?

24 A. (Bradstreet) Yeah. So the spacing between

1 circuit structures will drive or control some
2 of the heights, yes.

3 Q. So, for instance, if two towers were closer
4 together, the line -- the towers could be
5 smaller or shorter because the line could be
6 tighter between them; correct?

7 A. (Bradstreet) Given the same specific terrain
8 case, that would be correct.

9 Q. Okay. And if the Northern Pass line didn't
10 share the right-of-way with some other lines,
11 towers could be shorter as well; correct?

12 A. (Bradstreet) In some areas. In some areas
13 not.

14 Q. What's on the screen, and you folks have nice
15 big screens now I notice, is Counsel for the
16 Public's Exhibit 221. And what these are,
17 are some sheets from documents you've
18 produced that show various towers. And I'm
19 going to go through and talk about some of
20 the different tower configurations along the
21 line. So if you start up north, your sheets
22 indicate, for instance, Segment N1-1 is up in
23 the north. "N" stands for north; correct?

24 A. (Bradstreet) Yeah, we broke it into multiple

1 segments.

2 Q. Okay. So here we see on the N1-1 is a
3 lattice tower; correct?

4 A. (Bradstreet) That is correct.

5 Q. Could you give us a sense of the size of the
6 footprint for the foundation, the poured
7 concrete foundation for this lattice tower?

8 A. (Bradstreet) So what's shown on this current
9 drawing, I believe we assumed a 30-foot
10 spacing between foundations. So there would
11 be a square, if you will, of the footprint
12 where foundations are separated by 30 feet in
13 each direction.

14 Q. And how big are the foundations themselves?

15 A. (Bradstreet) So the Project has not completed
16 all the geotechnical information acquisition
17 in order to complete the foundation design.
18 But for the structure type, the Project has
19 estimated that the foundations will be
20 approximately 4 feet in diameter.

21 Q. Okay. And how about the spread of the arm
22 near the top? What are the dimensions of
23 that, a typical spread for a lattice tower?

24 A. (Bradstreet) I would -- this is going to be

1 off of memory, but I think, if I remember
2 right, it's probably in the range of 30 feet
3 from the center. So the overall spread of
4 that arm would be approximately 60 feet.

5 Q. And how about the V-shaped isolators? What
6 are the dimensions of those?

7 A. (Bradstreet) Just the length dimension?

8 Q. Yes.

9 A. (Bradstreet) Again, going off of memory, I
10 think they're approximately... they're
11 probably approximately 12 to 13 feet for just
12 the insulators themselves. And then as you
13 can see in the detail, there's something that
14 looks like it gets a little skinnier
15 towards -- that's just an extension strap.
16 So the insulators themselves are probably
17 13 feet long, and that extension strap might
18 be another 4 or 5 feet.

19 Q. And looking over on the right indicates a
20 monopole. Do you see that?

21 A. (Bradstreet) Yes.

22 Q. So what is the size of the foundation, the
23 single foundation for a monopole, typically?

24 A. (Bradstreet) So, again with the same

1 clarification, we've estimated it to be
2 around 8 to 9 feet.

3 Q. Okay. And how about the dimension of the arm
4 on the monopole?

5 A. (Bradstreet) So the dimension of the top of
6 the structures themselves is not
7 significantly different. It might be a
8 little bit narrower, but it would be
9 approximately 60 feet also.

10 Q. And how about the length of the isolator
11 strings? Would that be similar?

12 A. (Bradstreet) It would be the same assembly,
13 yes. The only thing, I guess to carry out,
14 the only thing it might change is the
15 extension strap length just to -- the
16 attachments for the two structures are
17 slightly different. So...

18 Q. All right. So would I be correct in saying
19 that for the northern section, and
20 particularly the new right-of-way, there
21 would either be segment N-1 which -- and
22 predominantly in 1-1, which is the lattice
23 tower -- or for those 15 or 20 or 25
24 monopoles, it would be N1-1T?

1 A. (Bradstreet) That is correct.

2 Q. Okay. Now, when the Northern Pass
3 transmission line gets to Dummer, it begins
4 to share the right-of-way with the Coos Loop;
5 is that right?

6 A. (Bradstreet) That is correct.

7 Q. So if you -- so on the next page we start to
8 see segments N2-1 and N2-2 and N2-3. Do you
9 see that?

10 A. (Bradstreet) Yes, I do.

11 Q. So, looking first at N2-1, that indicates an
12 existing 115 kV line. Do you see that?

13 A. (Bradstreet) Yes.

14 Q. And would that be the existing 115 line in
15 the Coos Loop?

16 A. (Bradstreet) That is correct.

17 Q. So this will show moving that existing line
18 to the right and stacking it on a monopole.
19 Do you see that?

20 A. (Bradstreet) Yes.

21 Q. Okay. And then it shows the new 320 line,
22 the Northern Pass line on the left. And you
23 sort of see two arms. Do you see that?

24 A. (Bradstreet) Yes.

1 Q. So you could tell me what the difference is
2 between N2-1 and N2-2 and N2-3?

3 A. (Bradstreet) As far as what's shown on these
4 drawings, I don't believe there's any
5 difference. The difference for the Project
6 is the location of the pipeline shifts
7 between these various segments.

8 Q. Okay. So on the next page of Exhibit 221 we
9 see on the right N2-4. Do you see that?

10 A. (Bradstreet) Yes, I do.

11 Q. And that would be, again, probably within the
12 Coos Loop. But it's showing installation of
13 a lattice tower for the Northern Pass as
14 opposed to the monopole we saw before; is
15 that right?

16 A. (Bradstreet) That is correct.

17 Q. Okay. Now, if you look at -- take a look at
18 N2-3. Do you see where it indicates the
19 monopole for the Northern Pass?

20 A. (Bradstreet) Yes.

21 Q. Okay. And this is N2-5, which is essentially
22 the same configuration. Is the difference
23 again the location of the gas pipeline?

24 A. (Bradstreet) Well, I believe the difference

1 between N2-3 and N2-5 is we went to the
2 lattice configuration, and that's being
3 driven by the location of the pipeline.

4 Q. No. Well --

5 A. (Bradstreet) So N2-4 shows a lattice --

6 Q. Right. I was looking at N2-3 and N2-5, which
7 to me look identical.

8 A. (Bradstreet) They are.

9 Q. So what's on your screen now is Sheet 49.
10 And this shows, if you look on the right,
11 N2-7, a different configuration than we saw
12 before. Do you see that?

13 A. (Bradstreet) Yes.

14 Q. Okay. And this configuration shows
15 relocating both a distribution -- shows the
16 distribution line relocation. Do you see
17 that?

18 A. (Bradstreet) Yes.

19 Q. Okay. And then it shows the relocation --
20 and as well as a relocated 115 kV line; is
21 that right?

22 A. (Bradstreet) Yes, sir.

23 Q. And are both of those then put on a monopole
24 that has arms on both sides?

1 A. (Bradstreet) So, yes, in this view, the right
2 side of that structure is a relocated 115 and
3 the left side is one of the relocated
4 distribution lines.

5 Q. Okay. So this would be a segment of the line
6 where you have a distribution line and 115
7 kV, and you relocate both of those onto one
8 structure in order to make room for the
9 Northern Pass?

10 A. (Bradstreet) In order to make room for the
11 Northern Pass to be constructed in a
12 horizontal configuration, yes.

13 Q. Okay. And the difference between N2-7 and
14 N2-7T is whether it's a lattice tower or a
15 monopole for the Northern Pass?

16 A. (Bradstreet) Correct.

17 Q. If you look at N2-9, this is yet a different
18 configuration than we've seen. It shows
19 relocating a distribution -- one distribution
20 line as opposed to two. Do you see that?

21 A. (Bradstreet) Yeah, there's only one existing
22 distribution line in that corridor.

23 Q. Yeah. And so that's simply moved over to the
24 right. And then the existing 115 kV is also

1 moved to the right to make room for the
2 Northern Pass line.

