

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES
ENERGY FACILITIES SITING BOARD
EFSB 14-4/DPU 14-153/14-154

EVIDENTIARY HEARING, held at the
Department of Public Utilities, One South Station,
Boston, Massachusetts, on Thursday, January 7, 2016,
commencing at 10:11 a.m., concerning:

NSTAR ELECTRIC COMPANY, D/B/A EVERSOURCE ENERGY

SITTING:

M. Kathryn Sedor, Esq., Hearing Officer

Siting Division:

Barbara Shapiro, Environmental Director, EFSB

Charlene de Boer, Regional Planner, EFSB

John Young, Technical Director, EFSB

----- Reporter: Alan H. Brock, RDR, CRR -----

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1 January 7, 2016 10:11 a.m.

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

3 MS. SEDOR: Let's go on the record.

4 Good morning. Today's Thursday, January 7th, 2016,
5 and this is a continuation of the evidentiary
6 hearing in EFSB 14-4/DPU 14-153/154.

7 Before we proceed with the hearing
8 itself, there are a couple of procedural matters
9 that we would like to put on the record just
10 briefly. I would like to begin with counsel for
11 Eversource briefly putting on the record some
12 information that we did discuss off the record
13 before beginning this morning, pertaining to the
14 availability of one of the company's witnesses that
15 will have an impact on -- a possible impact on the
16 topics that we address today.

17 MS. KEUTHEN: Thank you. The company's
18 witness Mr. John Zicko has been taken ill and is
19 unavailable to testify today. Accordingly, what we
20 have discussed is that -- or what we have requested,
21 and it appears that the other staff and the other
22 parties have agreed to, is that once examination is
23 completed on project need and alternatives, that we
24 would proceed with examination on the topic of route

1 selection but not site selection, and reserve
2 examination on site selection until after Mr. Zicko
3 is able to return.

4 Also, to the extent that any of the
5 parties have questions that would otherwise have
6 been directed to Mr. Zicko on need or project
7 alternatives, that the witness panel will answer to
8 the best of their ability, but if unable to do so,
9 we would either take such questions as record
10 requests or the parties would have an opportunity to
11 examine Mr. Zicko orally when he is available.

12 MS. SEDOR: And I would ask, Ms.
13 Keuthen: If we did get to site selection, as
14 opposed to route selection, and there were some
15 questions that other members of the panel could in
16 fact answer, would it be acceptable to the company
17 to broach those questions?

18 MS. KEUTHEN: We could try it, but I do
19 think that Mr. Zicko is fairly integral to the
20 company's responses with regard to site selection
21 and probably has the greatest historical knowledge.
22 And so I think that examination on that particular
23 issue in his absence would be problematic.

24 MS. SEDOR: So I understand that he is

1 the substation design person, and you're saying that
2 he also was the main person, or certainly a
3 principal person, in selection of the site as well
4 as design of the site?

5 MS. KEUTHEN: I'm not sure that that's
6 correct, in terms of a principal person in terms of
7 that. But among the witnesses that the company has
8 presented in this proceeding, I think he's probably
9 the most knowledgeable.

10 MS. SEDOR: Okay. And Mr. Thayer, does
11 Channel Fish have a response to Ms. Keuthen's
12 statement?

13 MR. THAYER: Ms. Keuthen's statement is
14 consistent with our discussion off the record, and
15 Channel Fish accepts that proposal.

16 MS. KEUTHEN: Thank you.

17 MS. SEDOR: Thank you.

18 The only other thing I'd like to briefly
19 put on the record is that I will be issuing a short
20 procedural order this evening. There is some
21 traffic information that the company has not yet
22 been able to gather and submit into the record, and
23 that may have some scheduling implications for the
24 intervenor witnesses. And staff will be giving the

1 intervenors an option to reschedule their witnesses
2 so that the witnesses will have the opportunity to
3 testify after that information comes in, if that is
4 what they elect to do. And again, that will go out
5 in writing this evening.

6 All right. So at this time I will turn
7 the proceeding over to Ms. de Boer.

8 Is there a question over there? Ms.
9 Keuthen, you may proceed with direct of Mr. Andrew.

10 MS. KEUTHEN: Since the company did not
11 previously direct testimony for Mr. Andrew and he
12 testified yesterday with just brief direct
13 examination in response to a request from counsel
14 for Channel Fish, we'd like to conduct some
15 additional brief direct examination.

16 MARC BERGERON, RICHARD C. ZBIKOWSKI, FRANCES BERGER,
17 MICHAEL W. O'MALLEY, AND ROBERT ANDREW,
18 having been duly sworn, testified as follows:

19 DIRECT EXAMINATION

20 BY MS. BLAINE:

21 Q. Mr. Andrew, for the record, could you
22 restate your position with Eversource Energy.

23 A. [ANDREW] I am director of system planning,
24 with responsibility for eastern Massachusetts and

1 New Hampshire.

2 Q. And could you explain what your role has
3 been on behalf of the Mystic-East Eagle-Chelsea
4 reliability project?

5 A. [ANDREW] Mr. Zbikowski is one of my direct
6 reports, and the people on our staff who have been
7 working with ISO New England on the Greater Boston
8 study are also my direct reports.

9 Q. Could you summarize your educational
10 background, please.

11 A. [ANDREW] Sure. I graduated from
12 Northeastern University in 1979 with a bachelor of
13 science in electrical engineering, with
14 concentration in electric power systems; followed
15 that in 1983 with a master of science in electrical
16 engineering, with concentration in electric power
17 systems.

18 Q. Could you summarize your professional
19 history, please.

20 A. [ANDREW] Upon graduation from Northeastern
21 in 1979, I spent two years in New Hampshire as a
22 distribution engineer, followed by two years in
23 Boston as a design engineer on power plants,
24 followed by ten years in the Boston area as a design

1 engineer on local operating power plants;
2 transitioned to system operations, was a
3 transmission system operator for four years,
4 supervisor in the same area for an additional two;
5 transitioned to -- at the engineering organization,
6 with a couple, two years in substation technical
7 support, followed by another three years as a senior
8 system planner; transitioned back to transmission
9 operations as manager of transmission operations for
10 a little under five years; and then transitioned to
11 director of system planning, my current role, for
12 the last five years.

13 Q. Thank you. Mr. Andrew, have you testified
14 in other proceedings before the Siting Board or the
15 Department of Public Utilities?

16 A. [ANDREW] Yes, I have, the Hopkinton zoning
17 petition. I don't know the docket number, but it
18 was within the last six months, I would say.

19 Q. Thank you.

20 MS. SEDOR: Thank you, Ms. Blaine.

21 BENCH EXAMINATION

22 BY MS. DE BOER:

23 Q. Good morning, everybody. Just one followup
24 topic on our discussions yesterday.

1 We briefly discussed what the company
2 might do in terms of the transmission facilities
3 between Mystic and Chelsea if the East Eagle Street
4 substation was not approved at this time. I was
5 hoping we could elaborate on that a little bit more,
6 I think likely through a record request, getting
7 some of the more specific details of the facilities
8 and costs that would be associated with that work if
9 the substation was not approved at this time.

10 I believe we talked about three
11 potential options for the transmission line and
12 where it might end if it wasn't connecting into the
13 East Eagle Street substation today. Those were
14 building from Mystic towards Chelsea but stopping at
15 the river crossing, before the duct bank across the
16 river; potentially continuing across the river but
17 stopping at the manhole location on the other side
18 of the duct bank; and the third being building all
19 the way toward the substation site from the duct
20 bank along East Eagle Street. Is that correct?