3 A. (Bradstreet) Yes.

4 Q. Okay. And here we see Segment N2-10 where
5 you've got existing two distribution lines
6 and an existing 115 kV already in the
7 right-of-way; correct?

8 A. (Bradstreet) Yeah, two 115s and two
9 distribution lines.

10 Q. All right. So here you need to do several
11 relocations in order to make room for the
12 Northern Pass line.

13 A. (Bradstreet) Correct.

14 Q. Okay.

15 CHAIRMAN HONIGBERG: Mr.
16 Pappas, what exactly are we doing here?

17 MR. PAPPAS: I'm just looking
18 at the different configurations that --

19 CHAIRMAN HONIGBERG: That are
20 all in the Application. And the reason for
21 this would be?

22 MR. PAPPAS: Because I'm
23 building up to asking some questions after I
24 lay this foundation. I'm almost done with

1 this.

2 BY MR. PAPPAS:

3 Q. So, Mr. Bradstreet, when you switch then to
4 the central part, the designation becomes C;
5 correct?

6 A. (Bradstreet) Yeah. So we broke it into
7 northern --

8 Q. Central --

9 A. (Bradstreet) -- two sections; central, two
10 sections; and southern, one section.

11 Q. And would I be correct in saying that in
12 various parts of this, whether there's an
13 existing transmission line or two existing
14 transmission lines, or an existing
15 distribution line or two existing
16 transmission -- distribution lines, that has
17 an effect on how high you have to make the
18 towers; correct?

19 A. (Bradstreet) That, combined with the
20 available right-of-way, yes.

21 Q. Right. So, to the extent you're using a
22 section that already has two or three, or in
23 some places four existing lines that requires
24 essentially to make the towers higher;

1 correct?

2 A. (Bradstreet) I mean, I guess I would say the
3 Project has approached that issue in a manner
4 to try to relocate structures to effectively
5 reduce the required height of the Northern
6 Pass line.

7 Q. But because of those existing structures,
8 whenever you come to a place where you have
9 multiple existing structures, you're required
10 to make the tower higher because of those
11 existing structures; correct?

12 A. (Bradstreet) If the clearances are such that
13 they don't meet the requirements of the
14 clearance of a shorter structure, we would go
15 higher, yes. But I would not say that that
16 is in all cases.

17 A. (Bowes) I would frame it as we required
18 Northern Pass to relocate the distribution
19 and transmission facilities at their cost, to
20 the benefit of PSNH, if they were going to be
21 co-located with PSNH existing facilities.

22 Q. Let me ask it another way. If the
23 right-of-way didn't have so many existing
24 either transmission lines or distribution

1 lines, the towers for Northern Pass could be
2 lower; correct?

3 A. (Bradstreet) Not in all cases.

4 Q. But in most cases; correct?

5 A. (Bradstreet) Not in most cases.

6 Q. So you're telling me, in most cases, if
7 there's nothing else in that right-of-way,
8 the tower height would still be the same as
9 they are now?

10 A. (Bradstreet) Yes.

11 Q. And that's because why? Because they have to
12 be so high off the ground?

13 A. (Bradstreet) So the majority of the Northern
14 Pass line is proposed to be a horizontal
15 configuration. There's a few areas where
16 we're proposing a vertical configuration.
17 But in general, it's mostly horizontal, which
18 is the shortest configuration possible.

19 Q. And the existence of the other lines has no
20 impact on how high those towers are?

21 A. (Bradstreet) Assuming they're out of the way,
22 that is correct, which is the case.

23 Q. But don't you have to be a certain distance
24 from them?

1 A. (Bradstreet) Horizontal distance is different
2 from vertical distance. Yes.

3 Q. But when you move -- okay. All right.

4 Do you know how many locations you are
5 required to increase the tower heights
6 because of existing infrastructure within the
7 right-of-way?

8 A. (Bradstreet) I don't have a count available,
9 but I think we could put one together fairly
10 quickly. For the areas you just walked us
11 through, the pipeline and the existing line
12 that's in the corridor between North
13 Umlerland and Dummer is the only area
14 proposing a vertical structure configuration
15 for the DC line, and that's being driven by
16 available right-of-way.

17 A. (Bowes) So there was a segment where you had
18 both the 115 rebuilt, which was vertical, and
19 Northern Pass which was vertical in the same
20 right-of-way with the pipeline. That's that
21 area where both had to be vertical, which
22 would drive the structure heights of both the
23 115 and the 320 higher.

24 A. (Bradstreet) And then all the other areas,

1 clearances are what's driving heights.

2 Q. And it's clearances from the ground.

3 A. (Bradstreet) Correct. I mean, ground, roads,
4 anything that would drive clearance. But
5 yes.

6 Q. And how about the clearance from how close
7 you are to a 115 kV line or a distribution
8 line?

9 A. (Bradstreet) I guess can you clarify?

10 Q. Sure. Is there a -- do you have to be so far
11 away horizontally from another line?

12 A. (Bradstreet) Yes, we do. But that doesn't
13 necessarily impact height.

14 Q. Is there a requirement to be so far
15 vertically from another line?

16 A. (Bradstreet) If we cross that line, yes. If
17 we're adjacent to it, generally the
18 horizontal clearance is going to drive the
19 design.

20 Q. But if you don't have sufficient horizontal
21 clearance, can you make that up by vertical
22 clearance?

23 A. (Bradstreet) I guess we could, but we're not.

24 Q. Nowhere in this line?

1 A. (Bradstreet) No.

2 Q. Okay.

3 A. (Bradstreet) In that case, the structure
4 would be towering over the adjacent structure
5 in order to maintain that clearance.

6 Q. So what you're saying is, other than those
7 areas where the co-location exists, this line
8 has to be -- its height is off the ground
9 because -- the towers have to be their height
10 because you have to be so high off the
11 ground, essentially.

12 A. (Bradstreet) Essentially, yes.

13 Q. And essentially by how close the towers are
14 to each other. So, for instance, if they
15 were closer, you could be lower. But the
16 current -- the distance between two towers
17 then dictates how high up it has to be.

18 A. (Bradstreet) If structures on the same
19 circuit were closer, it would generally
20 reduce tower heights, but it would also
21 impact other things on the project.

22 Q. And we saw where you had the V isolators.
23 There are also something known as "I
24 isolators"; correct? They aren't a V but an

1 I?

2 A. (Bradstreet) Correct. Some of the exhibits
3 you were showing earlier, the 115 kV line, we
4 reference them as an "I string" versus a "V
5 string," and the 115 kV insulators are I
6 strings.

7 Q. And the Northern Pass line uses the V string;
8 correct?

9 A. (Bradstreet) That is correct.

10 Q. If it used the I string, that could lower
11 tower heights a bit; could it not?

12 A. (Bradstreet) No.

13 Q. Why not?

14 A. (Bradstreet) Because you have the same
15 vertical distance requirements that no longer
16 make a triangle; it hangs straight down.

17 A. (Bowes) So one of the other benefits of using
18 the V string, it constrains the conductors at
19 each location and allows the right-of-way
20 clearing to be 20 to 30 feet less; so instead
21 of 150-foot corridor where the new line would
22 be, it's now down to 120-foot corridor
23 because of that design change.

24 Q. Now, as I understand it, Mr. Bradstreet, for

1 the AC portion, you used existing Eversource
2 design criteria; is that correct?

3 A. (Bradstreet) For the 345 and the 115, that is
4 correct.

5 Q. Right. You weren't hired to study the
6 existing Eversource criteria; correct?

7 A. (Bradstreet) We were not tasked with doing
8 that.

9 Q. And you weren't tasked to see whether or not
10 that existing Eversource criteria could be
11 changed or improved; right? That wasn't part
12 of your job?

13 A. (Bradstreet) I mean, I guess the standards
14 that were applied were based off of the
15 Eversource requirements, and we were
16 contracted to use those requirements.

17 Q. All right. You didn't look at using what's
18 known as "ACC conductors" to see if they
19 would lower the tower heights, did you?

20 A. (Bradstreet) We have not, no.

21 Q. Okay. And do you -- am I correct that ACC
22 conductors have a lower sag than the
23 conductors used on the Northern Pass Project?

24 A. (Bradstreet) There's a lot of variables, so I

1 can't say that in all cases. But ACC
2 conductors are known as -- they're high
3 temperature/low sag conductors. So for a
4 high temperature operation, typically they
5 have less sag than an equivalent other
6 conductor.

7 A. (Bowes) So, to add to that, Eversource uses a
8 design criteria for 140-degree C rise, and
9 the high temperature operates at about 200
10 degrees C.

11 A. (Bradstreet) But for an ice condition, that
12 might not be the case, so that performs
13 better.

14 Q. Now, Eversource standard design criteria
15 calls for untreated conductors; is that
16 right?

17 A. (Bradstreet) If you mean specular or non-
18 specular --

19 Q. Correct.

20 A. (Bradstreet) Yes.

21 Q. And non-specular conductors are treated to
22 reduce the reflectivity; is that right?

23 A. (Bradstreet) They're treated to reduce the
24 reflectivity at installation. Over time the

1 non-treated conductors have a similar
2 appearance.

3 Q. The treated conductors essentially dull the
4 conductors, so you don't see it as clearly as
5 the untreated ones; correct?

6 A. (Bradstreet) It reduces the reflectivity.

7 Q. Yeah. Now, the Eversource design criteria
8 has sort of minimum spacing or clearance
9 requirements, doesn't it?

10 A. (Bradstreet) Between structures of different
11 circuits or --

12 Q. Right.

13 A. (Bradstreet) Yes.

14 Q. Okay. And for the 115 kV lines -- strike
15 that.

16 For the 345 kV lines, the
17 conductor-to-tower clearance is about
18 26 feet. Is that your recollection?

19 A. (Bradstreet) I believe it's 26 feet from
20 phase to phase.

21 Q. Okay.

22 A. (Bradstreet) So all three phases are
23 basically separated by 26 feet each.

24 Q. And what is it for a monopole?

1 A. (Bradstreet) The same.

2 Q. The same 26 feet?

3 A. (Bradstreet) Between phases?

4 Q. No.

5 A. (Bradstreet) It's not 26 feet to the
6 structure, I guess. I don't know if that was
7 your direct question or not.

8 Q. That is my question.

9 A. (Bradstreet) So the clearance to the
10 structure is based off of a wind case. I
11 don't have that number in front of me. But
12 it's not 26 feet.

13 Q. It's less?

14 A. (Bradstreet) Yes.

15 Q. My point is that it's less for a monopole
16 than it is for a lattice tower; correct?

17 A. (Bradstreet) I don't believe they have -- at
18 345, I don't believe there's distinction
19 between lattice or tubular. The clearance
20 that's driving everything is a energized
21 conductor to a grounded object. So it would
22 be the same.

23 Q. How about for the 320?

24 A. (Bradstreet) Same. Generally, clearance to

1 the structure is driven by voltage to ground
2 or climbing space requirements for somebody
3 to work on the line. So, an OSHA code.

4 Q. Is there a minimum spacing between tower
5 center lines of parallel lines?

6 A. (Bradstreet) Yes.

7 Q. What's that?

8 A. (Bradstreet) Depends on the voltage and the
9 span lengths and all variables.

10 Q. Is it different for lattice as opposed to
11 monopole?

12 A. (Bradstreet) For this project in general, I
13 don't believe it is.

14 Q. Okay. For the cost of monopoles and the cost
15 of lattice towers, for all costs otherwise
16 sort of known all in, is it about the same
17 cost?

18 A. (Bradstreet) For lattice versus monopole?

19 Q. Yes.

20 A. (Bradstreet) Again, it depends on a lot of
21 variables. But in general what we've seen is
22 lattice is somewhat cheaper than monopole.
23 Like for a standard tangent case, we'll take
24 that as an example, tangent lattice versus

1 tangent monopole could be fairly similar in
2 price, depending on subsurface conditions. A
3 lattice dead end, which is a large angle --
4 so, a turning structure is what some people
5 call them -- the lattice dead end is going to
6 be cheaper than a monopole dead end just
7 because of the amount of steel you have to
8 purchase and the larger foundations
9 associated with the monopole.

10 Q. But other than those particular situations,
11 the cost of putting in a monopole versus the
12 cost of putting in a lattice is roughly the
13 same.

14 A. (Bradstreet) No.

15 Q. Didn't you just say a minute ago the costs
16 are roughly same?

17 A. (Bradstreet) I just said that the cost of
18 lattice tangent is roughly the same as
19 monopole tangent. The cost for dead end
20 lattice is less than a monopole.

21 Q. Yeah, leave the dead end alone. I said apart
22 from that specific situation, just the
23 typical lattice pole versus a monopole along
24 this 192 route --

1 A. (Bradstreet) For a tangent case they're
2 similar.

3 Q. And that's the vast majority of structures on
4 this route; is it not?

5 A. (Bradstreet) I mean, there's a substantial
6 amount of turning structures. But it would
7 be a higher percentage for tangents, correct.

8 A. (Bowes) Some of the secondary impacts of
9 going with a monopole are, of course, you
10 have to have larger roads because you have to
11 transport larger pieces of the structure
12 itself, and that obviously impacts the
13 environmental aspects of the Project. And
14 then the foundation itself, it becomes an
15 8-foot diameter, 25 to 30 feet deep, versus a
16 3- to 4-foot diameter and 8-foot-deep
17 foundations for the lattice structure. The
18 assembly as well takes -- you know, it's
19 different type of equipment used,
20 different-size cranes. And the monopole
21 probably erects quicker than the lattice
22 structure. So there's a labor savings for
23 the monopole. I guess what I'm trying to say
24 is there's several variables besides just say

1 the cost of the structure.

2 A. (Bradstreet) I mean, some of the other
3 benefits of lattice is foundation. Like Ken
4 said, they could be smaller if we're doing
5 drilled caisson type. But we also have some
6 other alternatives for lattice foundations,
7 such as "grillage" is what we refer to it as.
8 It's like an overburdened foundation where
9 you're burying steel to support the
10 structure. It gives a little more
11 flexibility when the foundation is on.

12 (Court Reporter inquiry)

13 Q. So, a moment ago, or earlier you indicated
14 that the foundation for a lattice tower is 4
15 to 5 feet each; correct?

16 A. (Bradstreet) For all four, yeah. So, each
17 four would be 4 to 5 feet, yes.

18 Q. Yeah. So we're talking 16 to 20 feet total
19 over the 4; correct?

20 A. (Bradstreet) That would be correct.

21 Q. And for a monopole, you have one foundation,
22 and you indicated that's 8 or 9 feet;
23 correct?

24 A. (Bradstreet) That is correct.

1 Q. Okay.

2 A. (Bowes) Those are the diameters, not the
3 depths.

4 Q. I understand. I understand.

5 And so when you indicated that you need
6 larger roads, you need larger roads within
7 the right-of-way for the monopole?

8 A. (Bowes) Correct.

9 Q. And that's because the monopoles themselves
10 are larger, the component segments of them,
11 than the individual segments of the lattice
12 tower?

13 A. (Bowes) Correct.

14 Q. How much larger do the roads need to be?

15 A. (Bowes) So they'd have to withstand, you
16 know, standard tractor-trailer traffic versus
17 delivery trucks. Or in the case of lattice
18 structures, though I don't think we've
19 planned to use it, obviously helicopters for
20 some of the locations where we don't plan to
21 build roads at all.

22 Q. Hmm-hmm. So how much larger would the road
23 need to be?

24 A. (Bowes) It would have to support a commercial

1 tractor-trailer versus, you know, off-road
2 vehicles, both the quality of the road, as
3 well as the width and turning radius of the
4 road. So without a specific example, it's
5 probably a couple feet wider. But there may
6 be certain cases where we have to, you know,
7 build additional turnouts or other areas
8 where the truck can maneuver. So it factors
9 into the crane size, as well as the amount of
10 or the number of concrete vehicles as well.
11 So you have to use those.

12 Q. Well, the concrete vehicles I assume would be
13 the same whether you're pouring concrete for
14 a monopole or pouring concrete for a lattice
15 structure.