21 A. [ANDREW] Yeah, I think fundamentally we
22 haven't actually laid that option out, to see where
23 the best places would be. But I think those are
24 very logical choices, yes.

1 Q. So I'd like to make a record request for
2 the company's assessment of the transmission
3 solution it would recommend developing if the East
4 Eagle Street substation was not approved at this
5 time, so whether it be those three options or with
6 further review and a different set of options the
7 company might propose -- outlining the specific
8 unique facilities you would need to allow for a
9 potential future connection of the substation if the
10 company thinks that's warranted, the costs,
11 constructability considerations, and the
12 environmental impacts compared to the project as
13 currently proposed, and any narrative that would be
14 helpful explaining why the company has identified
15 that route and those locations as the recommended
16 alternative compared to the project if the station
17 wasn't being developed.

18 BY MS. SHAPIRO:

19 Q. At each of those three there would be some
20 information on the cost and the environmental
21 impacts and the constructability -- so how you got
22 to your final choice.

23 A. [ANDREW] Sure -- just in terms of which
24 would be the best of the available alternatives?

1 Q. Yes. Thank you.

2 BY MS. DE BOER:

3 Q. Does that make sense as a question?

4 A. [ANDREW] Yes. I think one of the issues
5 will be that will probably have to be a fairly
6 high-level analysis, because I think -- we have two
7 weeks to turn an IR around? One week? So without
8 that detailed engineering having been done, there
9 will be a lot of assumptions in those.

10 Q. I think we understand the nature of the
11 cost estimates would obviously not be the same level
12 of detail for the project, but order of magnitude
13 and the types of considerations the company would
14 want us to be aware of, how such an option might be
15 feasible.

16 MS. SEDOR: That will be RR-EFSB-13.
17 (Record Request RR-EFSB-13.)

18 Q. That's it for me now. Thank you.

19 MS. SEDOR: Mr. Thayer?

20 CROSS-EXAMINATION

21 BY MR. THAYER:

22 Q. Good morning. Yesterday we talked a lot
23 about various forecasts, and I at least have some
24 confusion that hopefully we can clear up.

1 I'd like to begin with the forecasts
2 that are referenced on the company's response to
3 N-5. And specifically, I see a table on that
4 document which forecasts summer peak demand in the
5 year 2018 at 146.2 MVA, and it forecasts summer peak
6 demand for the year 2023 at 149.5 MVA. Ms. Berger,
7 these are numbers that the company has come up with
8 as its forecast; correct?

9 A. [BERGER] That's correct.

10 Q. Now, if we flip over to the company's
11 response to N-18, there's a similar chart with a
12 different set of numbers. In N-18 we see a forecast
13 that in 2018 the Chelsea substation will respond to
14 a demand of 125.8 megawatts and that in 2023 the
15 demand will be 129.6 megawatts. Ms. Berger, where
16 does this demand forecast come from?

17 A. [BERGER] Give me a moment to review.

18 So the difference between the two
19 forecasts, in N-5, that is the company's forecast
20 that it put together for the Chelsea substation.
21 The table referenced in N-18 is, I believe, from the
22 ISO New England needs assessment, 2015 needs
23 assessment. We spoke a bit yesterday about the fact
24 that the company provides its forecasts to ISO New

1 England, who then massages the data to a certain
2 extent. So this table is ISO New England versus the
3 company's forecast.

4 Q. So the ISO New England forecast depicted in
5 the response to N-18 is more recent than the
6 company's forecast; is that correct?

7 A. [BERGER] I think that the information that
8 was provided to ISO New England was the forecast
9 that is based on N-5.

10 Q. So N-5 is older, it was given to ISO New
11 England, and ISO New England came out with a new
12 forecast that is depicted in N-18?

13 A. [BERGER] I am not sure if that's correct.
14 My understanding -- and perhaps Bob can --

15 A. [ANDREW] Can I help a little bit on that?

16 A. [BERGER] Yes, please.

17 A. [ANDREW] Okay. The Greater Boston study
18 that was undertaken by ISO New England I believe is
19 based on the 2013 load forecasts. So the situation
20 is actually somewhat reversed. The forecast table
21 on N-5 is our 2015 forecast, whereas the numbers
22 shown on N-18 are from the ISO's needs assessment.
23 Right?

24 But that wasn't done on the 2015 load

1 forecast. That's the updated one?

2 We'll have to confirm that, take an
3 information request, because the --

4 The ISO numbers generally, because their
5 studies start earlier, tend to lag by, say, a year,
6 roughly, what our numbers look like.

7 Q. So sitting here today, the company does not
8 have an answer as to whether the data in N-18 is
9 more recent and/or incorporates the information from
10 the company's own data in N-5?

11 A. [ANDREW] The data in N-18 is ISO-created
12 data; all right? And one of our challenges back and
13 forth dealing with the ISO is they create their own
14 load forecast and use it the way their rules are set
15 up.

16 We provide them our load forecast, which
17 they principally use, I am told, to allocate loads
18 between the substations. But then --

19 When we look at our portions of the
20 system, we are forecasting a smaller area. They're
21 forecasting all of New England. Right? So they end
22 up making different adjustments from what we may
23 have, to make the numbers work all in all.

24 Q. That's fine. At this point I'm just trying

1 to get the chronology of the forecasts and figure
2 out which one came first and which one came second.
3 Does the company have an answer for that right now?

4 A. [ANDREW] Which one came --

5 The most recent load forecast available
6 is given in N-5.

7 Q. Okay. So the N-5 forecast as far as the
8 company is concerned is more recent than the N-18
9 forecast.

10 A. [ANDREW] Correct.

11 Q. Is it also the company's position, then,
12 that the N-5 forecast is more accurate than the N-18
13 forecast?

14 A. [ANDREW] By the name of the word, of a
15 "forecast," how can you -- you're projecting into
16 the future.

17 Q. It's the company's goal --

18 A. [ANDREW] We believe it's -- we believe,
19 based on 90/10 weather conditions, these are the
20 numbers we should be planning the system to to
21 provide proper levels of reliability to our
22 customers.

23 Q. So the company's position is that ISO New
24 England in its forecast is wrong?

1 MS. KEUTHEN: Objection, that's not what
2 the witness stated.

3 Q. I'm trying to understand -- we agree that
4 the numbers -- the numbers in N-5 and the numbers in
5 N-18 are not the same. Can we agree on that?

6 A. [BERGER] We can.

7 Q. And the company believes that its numbers
8 are correct.

9 A. [ANDREW] For the purpose here, yes.

10 Q. So, then, does it not stand to reason that
11 the company believes the ISO New England numbers are
12 incorrect?

13 A. [BERGER] I would have -- I'm sorry.

14 A. [ANDREW] The numbers presented are used
15 for different purposes; okay? When we plan at a
16 substation level, we're worried about the loading
17 and the voltage performance on the substation
18 components in the very close portions of the
19 transmission system.

20 The ISO is more worried about what's
21 called the bulk transmission system. If we have a
22 problem in a small corner of our system that causes
23 us to have to disconnect load or we burn facilities
24 down but it does not move into the rest of the

1 transmission system, what the ISO planners will say
2 is, "That's a local problem. You're not affecting
3 us. If you want to go do that, well, we don't think
4 it's smart, but you can go do that."