16 A. (Bowes) Same vehicles, but the quantity would
17 go up with a monopole.

18 Q. Well, how's that when you've got 8- or
19 9-foot -- you're saying the depth is that
20 much deeper that you'd use that much more
21 concrete?

22 A. (Bradstreet) Yes.

23 Q. Do you have any order of magnitude of that?

24 A. (Bradstreet) Approximately double is probably

1 a good estimate.

2 Q. Nonetheless, you said earlier, essentially,
3 except for those dead end ones, the overall
4 cost all in is about the same.

5 A. (Bradstreet) I mean, I would skew that the
6 lattice is still going to be cheaper. But
7 there's a lot of variables.

8 Q. Okay. So, either Mr. Bowes or Mr. Kayser,
9 let's talk about the construction equipment
10 on the line that you just mentioned there.

11 For summary sake, what's on the screen
12 is a response to a data request, and it
13 requested about the types of vehicles for
14 construction. So, rather than spending the
15 time to walk through each type, could you
16 just take a look at this and tell me if this
17 page -- and when you finish this page, let me
18 know and we're going to flip to the next
19 page -- is a pretty good summary of the types
20 of construction equipment used to construct
21 the overhead sections of the transmission
22 line.

23 MR. IACOPINO: For the
24 record, what Mr. Pappas is showing to the

1 Committee right now is CFP Exhibit 154.

2 MR. PAPPAS: Yeah, Page 9 and
3 then Page 10.

4 A. (Kayser) Yeah, the equipment shown here looks
5 correct for the clearing operations as
6 stated.

7 Q. And the next page will show the transmission
8 line substation vehicles and equipment. Take
9 a look at those.

10 (Witness reviews document.)

11 A. (Kayser) Those look correct also.

12 Q. Okay. Now, Exhibit 219 is from the
13 Application. And that lists the various --
14 Page 24. That lists the various activities
15 for constructing the overhead sections. Do
16 you see that?

17 A. (Kayser) Yes.

18 Q. Okay. So I'm going to just briefly go
19 through these with you. I'm not going to --
20 Development of compliance plan, I think
21 that's self-explanatory.

22 Establishing yards for laydown areas, as
23 I understand it, the laydown areas are
24 expected to be between 5 and 50 acres; is

1 that right?

2 A. (Kayser) Yes.

3 Q. And they're going to be used to store things
4 such as the lattice towers and the monopoles
5 and other things until they're used.

6 A. (Kayser) Yes. It would be all the material
7 necessary to construct they would have
8 delivered there and then take it out to the
9 site.

10 Q. And also store equipment when it's not
11 needed?

12 A. (Kayser) Yes.

13 Q. And also locate field offices, I assume,
14 could be --

15 A. (Kayser) Yeah. Typically they're going to be
16 co-located with their laydown yards for their
17 field offices.

18 Q. And I assume laydown areas is where workers
19 could park their vehicles?

20 A. (Bowes) Yes, that is correct.

21 A. (Kayser) Yeah.

22 Q. During construction, there'll be a need for
23 laydown areas that each of the various
24 construction sites that are ongoing can

1 access; correct?

2 A. (Kayser) There'll be a number of laydown
3 areas that PAR, as the general contractor,
4 will place along there. But they could e
5 used by multiple contractors.

6 Q. Right. So, for instance, if you have 20 to
7 25 crews working in 20 or 25 different areas,
8 each of those crews are going to need access
9 to some laydown area in order to complete
10 their work; correct?

11 A. (Kayser) Yes.

12 Q. So you're going to need laydown areas all
13 along the 192-mile route; correct?

14 A. (Kayser) Yes.

15 Q. And to date, you've only identified three
16 laydown areas: One in Clarksville which is
17 about 5 acres, and two in Millsfield which
18 are about an acre or an acre and a half each;
19 is that right?

20 A. (Johnson) That's correct.

21 Q. And there's a lot of line below Millsfield;
22 correct?

23 A. (Johnson) Yes, sir.

24 A. (Kayser) Yes, there is.

1 Q. And I understand PAR is responsible to locate
2 and secure those laydown areas. But that
3 hasn't been done yet, has it?

4 A. (Johnson) That's correct.

5 Q. Would I be -- would you agree with me that
6 it's likely to require up to 20 different
7 laydown areas?

8 A. (Kayser) I'm guessing probably between 10 and
9 20 miles between the laydown areas, based on
10 delivery of the underground cable.

11 Q. Yeah.

12 A. (Kayser) So, yeah.

13 Q. That's a pretty good estimate, then, isn't
14 it, about 20?

15 A. (Kayser) Somewhere in that ballpark, I would
16 guess, between 10 and 20, yeah.

17 Q. Now, the location of these laydown areas can
18 have an impact on traffic; can they not?
19 There's going to be a lot of activity in and
20 out of these laydown areas; right?

21 A. (Kayser) Yes, the equipment and taking
22 material out from the laydown areas.

23 Q. Right. There's going to be -- whether it's
24 construction workers going there in the

1 morning or at night, whether it's materials
2 going to the site, whether it's equipment
3 going to the site, there's going to be a lot
4 of activity at each of these laydown areas
5 during the workday; is there not?

6 A. (Kayser) Yes.

7 Q. Yeah. So, without knowing the locations of
8 the laydown areas for anywhere south of
9 Millsfield, we can't assess right now what
10 the impact on traffic's going to be unless we
11 know where they're located and therefore know
12 what the travel routes are from the laydown
13 areas to the various access points for the
14 right-of-way; correct?

15 A. (Kayser) Yeah. The impacts of traffic would
16 be taken into account as we're choosing the
17 laydown areas.

18 Q. But until we know where those laydown areas
19 are, you can't assess the impact on traffic
20 because you don't know where the laydown
21 areas are; correct?

22 A. (Kayser) Yes. They would be done in
23 conjunction. But yes, correct, you have to
24 pick an area and then assess it.

1 Q. As I understand it, PAR will also secure
2 staging areas; is that right?

3 A. (Kayser) Yes.

4 Q. And a staging area is a little different than
5 laydown areas. They tend to be fairly close
6 to the right-of-way; isn't that right?

7 A. (Kayser) Yeah. Either very close or in the
8 right-of-way, yeah.

9 Q. Okay. And there you tend to use staging
10 areas for such as stockpiling material like
11 spoils until they can be hauled away?

12 A. (Kayser) It could be for taking the hardware
13 to the site or, yeah, delivery of gravel to
14 an area so that then they could go get that
15 and take it to each individual structure.

16 Q. Sure. So staging areas also will have a fair
17 amount of activity during the construction
18 day; correct?

19 A. (Kayser) Yes.

20 Q. It's going to be used on a daily basis to
21 either take stuff off the work area or take
22 stuff from the staging area and put it on the
23 work area; correct?

24 A. (Kayser) Yes.

1 Q. And you will need staging areas up and down
2 the 192 miles; correct?

3 A. (Kayser) The staging areas will be more in
4 the overhead, in the right-of-way for the
5 overhead lines, but in the right-of-way,
6 typically.

7 Q. Right. There'll be a number of staging areas
8 off the right-of-way; would there not?

9 A. (Johnson) No, I would disagree with that
10 statement.

11 Q. You think all the staging areas will be on
12 the right-of-way?

13 A. (Johnson) The vast majority will be on the
14 right-of-way.

15 Q. And have those been shown on maps?

16 A. (Johnson) There will be the crane pad that
17 we've shown. So all the crane pads that are
18 ahead of the construction process will be
19 used as staging areas for the equipment
20 that's required.

21 Q. Ah, so you're going to -- so those will be
22 the staging areas as you sort of leap frog
23 down the line?

24 A. (Johnson) That's correct. For instance, as

1 we just suggested, monopoles or lattice
2 structures, those will be delivered to the
3 main yards, if you will, and assembled or
4 pre-assembled into smaller sections. They
5 will then be taken out to the right-of-way
6 and laid either on the crane pad that will be
7 used to erect the structure, or the one next
8 up, and then as the erection of that
9 structure comes, they will then pick them up
10 with the crane and install them in those
11 locations.