5 So the ISO is worried about larger-term,
6 bigger issues that are typically covered in NERC
7 reliability standards, which deal with the integrity
8 of the bulk electric system -- the grid, if you
9 will -- at that higher level. We plan -- we work
10 with them as part of that planning on a regular
11 basis, but then we also have the responsibility to
12 plan and dive down into the system.

13 If we choose to overload our
14 transformers, the ISO staff will look at us and say,
15 "Well, we think that's dumb, but we can't tell you
16 not to do that." Right?

17 So when we plan, we look at the system
18 in more detail, in a tighter area. They zoom out,
19 if you will -- you know, I'll use the 10,000-foot/
20 20,000-foot kind of analogy. They're up at 20,000
21 feet, and we're zooming down to 1,000 feet, to make
22 sure everything works all the way to the customers.

23 Q. So their peak-demand estimates are
24 inaccurate because they're at the 20,000-foot level?

1 A. [ANDREW] I wouldn't say they're
2 inaccurate. They're looking at the system from a
3 different perspective, and they don't necessarily
4 need that.

5 Q. Is it fair to say that, based on the data
6 of years that have occurred -- say, 2005 through
7 2015 -- that the actual numbers for demand from the
8 Chelsea substation more closely match the ISO New
9 England forecast than the company's forecast?

10 A. [ANDREW] I don't believe anybody has
11 checked that.

12 Q. Well, the numbers that the company provided
13 for 2005 through 2015 appear in your response to
14 N-2; correct?

15 A. [ANDREW] The actual load data. So those
16 are the actual substation loads experienced at the
17 time, yes.

18 Q. And these numbers are closer to the ISO New
19 England forecasted numbers than the numbers that
20 appear in your response to N-5.

21 A. [ANDREW] I don't believe we've given any
22 ISO New England forecast from the 2005 previous-year
23 periods.

24 Q. I think what I'm trying to say is that, for

1 the data that actually exists, which appears in the
2 response to N-2, that data, of what's actually
3 transpired, is closer, the numbers themselves are
4 closer, to the forecast that ISO New England
5 predicts for the year, say, 2018.

6 A. [ANDREW] Well, the only forecasted numbers
7 that I'm aware that the ISO produces on a regular
8 basis is what's called a 50/50 forecast. And
9 fundamentally, that's a forecast that says there's a
10 50 percent chance that it will go above it. And
11 then there's also the 90/10, which is called extreme
12 weather, which there's only a 10 percent chance that
13 the actual weather conditions will be above those
14 numbers.

15 So when you compare actuals, those are
16 the numbers that came from the weather conditions
17 that occurred. I think, for instance, yesterday, in
18 some of the discussions, when we were looking at it,
19 we determined that 2015 actual weather conditions
20 were below the 50/50 temperature/humidity index. So
21 the actual conditions that took place are
22 representative of the actual weather. Forecasts are
23 a projection of what will take place based on
24 assumed weather conditions, whether they are 50/50

1 or 90/10.

2 Q. What's the Chelsea substation's current
3 capacity?

4 A. [ANDREW] In --

5 Q. In either MVA or megawatts.

6 A. [ZBIKOWSKI] The firm capacity is 135 MVA.
7 That assumes one transformer is not in service.

8 Q. Why is the capacity based on the assumption
9 of a transformer not being in service?

10 A. [ZBIKOWSKI] That is the planning criteria
11 to assure under contingencies, loss of the
12 transformer, that we can continue to serve the
13 customers reliably in that region.

14 Q. And 135 is an expression of MVA or MW?

15 A. [ZBIKOWSKI] MVA.

16 Q. Mr. Zbikowski, you spoke yesterday about
17 the 75 percent threshold. Is it correct to say that
18 that threshold refers to a substation -- the
19 company's desire that a substation operate at or
20 below 75 percent of its capacity?

21 A. [ZBIKOWSKI] The reference to 75 percent
22 criteria relates to the operation of a transformer
23 so they will not exceed the 75 percent of normal
24 rating, thereby ensuring that we can continue to use

1 the full long-term emergency rating if one of the
2 transformers were to experience an outage at that
3 facility.

4 Q. And the 75 percent rating -- or the 75
5 percent of the capacity of each transformer at
6 Chelsea is roughly 47 MVA; is that correct?

7 A. [ZBIKOWSKI] The normal rating? It's a
8 little less than that. You would take 75 percent of
9 62 1/2 percent -- if I'm able to use a calculator, I
10 will give you that particular response.

11 That would be 46.9 MVA.

12 Q. So if all three transformers at the Chelsea
13 substation were operating at 75 percent, we would
14 reach 140.7 MVA; correct?

15 A. [ZBIKOWSKI] We would reach 140.6 MVA, yes.

16 Q. And you said the capacity is 135 based on
17 the assumption of one transformer not functioning?

18 A. [ZBIKOWSKI] If we lost one of the
19 transformers, the maximum capability of the station,
20 two remaining transformers, as they are today, would
21 be 135 MVA, which is also related to the
22 configuration of the 14-kV bus sections, as we
23 discussed yesterday.

24 Q. So based on the company's prediction -- the

1 company's forecast that in 2023 the Chelsea
2 substation will have a peak summer demand of 149.5
3 MVA, that would suggest that there is a delta of
4 14.5 MVA between the Chelsea substation's capacity
5 and the demand in 2023; correct?

6 A. [ZBIKOWSKI] Yes.

7 Q. And if we were to use the ISO New England
8 forecast for 2023, which is 129.6 megawatts --

9 Well, I should ask: What does 129.6
10 megawatts convert to in MVA? Do you know?

11 A. [ZBIKOWSKI] We would not be using the ISO
12 New England forecasts for the Chelsea-East Boston
13 region.

14 Q. I understand that. I'm saying --

15 A. [ZBIKOWSKI] My load is my load, Chelsea-
16 East Boston. That's the load that I've seen or
17 experienced with the additional load growth that is
18 projected. That is the basis of what we do our
19 planning criteria on and whether or not we meet our
20 criteria.

21 Q. Understanding everything you've just said,
22 if ISO New England happened to be correct in their
23 2023 forecast, what is the amount by which the
24 demand would exceed Chelsea substation's capacity,

1 if at all?

2 A. [ZBIKOWSKI] Again, the load that we plan
3 the Chelsea-East Boston area is based upon our
4 internal estimates of what that region will
5 experience.

6 Q. I'm not asking for your internal estimate.
7 I'm asking for you to look at ISO New England's
8 estimate.

9 MS. KEUTHEN: Are you asking for just a
10 mathematical calculation?

11 MR. THAYER: That's exactly what I'm
12 asking for, particularly given Mr. Zbikowski's
13 expertise on the relationship between megawatts and
14 MVA.

15 MS. KEUTHEN: Not to testify for
16 Mr. Zbikowski, but what I think he's saying, or
17 testified to, is that the ISO forecast is a 50/50
18 forecast, and that is not what the company plans to
19 and is required to plan to.

20 MR. THAYER: That's fine.

21 MS. KEUTHEN: But I think that you can
22 make the calculation --

23 A. [ZBIKOWSKI] I don't know those numbers in
24 my head, so I don't have them in front of me. Would

1 you tell me what number you're asking me to -- I'm
2 asking, what is the load number specifically for
3 Chelsea-East Boston that you would like me to say
4 that that would exist versus the comparison of the
5 capability of the substation.