12 Q. And how about when you take material off of
13 the site, such as either spoils from an
14 excavation or when you're leveling the
15 right-of-way for access roads, or you're
16 clearing trees and shrubs and you need to
17 store those until they're hauled off? Won't
18 those be stored in staging areas?

19 A. (Johnson) Again, not necessarily. It depends
20 where you are. If you are -- typically what
21 the contractor will do is look for somebody
22 who wants the spoils or who can continue to
23 recycle them, if you will, and truck them
24 directly to either a disposal facility or

1 another construction site that's looking for
2 spoils, so there's one trip only. Clearly,
3 whether there's evidence of contamination or
4 potential contamination, those would have to
5 be specifically stored for further testing
6 before they would be removed. But we do not
7 anticipate to have multiple staging of soils.
8 Again, it's the economics of double trucking
9 versus single trucking.

10 Q. Does not your Application indicate that
11 spoils and trees and shrubs will be stored at
12 times at staging areas?

13 A. (Johnson) At certain times, certainly as
14 mentioned, but not necessarily all the time.

15 Q. And doesn't your Application also indicate
16 that, for instance, when you dismantle the
17 115 kV lines, that the dismantle equipment
18 will be stored in staging areas for a period
19 of time until hauled away?

20 A. (Johnson) Again, typically on site, right on
21 the crane pad that it came from, and then a
22 recycler would come and collect that material
23 and take it directly to a recycling facility.

24 Q. But you also anticipate having storage areas

1 off the right-of-way; correct?

2 A. (Johnson) Yes, absolutely. That's in our
3 Application.

4 Q. Yeah. And those storage areas will --
5 staging areas will have a fair amount of
6 traffic on a regular basis; correct?

7 A. (Johnson) So, traffic typically is first
8 thing in the morning or last thing at night
9 when you're either taking material out to the
10 site to be installed or you're bringing some
11 material back to be stored as I mentioned,
12 unless there's a case where you need to
13 temporarily store some sort of soil for, as I
14 mentioned, a potential contamination. But
15 clearly there would be no show up where the
16 workers would come for tailboards. And these
17 sites would be typically right on the major
18 thoroughfares, whether it's Route 3 or
19 Route 110 or wherever in previously disturbed
20 areas, such as industrial parks or existing
21 commercial operations.

22 Q. Would you agree with me that, until we know
23 where these areas are, we can't assess the
24 impact of the increased traffic because we

1 need to know where they are and therefore
2 assess the impact of traffic to where they
3 are?

4 A. (Johnson) So I would disagree with that
5 statement. I believe the thoroughfares that
6 we're planning on using are already
7 supporting a logging industry and heavy
8 industrial gravel pits as we mentioned
9 earlier. There are a lot of industrial
10 applications up and down the right-of-way.
11 Access to and from the right-of-way is
12 typically off of those major thoroughfares
13 for major equipment. And I don't believe
14 that we will be adding significant
15 differences in traffic, again, in a local
16 situation. If you're looking at adding up
17 all the trucks across the entire 192 miles,
18 the number may be large. But if you're
19 looking at a specific 3- or 4-mile segment
20 from each of the potential locations, then I
21 don't believe that it's that different. It's
22 certainly increased, but it's not incredibly
23 increased.

24 Q. It's increased from what exists today;

1 correct?

2 A. (Johnson) Absolutely. It's a construction
3 project. It's going to have increases across
4 the board.

5 A. (Farrington) Could I just add to that? We
6 can generally assess the impacts. We know --
7 once we know where the laydown areas are,
8 we're going to work with the emergency
9 responders and the local schools so that we
10 can plan to avoid some of the peak hours so
11 that the disruptions can be mitigated. I
12 don't think it's likely that we're going to
13 need any traffic signal at any of these
14 laydown areas, which seems a little extreme.
15 The previously disturbed areas likely already
16 have driveway permits from DOT. So, from a
17 safety standpoint, they have been evaluated
18 for safe site distance pulling out based on
19 the speeds on the main road. And for those
20 areas that we are going to see larger trucks
21 than we are used to, I think the mitigation
22 would be to possibly use a flagger to let
23 those large vehicles that need the larger
24 turning radius, help them out onto the main

1 roads in a safe manner.

2 Q. But in order to do that assessment, you have
3 to start by knowing where these areas are;
4 correct?

5 A. (Farrington) Correct.

6 Q. And until you know where they are, you can't
7 do the impact assessment on traffic; can you
8 not?

9 A. (Farrington) We have a general sense of what
10 the implications are going to be. It will
11 be -- once these areas are decided, it will
12 all become part of the transportation
13 management plan and which we will identify
14 each location and study in detail.

15 Q. Right. But you can't do that until you
16 identify the location; correct?

17 A. (Farrington) Right.

18 Q. So, sitting here today, you can't assess the
19 impact on traffic at any one location because
20 you don't know where that location is; isn't
21 that right?

22 A. (Farrington) We can make some assumptions.
23 But correct. Yeah.

24 Q. Mr. Bowes, has NPT or Renewable Properties

1 purchased any land for staging areas or
2 laydown areas?

3 A. (Bowes) Not specifically, no.

4 Q. Okay.

5 A. (Bowes) We typically do those sort of on a
6 short-term lease. The construction
7 contractor will do that. We do these
8 projects routinely across New Hampshire, as
9 well as across New England, and we usually
10 have ample people that want to provide us
11 temporary construction laydown areas or
12 staging areas.

13 Q. But you haven't done a project of 192 miles
14 in New Hampshire, have you?

15 A. (Bowes) That's true. But the aggregate of
16 the projects we have ongoing today is, you
17 know, certainly equal to that or larger.

18 Q. Not in New Hampshire.

19 A. (Bowes) Well, I think we have 25 crews
20 working in New Hampshire today, so --

21 Q. On brand new construction?

22 A. (Bowes) Yes.

23 Q. And so you add up those 25 crews and brand
24 new construction, and you think it approaches

1 192 miles?

2 A. (Bowes) Well, we have 40 distribution crews
3 that work on the roadway every day. We have
4 transmission construction going on at
5 multiple locations across the state. So we
6 clearly have more than the 20 or 25 that you
7 described.

8 Q. But those --

9 A. (Bowes) And we use construction laydown areas
10 today in New Hampshire.

11 Q. But those are in locations different than the
12 Northern Pass Project; correct?

13 A. (Bowes) For the most part, yes. I mean,
14 there's always ongoing work at Scobie Pond,
15 but --

16 Q. Let me ask you some questions about access
17 roads.

18 Now, as I understand it, the
19 right-of-way will be accessed either through
20 private roads or from public roads where they
21 intersect the right-of-way; is that right?

22 A. (Johnson) That is correct.

23 A. (Kayser) That's correct.

24 Q. Okay. And NPT's permit application to DES

1 shows 84 private access routes. Does that
2 number sound right to you?

3 A. (Johnson) Seems high, but...

4 Q. Well, I will tell you the vast majority of
5 them are in the northern section. Does that
6 seem --

7 A. (Johnson) Yeah, that's where I was going.
8 Yes.

9 Q. Yeah. Typically the private access routes
10 are somewhere between Pittsburg and Dummer,
11 typically.

12 A. (Johnson) Correct. And those would be
13 property that we either own or through the
14 Wagner Forest.

15 Q. Okay. What is on your screen is the first
16 page of Counsel for the Public's Exhibit 198.
17 And this is a listing of access routes by
18 town. And you'll see it has some dimensions,
19 including mileage. And just take a moment to
20 look at that. There's three pages to this,
21 so we're going to flip through them.

22 (Witness reviews documents.)

23 MR. IACOPINO: Mr. Pappas,
24 just for our edification, this is something

1 that was prepared by somebody other than the
2 Applicant?

3 MR. PAPPAS: Yes. This was
4 prepared by Dewberry. It's actually within
5 the report, but it's easier to pull up
6 separately.