6 Q. ISO New England has predicted for the year
7 2023, has forecast, a peak demand at the Chelsea
8 substation of 129.6 megawatts. You have told me
9 that the Chelsea substation has a capacity of 135
10 MVA. What I'd like you to tell me is whether the
11 ISO New England 2023 forecast is forecasting an
12 amount of peak demand that exceeds the Chelsea
13 substation capacity.

14 A. [ANDREW] Can I try and help? I guess I
15 think one of the points of confusion is megawatts
16 versus MVA. Electric equipment is rated in megavolt
17 amperes, or volt amperes, MVA. It's the combination
18 of the voltage applied times the current applied.

19 As power system engineers, we then break
20 that down into what's known as real power and
21 reactive power. Real power is megawatts. Reactive
22 power is megaVARs. The difference between the two
23 is what's called power factor. We routinely -- we
24 monitor power factor. We install devices called

1 capacitors to correct it. We do other things of
2 this nature.

3 In the end, the area that the system
4 operates in is such that megawatts and MVA are very
5 close together. It's probably a couple of percent
6 differences. And we are guilty of using the terms
7 interchangeably, when we probably shouldn't, because
8 it has caused confusion, I think obviously.

9 The difference in the numbers, to me --
10 if you tell me megawatts, you tell me MVA, I look at
11 them as being basically the same. They're within
12 the accuracy of whatever number is being presented.

13 I don't know how to give you a better
14 answer than that in relation to the two, but they
15 are very, very close to each other, and we do use
16 them interchangeably, which may become part of the
17 source of confusion.

18 Q. That's very helpful. Thank you.

19 MR. THAYER: In light of that response,
20 would the stenographer please read back my last
21 question.

22 (Question read.)

23 A. [ZBIKOWSKI] Yesterday I testified that the
24 approximate power factor in the Chelsea area is 98

1 percent. Assuming that power factor and the value
2 that you referenced that ISO New England forecasts
3 for 2023 of 129.6 megawatts, we would experience
4 approximately 132.2 MVA, which would be within the
5 firm capacity of Chelsea Station 488.

6 Q. Thank you. How many substations exist in
7 the Chelsea-East Boston-Lynn load area?

8 A. [ZBIKOWSKI] NSTAR has one substation. The
9 National Grid-identified substation are two large
10 substations, of which Revere and Lynn itself --
11 these are the same, approximately, transmission
12 voltages of 115,000 volts. We step our facilities
13 down to a voltage level, distribution voltage level
14 of 14,000, while at National Grid they use multiple
15 voltages at the same substations.

16 So there's three major substations in
17 this region. There are other smaller substations
18 that also are used, but three major ones.

19 Q. And what's the total capacity expressed as
20 either megawatts or MVA, whichever you prefer, of
21 those substations?

22 A. [ZBIKOWSKI] I do not know what National
23 Grid and Lynn have for their firm capacities.

24 Q. Does the company have an estimate that it

1 uses as part of its forecasting, or do you have any
2 understanding of what that number may be?

3 A. [ZBIKOWSKI] Again, if you were looking for
4 station capacity numbers, that would be assuming a
5 loss of a transformer at the particular location.
6 The company I work for supplies the area of Chelsea-
7 East Boston. We are responsible for supplying the
8 customer needs in that area. National Grid would be
9 supplying the loads of Revere and Lynn, and their
10 responsibility to plan their infrastructure
11 appropriately. We don't have a knowledge, nor would
12 we have any interest, upon the firm capacity of
13 those substations.

14 Q. Is it above 300 megawatts?

15 A. [ZBIKOWSKI] I do not know.

16 Q. Does the company as a whole have any
17 position with respect to whether the capacity of the
18 substations within the Chelsea-East Boston-Lynn load
19 area exceeds 300 megawatts?

20 A. [ANDREW] I guess we would only have direct
21 knowledge about our substation, which is Chelsea,
22 which is what we've presented. Anything beyond
23 that, in Revere and Lynn, it's National Grid's
24 system. We frankly don't -- we don't know, so we

1 wouldn't be in a position to make a statement about
2 their facilities.

3 Q. So, then, similarly, the company has no
4 understanding of whether the Chelsea-East Boston-
5 Lynn load area could accommodate a demand in excess
6 of 300 megawatts?

7 A. [ZBIKOWSKI] Again, we do not know their
8 capabilities, so....

9 The 300-megawatt number, I believe we're
10 mixing a couple of different areas. We're mixing
11 both substation and transmission capabilities. So
12 the 300 number relates to transmission capabilities
13 to support that regional supply.

14 A. [ANDREW] I guess --

15 Q. Would the company's answer, then, be
16 different if I were to ask: What is the company's
17 understanding of the Chelsea-East Boston-Lynn load
18 area's transmission capabilities?

19 A. [ANDREW] Sure. Is the transmission system
20 capable of handling 300 --

21 Q. A load in excess of 300.

22 A. [ANDREW] Of 300 megawatts. Today? No.
23 That's part of the reason for this petition, is to
24 install the facilities that would make the area be

1 able to handle it from a thermal voltage
2 perspective, all the different operating criteria.
3 That's why part of this petition is to create
4 another 115 supply into the load pocket --

5 Q. And that --

6 A. [ANDREW] -- that we're discussing.

7 Q. And that is accomplished via an additional
8 transmission line?

9 A. [ANDREW] Yes.

10 I think back to your earlier question
11 regarding loads: I think we have the load forecasts
12 that are here for both our facilities and National
13 Grid's facilities. The transformer capacity to
14 supply that load may or may not exist today. One of
15 our concerns is that our local load forecast shows
16 we don't have the transformer capacity to supply
17 that load for the ten-year window that we're looking
18 at. And so we are here as part of this petition
19 again to ask for the facilities to do that.

20 National Grid may have the capacity
21 already, or they may recognize that they are going
22 to have to do something this year, next year, the
23 year after to install the capacity to meet that
24 then.

1 So we're not in a position to answer the
2 questions regarding their facilities, but what we
3 can say is what we all do in this industry is, we
4 try and provide the capacity very close to when the
5 need occurs. I mean, ideally, we'd love to say
6 we're perfect and we can be there, you know, June
7 1st, before the summer that it's actually needed.

8 But that's what we do. That's what a
9 lot of this whole planning process, you know, is, is
10 we try and get the facilities in place as close to
11 when they're needed as possible, and ideally we do
12 it right on the nose.

13 Q. Would you agree that the National Grid
14 substation and transmission capacity is relevant to
15 the company's need assessment for the Chelsea-East
16 Boston-Lynn load area?

17 A. [ANDREW] I think there are two questions
18 there. There's one related to transmission, and
19 there's one related to transformation capacity.

20 The currently-installed transformation
21 capacity I don't believe is relevant -- right? --
22 because we do it all the time. We'll have a
23 substation with a 20-MVA transformer in there, and
24 load grows, and we simply take that out and put in a

1 40. And sometimes we can do this -- you know, we
2 don't need any kind of siting approvals, it's within
3 the existing fence line. We did it not that long
4 ago at Chelsea itself. Those transformers in --

5 A. [ZBIKOWSKI] 2004 we replaced the 40's --

6 A. [ANDREW] In 2004 we went in and did a
7 major upgrade there, adding more capacity. And that
8 is something that typically can be done within a
9 one-year planning horizon. You know, we do that
10 routinely in different places, and I assume National
11 Grid does, also.

12 So the actual transformer capacity
13 that's there today, if you have a small unit and you
14 can put in a bigger unit, you can handle that in a
15 six-month time period if you're in a real hurry.
16 The longer-term planning activities come when you
17 get to the point where the existing substation
18 facilities -- you can't do that any more, where you
19 reasonably can't expand the substation, either
20 because of space constraints or the ability to get
21 the cables out and into the streets to the customers
22 and you need a new facility, similar to what we've
23 requested here, with East Eagle Street -- that, you
24 know, that is a lengthier process, with far more

1 lead time to handle it.

2 Q. I think that answered -- as you said, my
3 question had two parts to it, and I think you've
4 answered the transformation part. Can you address
5 the transmission part?

6 A. [ANDREW] Well, the transmission part, I
7 think the ISO-level study, the Greater Boston study,
8 as part of that, that highlighted the issue that the
9 existing facilities didn't have the capability to
10 handle the ten-year planning horizon that we
11 typically use.

12 So when that happens, you know, we start
13 to take a look. The first thing you look at is
14 upgrading the existing facilities. That's generally
15 the least expensive, you know, approach to do. We
16 took a look at this area, and what the problem here
17 is, we're at the load pocket area. And so to solve
18 a load pocket, upgrading the existing facilities
19 doesn't do it, because the problem is you're losing
20 the two facilities.

21 So what you really need to do now is
22 bring a third source into the area, some way,
23 somehow.

24 You know, we have a similar project in

1 another part of the system, and that's what we did:
2 We were able to bring a new transformer into the
3 middle of the area and create three sources where
4 there were two. One of the goals of this project,
5 with the additional line into Chelsea, is to do
6 exactly that: It brings a third source into the
7 area.

8 So we have two issues. One, we talk a
9 lot in this venue about planning criteria. N minus
10 1 minus 1 is some of our jargon -- and being normal,
11 normal condition minus one line and then minus
12 another line. And in this particular case it
13 creates this, we've termed it a load pocket. But I
14 think if you look in the submittal at our Figure
15 2-1, there's a geographical map of the area showing
16 the cities and towns that are adversely affected
17 under these conditions -- and I guess by that I mean
18 are sitting in the dark -- as a result of this.

19 And so to solve the transmission-related
20 problem here, upgrading the existing facilities
21 isn't really an answer. The answer is we need
22 another facility into the area.

23 And that other facility also helps us
24 because we routinely have maintenance activities,

1 where we have to take one of these two supplies out
2 of service to do work. In that window where we're
3 doing that work, all these customers, the 87,000
4 customers in these cities and towns, are all at risk
5 for a system event. You know, when we take one side
6 out for work, if anything happens on the other side,
7 then everybody in the middle is adversely affected
8 by it.

9 So adding a third source to an area is a
10 very good thing from a maintenance point of view,
11 kind of general operability of your system, and also
12 from a reliability perspective in terms of the
13 adverse consequences of major events on the system.

14 Q. Thank you. I don't think that quite
15 answered my question, however. If I'm understanding
16 you correctly in your description of what the
17 company doesn't know about National Grid's
18 transmission capability, my question is: Why isn't
19 your lack of knowledge about National Grid and what
20 it's capable of transmitting relevant to a statement
21 regarding the need for additional capacity in the
22 Chelsea-East Boston-Lynn load area? How can you
23 assess need if you don't have that information?

24 A. [ANDREW] Well, I guess let me clarify,

1 then. I must have misspoke, if you have that
2 impression.

3 The transmission facilities run through
4 National Grid's system. We know exactly what they
5 are. The models that are used across all of New
6 England are shared between all the different
7 transmission owners, I think is the terminology we
8 use today. Their ratings, their impedances, all the
9 electrical parameters are known. So we do know
10 exactly what the system is.

11 That's how we can tell you that under
12 peak load conditions loss of one line can create
13 voltage problems. The simulations that we use show
14 it. And, you know, we have real-time telemetry
15 that's monitored in our control rooms that show it,
16 also.

17 So I apologize if I misled you.

18 Q. And that knowledge regarding the
19 transmission capabilities does not affect the
20 company's knowledge regarding National Grid's
21 facility, its substation facility capabilities; is
22 that correct?

23 A. [ZBIKOWSKI] Yes.

24 A. [ANDREW] Yes, that's a fair statement,

1 yes.

2 Q. And the company does not feel as though any
3 knowledge of those substation facility capabilities
4 is relevant to its own determinations about the load
5 area's need?

6 A. [ANDREW] Yes.

7 Q. With respect to the information the company
8 does have regarding the entire area's transmission
9 capabilities, where is that information reflected in
10 the materials that the company has produced in this
11 proceeding?

12 A. [ANDREW] I guess the actual ratings of
13 lines and impedances of the lines and things like
14 that are considered CEII information and are
15 proprietary information of each company. I would
16 never release to you National Grid's data. I would
17 refer you to National Grid to do that, and they
18 would do the same, you know, with our system
19 parameters. It is considered critical energy
20 infrastructure information and isn't generally
21 released.

22 But I think the results of those
23 studies, you know, appear in the petition, in terms
24 of what are the operating problems -- say, for

1 instance, the voltage problem on the transmission
2 system when we have certain kinds of failures.
3 Those are the outputs of the studies, and the
4 studies are based on all those parameters being put
5 into the model.

6 Q. So in essence you're asking the Siting
7 Board to take your word for it.

8 MS. KEUTHEN: I object. I don't think
9 that's what Mr. Andrew --

10 MR. THAYER: Perhaps I've
11 mischaracterized. I'm trying. That's why it's a
12 question.

13 A. [ANDREW] I guess in general they don't
14 have to take my word for it. They're taking the
15 ISO's word for it. As the Independent System
16 Operator, one of their jobs -- right? -- is to study
17 the system jointly with the individual transmission
18 owners and, following NERC reliability standards,
19 run contingencies, the what-ifs -- what if this
20 breaks, what if that breaks, what are the
21 consequences. And it comes out of that joint study;
22 right?

23 The ISO New England study was done by
24 ISO staff, National Grid staff, NSTAR Electric

1 staff. I think we even had New Hampshire
2 Transmission in there, and various consultants for
3 different people.

4 MS. KEUTHEN: To facilitate, could I
5 just add or suggest to Mr. Andrew that the
6 information, I think, that counsel is looking for
7 was presented by the company in an appendix to the
8 company's attachment, that's the analysis report.

9 MR. THAYER: Are you referring to the
10 ISO Greater Boston transmission solutions cite?

11 MS. KEUTHEN: The Greater Boston Updated
12 Needs Assessment.

13 Q. Because you have said that in essence
14 you're asking the Siting Board to take ISO New
15 England's word for what the need here is, I'd like
16 to show you an excerpt from the Greater Boston area
17 transmission solutions study, and I have copies for
18 everybody.

19 MS. KEUTHEN: Is that document marked as
20 confidential energy infrastructure information?

21 MR. THAYER: It is not. However, there
22 is a designation that the document has been redacted
23 at the top. I do not believe that any of the pages
24 that I have selected for my excerpt are redacted.

1 MS. KEUTHEN: Could we take a short
2 break so the witness could have the opportunity to
3 review the documents being presented?

4 MS. SEDOR: Certainly. Let's go off the
5 record.

6 (Discussion off the record.)

7 MS. SEDOR: Let's go back on the record.

8 Q. Mr. Zbikowski, have you had an opportunity
9 to look at the excerpt from the ISO New England
10 Greater Boston area transmission solutions study
11 that I passed around?