7 MR. IACOPINO: Thank you.

8 A. (Johnson) Are these your access road
9 designations, or are they the Project's
10 access road designations?

11 Q. They are -- I believe they're both, actually.

12 A. (Johnson) Okay.

13 Q. So as you can see, we've added them up, and
14 it's a little over 67 miles. So I just want
15 to take a moment to get some sense of what
16 these access roads -- where they are and what
17 they -- on the map.

18 So what's on your screen now is the
19 Project's map as part of its DES Alteration
20 of Terrain permit application. And the first
21 page shows the Project coming into New
22 Hampshire up in Pittsburg. And just for
23 orientation, if you look at Halls Stream
24 Road, do you see where it intersects the

1 right-of-way?

2 A. (Johnson) Yes.

3 Q. And then if you look in the red, that denotes
4 proposed access to the right-of-way; correct?

5 A. (Johnson) Correct. Along the right-of-way.

6 So there's two types of access roads.

7 There's an on right-of-way and an off

8 right-of-way. This is representing on

9 right-of-way.

10 Q. Correct.

11 MR. IACOPINO: This is

12 CFP 222?

13 MR. PAPPAS: Yes.

14 MR. IACOPINO: Thank you.

15 BY MR. PAPPAS:

16 Q. So wherever you see the right-of-way crossing

17 a public road and you see that red

18 designation, that indicates gaining access to

19 the right-of-way from the public road;

20 correct?

21 A. (Johnson) That is correct.

22 A. (Kayser) Yes.

23 Q. Okay. And then if you go to the next page,

24 on the next page you'll see a section of the

1 right-of-way that's in Pittsburg. And if you
2 look along the right-of-way, you see that
3 red, or those two red lines running parallel.
4 Do you see those?

5 A. (Johnson) Yes.

6 Q. And those indicate access within the
7 right-of-way; correct?

8 A. (Johnson) Not for the portion that's below
9 the red -- the right-of-way designated line.
10 But yes.

11 Q. Right. If you fall --

12 A. (Johnson) It dips outside, yes, in this case.

13 Q. Right, right. So what this is, is indicating
14 essentially the roads that will be built
15 within the right-of-way where that -- that
16 gain you access from essentially the location
17 of a structure to the next structure to the
18 next structure; correct?

19 A. (Johnson) That's correct.

20 Q. Okay. And if you look and you see the yellow
21 with the little red dots, that indicates some
22 temporary wetlands that have to be addressed;
23 correct?

24 A. (Johnson) That is correct.

1 Q. So let's go to... so if you look at the next
2 page, to the right you see that red parallel
3 line from the bottom of the page on the right
4 that's off the right-of-way going onto the
5 right-of-way. Do you see that?

6 A. (Johnson) Yup.

7 Q. And that would be a private access road onto
8 the right-of-way?

9 A. (Johnson) Yes, that is land that we or RPI
10 owns.

11 Q. Okay. And if you go to the next page, what
12 you see is the red line off of Old Canaan
13 Road and then going through land to access
14 the right-of-way. Do you see that?

15 A. (Johnson) So that's the extension of that
16 before-mentioned access road down to Old
17 Canaan Road, yes.

18 Q. So that's an example of a private access road
19 to get to the right-of-way; correct?

20 A. (Johnson) Correct, on land that we own. So,
21 yes, it's private.

22 Q. Right. And that's, for instance, on that
23 land where you see the double red line you
24 will build an access road in order to get to

1 the right-of-way.

2 A. (Johnson) That's correct.

3 Q. And in a number of places you'll have to deal
4 with wetlands in order to do that?

5 A. (Johnson) Yeah, the designation of the
6 hashed, as we mentioned earlier, is the
7 wetlands.

8 Q. Okay. Now, as I understand it, the private
9 access is either through land you own or
10 other private property which you've acquired
11 rights to use the property to gain access to
12 the right-of-way.

13 A. (Johnson) That is correct.

14 Q. And for all of these 67 miles of access road,
15 you will build roads to get to the
16 right-of-way; is that right?

17 A. (Johnson) No.

18 Q. Well, some of them exist?

19 A. (Johnson) So the vast majority of them
20 already exist. If you go to the ones in
21 Dixville, Millsfield and Dummer, those are
22 all the existing logging roads. So, of that
23 67 miles you put forth, I would venture --
24 again, I don't know exact numbers here, but I

1 would say less than 10 miles of that is
2 actual new roads.

3 Q. For the existing roads, you would anticipate
4 needing to upgrade them.

5 A. (Johnson) So as I mentioned earlier today, we
6 have done a study of the culverts along those
7 roads, and the Project needs to improve those
8 where we've identified them. And then
9 typically it's the last half- to quarter-mile
10 to get into our right-of-way is where we need
11 to do the most improvements.

12 Q. And some of those improvements would probably
13 necessitate widening roads in some places?

14 A. (Johnson) Yes, yes. No question.

15 Q. And some of them will require cutting trees
16 and shrubs?

17 A. (Johnson) Yes.

18 Q. And placing gravel where necessary?

19 A. (Johnson) Yes.

20 Q. Okay. And once you access the right-of-way
21 as we saw on the maps, is a typical width of
22 the road within the right-of-way 12 to
23 16 feet wide?

24 A. (Johnson) I believe so, with a potential

1 taper, depending on your elevation and how
2 much you have to excavate to get up.

3 Q. And some of the areas need to be a little
4 wider for passing or turning areas?

5 A. (Johnson) So if you note, one of the drawings
6 you just had up does sort of have a flare in
7 it. In effect what that is, is to allow a
8 truck to pull over as another truck comes
9 through and then come down. For smaller
10 vehicles, yes, that would allow for turning,
11 for larger vehicles, potentially not.

12 Q. And those access roads that run along the
13 right-of-way will require some clearing as
14 well; correct?

15 A. (Johnson) In the new areas, yes.

16 Q. And you'll have to, I assume, grade areas to
17 10 percent or less grade?

18 A. (Johnson) Approximately, yes.

19 Q. Okay. And you'll have to probably in areas
20 install some gravel?

21 A. (Johnson) Oh, definitely.

22 Q. Yeah. And you already indicated earlier
23 timber mats over wetlands.

24 A. (Johnson) Correct. That's a technique to

1 prevent permanent damage to a wetland.

2 Q. Okay. Now, would I be correct, as of today,
3 the Project hasn't identified which part of
4 these access roads will remain permanent
5 improvements and which parts will be
6 temporary?

7 A. (Johnson) So, primarily these are 100 percent
8 temporary and will be removed and restored to
9 their natural grade, unless there is a
10 situation where a land owner would like us to
11 leave the road in those areas where it's not
12 RPI, but then only in an upland area. So,
13 any wetland areas we would be removing that
14 matting so that the wetlands could be
15 restored to their natural --

16 Q. Other than the wetlands, the access roads
17 within the right-of-way, are those going to
18 remain permanent or temporary?

19 A. (Johnson) Those will all be temporary.

20 Q. So they'll all be removed once the line is
21 up?

22 A. (Johnson) That is the plan, yes.

23 (Pause in proceedings.)

24 Q. So we're back on the access road maps, and I

1 just want to get a sense of some areas where
2 there are multiple access points in a similar
3 area. So what you have here is Whitefield.?

4 A. (Johnson) Yeah.

5 Q. And you can see what looks like four access
6 points off two different roads in the same
7 general area. Do you see that?

8 A. (Johnson) Yeah. It's the potential for four
9 access roads.

10 Q. Right.

11 A. (Johnson) So in that center intersection, if
12 there is no construction being done, then
13 we'd access from one side or the other, but
14 not necessarily four.

15 Q. But would I be correct in saying that there
16 are a number of places along the route where
17 there are multiple access areas off the
18 public roads?

19 A. (Johnson) Correct.

20 Q. And in some areas there's only one or two
21 access out of public roads. It varies.?

22 A. (Johnson) One either side, yes. This is kind
23 of a unique case where you have two roads
24 crossing each other right at the intersection

1 with the right-of-way.

2 Q. Now, where the -- you access the right-of-way
3 from a public road. I assume you're going to
4 need to do some work at that access point,
5 such as whether or not you need to do some
6 clearing and some other work in order to be
7 able to access the right-of-way?

8 A. (Johnson) So there would be clearing. There
9 would be a gravel mud trap, if you will, put
10 down to prevent material leaving the
11 right-of-way on the truck tires. But yes,
12 there would be.

13 Q. Yeah. So everywhere along the route where
14 you access the right-of-way from a public
15 road, you're going to have work at that
16 access point to allow all of the heavy trucks
17 to access the right-of-way; correct?

18 A. (Johnson) Correct.

19 Q. And are all of those access points intended
20 to be temporary, or are some of them
21 permanent?

22 A. (Johnson) Temporary.

23 Q. So you're going to do the necessary clearing,
24 do any grading, put in gravel and do whatever

1 is necessary to allow heavy construction
2 equipment to access the right-of-way and take
3 it all away when it's done?

4 A. (Johnson) That's correct.

5 A. (Bowes) These are also stipulations or
6 requirements of the DOT permit.

7 Q. Okay. Now, once you access the
8 right-of-way -- and you can stay right on
9 this picture. You see the yellow squares?
10 Do you see those?

11 A. (Kayser) Yes.

12 A. (Johnson) Yes.

13 Q. And are those the -- what are those?

14 A. (Johnson) Those are the crane pads.

15 A. (Kayser) Crane pads.

16 Q. That's what I thought. So that's where you
17 need to, for instance, remove vegetation and
18 grade the area in order to do work?

19 A. (Johnson) So, for the most part, vegetation
20 has already been removed in these corridors.
21 But yes, if there is any remaining, we would
22 have to take it out. Typically the extent of
23 clearing is only along the very edge of the
24 corridor.

1 Q. But for each one of these crane pads, I
2 assume you have to grade that level flat?

3 A. (Johnson) Yes, you can do that by bringing
4 gravel in instead of digging the actual
5 ground. But yes.

6 Q. You can bring gravel in or you can remove
7 some of the top soil and then put gravel in.

8 A. (Johnson) Correct.

9 Q. And I assume you're going to install some
10 filter fabric as part of this area as well?

11 A. (Johnson) Yes. Every location has extensive
12 environmental controls to prevent runoff, et
13 cetera.

14 Q. Okay. So everywhere along the route for
15 these crane pads you have to -- and the crane
16 pads are about 100 feet by 120 feet?

17 A. (Johnson) Approximately, yes.

18 A. (Kayser) Yes.

19 Q. So everywhere along the route you're going to
20 be grading, leveling and constructing these
21 crane pads everywhere along the route in
22 order to install structures; correct?

23 A. (Johnson) Yes.

24 Q. In addition to the crane pads, do you have

1 separate work pads as well?

2 A. (Johnson) What do you mean by that?

3 Q. Well, do you have -- is all of the work to
4 construct a structure going to be done within
5 the crane pad?

6 A. (Johnson) Yes. So you'll see different sizes
7 of crane pads, and those would correspond to
8 the different types of structures there,
9 whether -- if it's a distribution line,
10 obviously it needs a much smaller footprint
11 versus, in this case, the DC structures which
12 need the largest footprint. And that's
13 purely a function of the type of equipment
14 that needs to be staged there.

15 Q. Okay. So, for each one of these crane pads,
16 potentially you'll need site equipment to
17 grade it; correct?

18 A. (Johnson) Yup.

19 Q. And you'll need trucks to deliver gravel to
20 put the gravel down.

21 A. (Johnson) Yes.

22 Q. And you'll need rollers to presumably compact
23 it so that it can be a construction site.?

24 A. (Johnson) Typically, no, we don't use

1 rollers. It's possible in certain locations,
2 but typically no.

3 Q. Not what your Application says, but all
4 right.

5 A. (Johnson) So, remember the Application is
6 overstated in a lot of cases to ensure that
7 we fully permitted and taken the most
8 conservative route. The contractor may
9 choose not to do certain things, as long as
10 it's less, not more.

11 Q. Okay. And then, from these crane pads you're
12 going to need to do some excavation in order
13 to put foundations?

14 A. (Johnson) Correct. The drill rig will be
15 right there.

16 Q. Yeah. Okay. And then you're going to need
17 to bring concrete trucks in to pour concrete?

18 A. (Johnson) That's correct.

19 Q. And then you're going to bring in cranes in
20 order to install the structures. First
21 you're going to bring in structures, the
22 components in, and then you'll bring the
23 cranes in to erect them?

24 A. (Johnson) That's correct.

1 Q. And then after you get them erected, you're
2 going to reverse much of that by either
3 pulling out unnecessary gravel or timber mats
4 or filter fabrics or whatever else in order
5 to restore the area?

6 A. (Johnson) That is correct.

7 Q. So all of -- and do you have any sense of how
8 many crane pads there are for this overhead
9 construction?

10 A. (Johnson) There's approximately 1200
11 structures, so approximately 1200 crane pads.

12 Q. Twelve hundred. Right. So in order to do
13 all this work for the 1200 crane pads over
14 this 2-1/2-year-period, there's going to be a
15 lot of truck and equipment activity
16 constantly accessing and getting onto the
17 right-of-way and getting off the
18 right-of-way; correct?

19 A. (Johnson) As with any construction project,
20 yes, there will be a fair amount of material.
21 I can tell you that there will not be 1200
22 individual crane pads. A lot of material
23 will be reused as you construct, as you go
24 down the -- so there won't necessarily be

1 1200 loads of gravel coming in or anything of
2 that nature. Typically when we build the 115
3 lines, as we discussed earlier, to cut them
4 over, we'll take the crane pads from the 115
5 lines and move that material to create either
6 the DC or the 345 AC materials. So you don't
7 need to constantly bring new material in.

8 You're recycling as much as you can --

9 Q. But you're bringing in new concrete for each
10 one of these structures; right?

11 A. (Johnson) Each concrete will have -- each
12 structure will have concrete.

13 Q. And you're bringing new, whether it be
14 lattice or monopole, for each one of these
15 structures.

16 A. (Johnson) The material delivery will be
17 unique, yes.

18 Q. So there might be some reuse of gravel or
19 some other material, but for the most part,
20 each one of these crane pads is going to
21 require its on material for the structures;
22 correct?

23 A. (Johnson) Correct. There's 1200 structures.
24 It's unique material.

1 Q. Okay. Ms. Farrington, let me ask you a
2 couple questions about impacts on traffic
3 from activities we just described.?

4 A. (Farrington) Okay.

5 Q. Now, have you determined all the number of
6 trucks, whether it's concrete trucks, dump
7 trucks, flatbeds for cranes, other types of
8 trucks that are going to be accessing these
9 public -- these rights-of-way from the public
10 roads? Have you gone through that and done
11 an analysis?

12 A. (Farrington) I have not. I believe it was
13 done in the EIS.

14 Q. Say that again?

15 A. (Farrington) I believe it was done in the
16 EIS.

17 Q. Okay. So as part of your work, you didn't go
18 through and make an analysis of the impact on
19 each one of these areas -- each one of these
20 access to the right-of-way from a public
21 road.

22 A. (Farrington) No, and I don't believe there
23 would be any reason to do that, just because
24 the number of vehicles on any given day using

1 each of these entrances is going to vary, and
2 I don't know that there's any reason to
3 analyze to that sort of detail for something
4 this brief and really minimal.

5 Q. Well, you don't know the number of vehicles
6 on the access each day because you didn't do
7 the analysis; correct?

8 A. (Farrington) Well, I'm familiar with the
9 number of vehicles that are going to be
10 needed for the entire project. But when you
11 divide them up by the number of access
12 points, we're not going to have the same --

13 Q. But you don't know for any given access point
14 how many vehicles there are going to be on
15 any given day on any given access point;
16 correct?

17 A. (Farrington) I don't know today, and I don't
18 know that I would ever do that analysis or
19 ever know that specific of information. It's
20 just not a necessary parameter.