12 A. [ZBIKOWSKI] My boss and I have conferred
13 on it. So questions, he's my supervisor, and he's
14 the expert in the planning of the transmission
15 system.

16 My particular role is the planning of
17 the substation infrastructure supplying Chelsea-East
18 Boston.

19 Q. I handed out a three-piece-of-paper stapled
20 exhibit. Have you had a chance to look at it?

21 A. [ZBIKOWSKI] I saw it.

22 Q. Thank you. You were listed, Mr. Zbikowski,
23 as the person responsible for the company's response
24 to Information Request PA-1.

1 A. [ZBIKOWSKI] That is correct.

2 MR. THAYER: At this time could I mark
3 for the record the exhibit that I passed around, the
4 excerpt from the ISO New England study?

5 MS. SEDOR: Yes, you may. I would
6 propose that we mark it as Exhibit CF-1.

7 MR. THAYER: Thank you.

8 (Exhibit CF-1 marked for
9 identification.)

10 Q. Now, Mr. Zbikowski, in your response to
11 PA-1, which asked whether the project was part of a
12 recommended set of solutions identified by ISO New
13 England in this study, you said yes, and you
14 referred to three specific pages. Do you recall
15 that?

16 A. [ZBIKOWSKI] I have the response in front
17 of me, and the answer is that's correct.

18 Q. Did you complete this response yourself?

19 A. [ZBIKOWSKI] The response was prepared
20 under my supervision.

21 Q. Thank you. By whom was it prepared?

22 A. [ZBIKOWSKI] Another system planner in the
23 group.

24 Q. Is Exhibit CF-1 a true and accurate copy of

1 the pages referenced in your response to PA-1?

2 MS. KEUTHEN: I don't think that
3 Mr. Zbikowski has had an opportunity to compare it
4 line by line. But if you are asserting that it is,
5 we can take that.

6 Q. I would represent to you that I have
7 attempted with Exhibit CF-1 to provide a true and
8 accurate copy of Pages 65, 72, and 108 of the ISO
9 New England study. I'm asking you to review those
10 pages and, to the best of your knowledge and
11 recollection, confirm whether those do in fact
12 appear to be true and correct copies of those pages.

13 A. [ZBIKOWSKI] Yes.

14 Q. Nothing on any of those pages references
15 East Boston; correct?

16 A. [ZBIKOWSKI] On Page 65, the second of the
17 identified as one of the upgrades required for this
18 particular assessment was the installation of a
19 Mystic-Chelsea 115-kV cable. That is the cable that
20 would be used to supply the East Eagle Street
21 substation.

22 Q. Mystic and Chelsea are not East Boston;
23 correct?

24 A. [ZBIKOWSKI] That is the cable -- that's

1 correct.

2 Q. And so nothing on Page 65 references a
3 substation or anything else in East Boston; correct?

4 A. [ZBIKOWSKI] We have identified the
5 required transmission upgrade that would support the
6 East Eagle Street substation.

7 Q. Your response to PA-1, which, again, asked
8 whether this project, the East Eagle Street
9 substation and transmission line project, was part
10 of a recommended set of solutions by ISO New
11 England, said "Yes." Correct?

12 A. [ZBIKOWSKI] That's the response, yes.

13 Q. And yet nothing in the ISO New England
14 study has any reference to an East Boston
15 substation; correct?

16 A. [ZBIKOWSKI] As I stated, the
17 Mystic-Chelsea 115-kV cable is the transmission line
18 that will interconnect to the East Eagle Street
19 substation.

20 Q. Well, that's not necessarily true. There
21 could be a Mystic-Chelsea 115-kV cable line without
22 an East Boston substation.

23 A. [ZBIKOWSKI] That has been a question
24 that's been posed to us by the staff.

1 Q. And that's what ISO New England was
2 recommending.

3 A. [ZBIKOWSKI] No.

4 Q. Well, where is ISO New England's
5 recommendation for an East Boston substation?

6 A. [ZBIKOWSKI] The substation is our
7 particular requirement to meet the load required
8 within the communities of Chelsea and East Boston.

9 Q. So when you were asked --

10 A. [ZBIKOWSKI] ISO New England does not
11 identify how we solve our problems within Chelsea
12 and East Boston.

13 Q. So it's more accurate to say that ISO New
14 England has not recommended the project but instead
15 ISO New England has recommended a Mystic-Chelsea
16 115-kilovolt cable line; correct?

17 A. [ZBIKOWSKI] We have made a presentation to
18 ISO New England for the need for this project. That
19 was a presentation made to the ISO New England PAC,
20 which was an appendix filed as part of our petition,
21 Appendix, I believe, 2-1. And we fully advised the
22 ISO New England planning advisory committee that we
23 have two -- we have an integrated solution to meet
24 the needs of this area, both the transmission line

1 concerns to supply the load pocket and also the
2 requirement for additional transformation to support
3 the load in the Chelsea-East Boston area.

4 Q. So at the time ISO New England published
5 this study, they were aware of the company's desire
6 to build an East Boston substation?

7 A. [ZBIKOWSKI] The PAC presentation was
8 presented in October of 2014.

9 Q. And yet ISO New England still didn't make
10 any reference to the East Boston substation. Yes or
11 no?

12 A. [ANDREW] Can I help in that answer?

13 Q. You can help, but I'd like an answer to the
14 question, yes or no, first.

15 A. [ZBIKOWSKI] Again, my statement is in my
16 statement. On the PAC presentation we identified
17 this Mystic-Chelsea 115-kV line to supply the East
18 Eagle Street substation as the integrated solution
19 to the regional need requirements.

20 Q. And then ISO New England came up with a
21 study for the Greater Boston area transmission
22 solutions and didn't reference that East Boston
23 substation at all.

24 A. [ZBIKOWSKI] I have no role in the ISO New

1 England study myself.

2 Q. But you've read the study, and you see the
3 study does not contain any reference to the
4 substation.

5 A. [ANDREW] The solutions study report that
6 you see here in front of you was in many different
7 draft stages. This is a several-hundred-page
8 document with many flaws in it. Right?

9 We actually discussed this with the ISO
10 at the time this was being issued and said,
11 basically, our comment back was, "Hey, you guys
12 forgot to put East Eagle in here." And the answer
13 was, "Don't worry about it. That's not the issue."

14 As this was being issued, there was a
15 larger issue in terms of an AC solution package and
16 a proposed DC solution package.

17 Q. Would you hold that thought for just one
18 moment?

19 MR. THAYER: I have to object to the
20 witness's statement on the basis of hearsay. He's
21 attempting to address an out-of-court -- out-of-
22 record to the truth of the matter asserted. To the
23 extent this information would have any bearing on
24 the Siting Board's decision, it should come straight

1 from ISO New England itself.

2 MS. KEUTHEN: He's testifying as to his
3 knowledge.

4 MR. THAYER: He's testifying as to the
5 statement from another person.

6 MS. SEDOR: Your objection is noted.
7 However, in our proceedings, unlike a court
8 proceeding, we do not make a clear distinction with
9 respect to hearsay. However, we do take that into
10 account when evaluating the weight of the evidence.

11 So your objection is -- has merit, but I
12 will not prohibit the witness from continuing to
13 explain the basis of his knowledge.