21 Q. So if an access point has multiple vehicles
22 accessing the right-of-way coming on or going
23 off throughout the day, won't that have an
24 impact on the traffic at that spot?

1 A. (Farrington) It will. But it's evaluated
2 from the driveway permit side of things,
3 which is more of a safety evaluation. It's
4 certainly not a traffic impact evaluation
5 where we're going to consider the delay to
6 the travelers caused by this. I mean, the
7 delays are going to be less than ten seconds
8 per vehicle caused by any particular access
9 point.

10 Q. You think it's less than ten seconds for any
11 of those vehicles to get off the road and
12 onto the access right-of-way, or come off the
13 right-of-way and get onto the road?

14 A. (Farrington) That's different. The delay for
15 the construction vehicles we're not as
16 concerned with. We're concerned with the
17 delays for the traveling public.

18 Q. Well, the traveling public can't pass if a
19 construction vehicle is either going to come
20 off the right-of-way and get on the access --
21 get on the public way; correct?

22 A. (Farrington) Correct.

23 Q. Yeah. And it's going to take more than ten
24 seconds for some of these large construction

1 vehicles to come off the right-of-way and get
2 on the public road; is it not?

3 A. (Farrington) It could. We'll see. Could be
4 less than one minute.

5 Q. And if there are multiple vehicles coming at
6 the same time, it could be more than that;
7 isn't that right?

8 A. (Farrington) Well, each vehicle is going to
9 have to -- sorry. Coming out of the
10 construction zone or going into it?

11 Q. Either way.

12 A. (Farrington) Yeah, I suppose it could be.

13 Q. So you really can't assess the impact of any
14 particular access point because you don't
15 know how many vehicles are going to go at any
16 given time in order to make that analysis;
17 correct?

18 A. (Farrington) Again, there's no requirement in
19 the permitting --

20 Q. I didn't ask you if there's a requirement. I
21 asked you whether or not you'd done the
22 analysis and you can determine the impact.
23 And the answer is you can't because you need
24 to do that analysis to determine the impact;

1 isn't that right?

2 A. (Farrington) I have not done the analysis,
3 and I will not do the analysis for this.

4 Q. All right. Mr. Kayser or Mr. Johnson, let me
5 ask you a question about road damage for
6 these access points.

7 Now, heavier construction vehicles
8 clearly have a vertical load based on their
9 weight on the road; correct?

10 A. (Johnson) Correct.

11 A. (Kayser) Yeah.

12 Q. And starting and stopping creates some
13 horizontal load friction; correct?

14 A. (Johnson) Sure.

15 Q. Many of the public access roads are -- aren't
16 state highways. They're local roads; isn't
17 that right?

18 A. (Johnson) In certain cases, yes, especially
19 in the south.

20 Q. Yeah. And those local roads tend to be
21 designed to different standards than, say,
22 highway roads; correct?

23 A. (Johnson) Correct.

24 Q. And so, for many of those local roads they're

1 not designed for heavy use by construction
2 vehicles. They're typically designed for
3 passenger vehicles and the occasional
4 construction vehicle; isn't that right?

5 A. (Johnson) Correct. Although, I would say
6 occasionally -- okay. Fair statement.

7 Q. So it's fair to say that, given the
8 construction activity on many of these local
9 roads, there's a fair likelihood that there
10 will be damage to the roads, particularly
11 where the asphalt meets non-asphalt. It's a
12 high point of potential damage; correct?

13 A. (Johnson) I would say it's an area where it
14 could occur. I wouldn't say that it would
15 necessarily occur. If the contractor does
16 their job right, then it won't.

17 Q. Okay. I want to ask you questions about if
18 it occurs.

19 A. (Johnson) Okay.

20 Q. So if it occurs, what's the Project's plan to
21 deal with that?

22 A. (Johnson) We'll fix it and restore it to
23 existing or better conditions.

24 Q. And to do that, are you going to meet with

1 the local officials to determine the
2 necessary standard to meet to fix it to as
3 good a condition or better?

4 A. (Johnson) So, typically what the contractor
5 does is photograph or video-tape that
6 crossing so the existing conditions can be
7 ascertained, and then the roads will be
8 restored to DOT standards.

9 Q. Well, I'm talking right now about non-DOT
10 roads. I'm asking you about the local roads.

11 A. (Johnson) Yeah.

12 Q. I understand for DOT they all require you to
13 meet their standards, and they'll monitor
14 you. I'm inquiring about local roads that
15 towns maintain and DOT does not maintain.

16 A. (Johnson) Yeah.

17 Q. So, for the local roads, is the Project's
18 anticipation to meet with local officials to
19 agree on the requirements to restore those
20 roads to local -- to the local requirements?

21 A. (Johnson) Typically the DOT standards are
22 higher than the local roads, or equal.

23 Q. But my question is --

24 A. (Johnson) Yeah. So the answer is, if there's

1 a road agent or a municipal official that is
2 responsible for that particular, you know,
3 return of the roads, we will develop a plan
4 according to what the existing conditions
5 were and either build it back to that
6 condition or better.

7 Q. Okay. So --

8 A. (Johnson) There is no approval, if that's
9 what you're searching for, though.

10 Q. No?

11 A. (Johnson) We're not asking for the municipal
12 to approve.

13 Q. I understand the Project's legal position.
14 I'm not asking you about the legal position.
15 That's for the lawyers to talk about.

16 A. (Johnson) Hmm-hmm. Agreed.

17 Q. What I want to know is what the Project's
18 commitment is in certain instances. And if
19 you were here for prior testimony, we've
20 asked about the Project's commitment in
21 certain instances. And in this instance, I
22 want to know about the commitment to address
23 damage to local roads that are maintained by
24 localities. And every town, or virtually

1 every town has a road agent or a municipal
2 agent responsible for the road. I want to
3 know if it's the Project's commitment to meet
4 with local officials where damage to local
5 roads are done in order to agree on what the
6 restoration of those roads should be. And if
7 Mr. Bowes wants to answer that, that's fine.

8 A. (Bowes) So you're asking if we're willing to
9 meet with town officials? The answer is yes.

10 Q. And are you willing to repair or restore the
11 roads to the requirements that are requested
12 by the town official?

13 A. (Bowes) Provided they're consistent with the
14 New Hampshire DOT standards, I would say yes.

15 Q. What happens if there's a difference between
16 the DOT standards and the town standards?

17 A. (Bowes) Then we should have that discussion
18 before the construction starts, not after an
19 event occurs. And that's part of the process
20 we're doing with the municipal outreach and
21 the agreements that we're trying to put in
22 place. We've completed that with the Town of
23 Franklin, for example, and we'd like to
24 follow that model for the remaining 30 towns.

1 Q. So the objective is to reach an agreement
2 with each town on what is required to restore
3 damage to a town road?

4 A. (Bowes) Sure. Yes.

5 Q. What happens if you and the town don't agree?
6 What does the Project intend to do in that
7 case?

8 A. (Bowes) Then we would look to the DOT
9 standards and complete it to that standard,
10 and the SEC would have the authority to
11 enforce it.

12 Q. And if the SEC requires you to meet whatever
13 the town standards are, I assume that's what
14 you will do?

15 A. (Bowes) I would say in general, yes. But not
16 knowingly what they are, I would reserve some
17 judgment on that.

18 Q. Okay. Who would be responsible for
19 interacting with the town officials, in terms
20 of damage to a town road?

21 A. (Bowes) I would say the first person would be
22 that community relations manager. And we
23 would be having that conversation I hope
24 early on in the process. If we identified an

1 issue where we damaged a road, we would take
2 that to the town before they came to us.

3 MR. PAPPAS: Okay.

4 CHAIRMAN HONIGBERG: Okay.

5 We'll take our break now. We'll shoot for a
6 little after 1:00. Might be closer to 1:10,
7 but that's the target.

8

9 (Lunch recess was taken at 12:13 p.m

10 This concludes DAY 6 MORNING SESSION.

11 The hearing continues under separate

12 cover in the transcript noted as

13 "AFTERNOON SESSION ONLY.")

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C E R T I F I C A T E

I, Susan J. Robidas, a Licensed
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