14 MR. THAYER: Thank you.

15 Q. I apologize for the interruption.

16 A. [ANDREW] No, that's fine. If you sat with
17 an ISO planning engineer responsible for this
18 project and said, "Where is East Eagle?" that person
19 would point right to the same line that
20 Mr. Zbikowski did and say, "That's the
21 Mystic-Chelsea 115 line." The fact that Eversource
22 wants to route this over and tie a distribution
23 substation to it is a local-load-supplying issue,
24 and that's not for the ISO to decide, that's for us

1 to decide, how we supply loads. And that's why
2 we're here in this process today.

3 But the appendix Mr. Zbikowski pointed
4 to -- I think it's Appendix 2-1 -- was where in the
5 public stakeholder ISO planning advisory committee
6 environment, we came in front of them and said, "We
7 want to change what's proposed here, from just going
8 Mystic to Chelsea to going Mystic, East Eagle, to
9 Chelsea, and here's why: It's cost-effective to do
10 it."

11 And that was well received, with minimal
12 comments, and incorporated into the models that we
13 used going forward to analyze the system. That has
14 been incorporated into those models. It should have
15 been more clearly explained here; I agree with you.
16 I actually asked for that to be done, but it was
17 lost in the bigger-picture scheme of things, I guess
18 you could call it.

19 Q. So for the record, the ISO New England
20 study in its final form, notwithstanding all your
21 protestations, did not contain any reference to the
22 East Boston substation. Yes or no?

23 A. [ANDREW] No.

24 Q. Thank you.

1 No, it did not? My question was
2 clumsily worded, for which I apologize. I
3 apologize; I will have to ask it again.

4 Is it correct that the ISO New England
5 Greater Boston transmission solutions study did not
6 contain any reference to the East Boston substation?

7 A. [ANDREW] The solution report did not
8 contain any reference to it. The models that the
9 report is based on do include it.

10 Q. And have those models been provided in this
11 proceeding?

12 A. [ANDREW] No.

13 Q. Thank you. When the company wants to build
14 a new substation, what is it looking for from a
15 parcel of land, in terms of size, layout, ground
16 consistency, any other factors?

17 A. [ANDREW] In a perfect world?

18 Q. Sure.

19 A. [ANDREW] Ideally, we would look for flat
20 land, with no rock, with excellent electrical
21 characteristics for grounding, things of that
22 nature; plenty of space.

23 Q. Approximately how much?

24 A. [ANDREW] Well, it depends on the size.

1 Unfortunately, I think Mr. Zicko would be better
2 suited to do that.

3 But the available land -- it can work
4 two ways. There are different technologies --
5 gas-insulated bus, that allows you to put more in a
6 smaller, compact arrangement; however, it's
7 generally more expensive, so there are trade-offs.

8 So in an urban area, where land is very
9 expensive, gas-insulated construction may be overall
10 less expensive. In a rural area, where land is not
11 expensive, then air-insulated construction and
12 stretching out is generally, you know, the preferred
13 method that works out to be the most cost-effective
14 way to do it.

15 Q. As far as location, does the company prefer
16 to place its substations closer to or further from
17 bodies of water?

18 MS. KEUTHEN: Excuse me. Could I
19 request that, as we had discussed earlier, that
20 questions with regard to the substation be reserved
21 until Mr. Zicko's return?

22 MS. SEDOR: I think that at this point,
23 at least, this strikes me as more of a policy,
24 higher-level question, that this witness seems

1 competent to answer. If the witness does not feel
2 competent or feels that he can only give a partial
3 answer, I'd like him to do so and then perhaps note
4 that a fuller answer could be given by Mr. Zicko.
5 I'd like to make the most of our time here with
6 these witnesses.

7 MS. KEUTHEN: I appreciate that. But I
8 do understand, based on Mr. Andrew's direct
9 testimony this morning, that this is not his area of
10 expertise within the company.

11 MS. SEDOR: Mr. Andrew, I would ask you
12 to answer as you feel comfortable answering.

13 A. [ANDREW] From a planning perspective,
14 water is not our concern; load is our concern. We
15 want the source to be as close to the load as we can
16 reasonably be, from a number of perspectives.

17 When the power is carried on the
18 transmission system, there are fewer assets, and at
19 the higher voltage it's less loading. Once it gets
20 transformed to distribution voltages, we would
21 prefer our distribution feeders to be as short as
22 possible, and particularly if you're predominantly
23 in an underground environment -- just the digging,
24 the duct bank, it's much more expensive, disruptive,

1 you know, to the environment.

2 As a planner, I'm not really worried
3 about water and things that are around. I'm worried
4 about supplying the load in the best way.

5 Q. So flooding is not a concern for the
6 company when it builds a substation at all?

7 A. [ANDREW] No, I would say flooding is a
8 concern, but that's something that's best addressed
9 by Mr. Zicko, because that's part of the detailed
10 design of the substation itself.

11 Q. You raised a point about distribution,
12 which reminded me that -- I'm a little confused:
13 Transmission lines and distribution lines are two
14 different things; right?

15 A. [ZBIKOWSKI] Yes.

16 A. [ANDREW] Well, in our view, yes.

17 Q. Is it more expensive, less expensive, or
18 the same to install 1 foot of transmission line and
19 1 foot of distribution line?

20 A. [ANDREW] I would say to install 1 foot of
21 distribution line versus 1 foot of transmission
22 line, it's going to be more expensive to install
23 transmission. However --

24 Q. And why is that?

1 A. [ANDREW] 1 foot of transmission is not
2 equal to 1 foot of distribution, in terms of its
3 ability to carry power.

4 Q. Of course. The transmission line is
5 considerably higher voltage; correct?

6 A. [ANDREW] Correct.

7 Q. And that is what -- so whatever carries
8 that higher voltage is more expensive to lay than
9 the lower-voltage distribution carrier?

10 A. [ANDREW] On a 1-foot-by-1-foot base, one
11 line to one line? Yes. But they're not equal.
12 You're comparing apples and oranges when you do
13 that.

14 Q. But when assessing alternatives, the
15 company does have to consider that certain solutions
16 to the problems addressed here require longer
17 transmission lines, versus other solutions which
18 require longer distribution lines; correct?

19 A. [ANDREW] Yes.

20 Q. So when conducting that assessment of
21 solutions, it's important to remember that a mile of
22 distribution line is cheaper than a mile of
23 transmission line; correct?

24 A. [ANDREW] That is not necessarily a correct

1 statement, because, as I said, we may install a
2 single transmission line, and if we're talking
3 underground, as I assume we are here, you have to
4 dig --

5 The major cost in both of these are
6 digging and installing your conduit and duct bank
7 system.

8 Q. So the worker who installs the transmission
9 line costs as much as the worker who installs the
10 distribution line?

11 A. [ANDREW] Probably. I'm not really expert
12 on that. At a certain point in time, when you pull
13 transmission cables and you splice transmission
14 cables, that's a different skill set than pulling
15 and splicing distribution cables.

16 Q. So the transmission worker may be more
17 skilled and have a higher cost.

18 A. [ANDREW] Yes, you know --

19 There are so many factors in there that
20 it's hard to make a comparison, because you need so
21 many more distribution cables to make up for the one
22 transmission cable. You know, quantity is tough.

23 When you dig to install duct bank --
24 when we install distribution cables, we never,

1 unless it's the final service to somebody's house,
2 you never install one. In goes a duct bank and
3 conduit system, and it may, you know, be a 4-by-4
4 duct bank that would carry 16 cables. It depends on
5 how close you are to the substation and the
6 distribution-system design in the area, back and
7 forth.

8 So it's extremely difficult to draw a
9 comparison between, you know, one transmission line
10 and one distribution line. We just wouldn't install
11 one distribution line. We could install one
12 transmission line, yes.

13 Q. When the company refers to costs for the
14 various solutions, one of the elements of cost was
15 distribution lines or distribution costs. Am I
16 correct to think that that -- the number associated
17 with that line item, distribution line costs,
18 encompasses all of what you're talking about? So
19 that's the total per-mile cost of the distribution
20 line, regardless of however many variables may exist
21 within that?

22 A. [ANDREW] There -- in the course of our
23 petition, there are many different numbers, and some
24 of them are at different levels of accuracy from an

1 engineering perspective.

2 For the project as it's proposed, those
3 are the ones who have had the most engineering done
4 on them, in terms of accuracy. For some of the
5 other proposals that we talked about -- in fact, I
6 think we have one information request from, you
7 know, yesterday, where we're going to end up to
8 provide numbers, probably have to make some high-
9 level assumptions on the cost per mile, to do some
10 estimating.

11 In underground work one of the big
12 challenges is, you don't know what you find until
13 you dig, and in old cities, like we happen to be,
14 you know, residing in, the surprises come fast and
15 furious when you start to dig.

16 So it's hard to give, you know, really
17 good, hard, solid cost information until we've been
18 able to get out there, determine routes, do some
19 test pitting, find what some of these obstacles are.

20 Q. Would you turn to Table 3-1R, which
21 contains some data regarding projected distribution
22 costs and other costs for the various solutions.

23 MS. SEDOR: Mr. Thayer, I do not want to
24 interrupt your train of thought, but when you come

1 to a good stopping point, we could use a break.

2 MR. THAYER: Just a couple of quick
3 questions on this document.

4 Q. Do you have the document before you?

5 A. [ZBIKOWSKI] I'd like the R document in
6 front of me.

7 MS. KEUTHEN: You said Table 3- --

8 MR. THAYER: Table 3-1R. There may not
9 be a material difference for purposes of this
10 question.

11 MR. YOUNG: We have that as Page 3-17R.

12 MS. DE BOER: It was provided as part of
13 an information request as well. In PA-14 it was
14 marked as 3-17R, is the page, so all the same table,
15 but a few different page numbers associated.

16 Q. Now, in this table, the estimated
17 distribution costs associated with the preferred
18 solution are \$7.2 million; correct?

19 A. [ZBIKOWSKI] Yes.

20 Q. And that is with, I believe the footnote
21 estimates an approximate length of distribution of
22 3175 feet; correct?

23 A. [ZBIKOWSKI] Yes.

24 Q. More recent estimations provided by the

1 company increase that length for the approximate
2 distribution up to about a mile; is that right?

3 A. [ZBIKOWSKI] For these solutions?

4 Q. Yes, and specifically I'm referring to the
5 company's response to PA-24, which also contains a
6 footnote, which I'll read. Quote, "The approximate
7 total length of distribution required for Routes 1,
8 2, and 3 is one mile."

9 A. [ZBIKOWSKI] Okay. Yes.

10 Q. So the distribution cost approximated or
11 estimated for Solution No. 4, which involves
12 expansion of the Chelsea substation and which you
13 testified yesterday would entail a much longer
14 distribution route, are 50.8 million, and that is
15 for an estimated 2.5 to 3 miles of distribution
16 lines; correct?

17 A. [ZBIKOWSKI] Yes.

18 Q. So if 1 mile of distribution costs 7.2
19 million, why does 2 1/2 to 3 miles cost 51 million?

20 A. [ZBIKOWSKI] First of all, the solutions,
21 No. 1, we've already started our design and
22 engineering, so we have a greater degree of
23 confidence. It's also closer in proximity to the
24 substation. Whereby the second level, we have

1 extensively further to go with our distribution,
2 among multiple duct banks. It isn't necessarily the
3 same type of a distribution infrastructure from a
4 duct-bank-constructability point of view.

5 We're trying to get from Station 488
6 Chelsea -- from Chelsea all the way across the
7 Chelsea Creek Crossing. As I mentioned yesterday,
8 there are a lot of constraints that we're facing,
9 and my level of confidence in that 50.8 number is
10 not as high as I am with the level of confidence
11 with the distribution integration of the East Boston
12 station, just because we have not gone through
13 design and engineering.

14 Q. Well, what's the basis for the
15 difference -- if Solution 1 is \$7.2 million per mile
16 of distribution, how is it that Solution 4's
17 distribution cost per mile is much more than \$7.2
18 million? What is it about the Solution 4 that makes
19 the distribution on a per-mile basis so much more
20 expensive?

21 A. [ZBIKOWSKI] Very long construction of
22 additional new duct banks. That's one of the
23 primary drivers. And also, the substantial number
24 of cables that we're going to be installing to meet

1 that distribution requirement in East Boston.

2 Q. You would also be building new duct banks
3 for the Solution No. 1, though, would you not?

4 A. [ZBIKOWSKI] Very short in comparison, very
5 short -- and the integration of the system is
6 relatively direct. The only new cable we would be
7 installing is a short distance from the substation
8 site in East Boston to integrate into these
9 facilities, because all the existing facilities are
10 there supplying the load, whereby coming from
11 Chelsea, we're actually installing all this new
12 cable. And cable, even though we've downplayed some
13 of the costs, saying the greater expense is conduit,
14 and that is a significant portion, cable is not
15 inexpensive, and when you start adding miles upon
16 miles of cable, it becomes very, very expensive.

17 Q. So installing 2 miles of distribution cable
18 is more than twice as expensive as installing 1 mile
19 of distribution cable. Is that your position?

20 A. [ZBIKOWSKI] It all depends upon the exact
21 specific engineering design.

22 Q. And that hasn't been fully investigated in
23 this instance with respect to --

24 A. [ZBIKOWSKI] Not in Item No. 4. And as I

1 mentioned, again, very concerned with the ability to
2 get directly from Chelsea Station 488 out of the
3 substation itself, because of distribution
4 constraints -- only the ability to support one more
5 egress point for transmission or distribution -- and
6 then additionally on Eastern Avenue.

7 Another perspective that also must be
8 considered: As you start bringing all of this
9 distribution, they're in very much close proximity,
10 and we'll be adding more and more cable to get the
11 same amount of power because of the mutual heating
12 that is occurring among the distribution cables in
13 that duct bank.

14 MR. THAYER: I think this is an
15 appropriate time for a stop.

16 MS. SEDOR: Thank you, Mr. Thayer. It's
17 almost quarter to 12:00, so let's take a break until
18 12:00 o'clock. Off the record.

19 (Recess taken.)

20 MS. SEDOR: Let's go back on the record.

21 Q. Before we took a break, we were talking
22 about the company's estimate of 50.8 million as the
23 distribution cost associated with Solution No. 4.
24 Could you tell me what is the methodology used to

1 arrive at that \$50.8 million estimate?

2 A. [ZBIKOWSKI] We looked at how to install
3 distribution directly out of Station 488 to our
4 Chelsea Creek Crossing. We tried to take the most
5 direct and shortest route possible for this estimate
6 and also install the appropriate number of cables in
7 those duct banks to meet the needs of the community
8 of East Boston.

9 There were several concerns that we had
10 and that I mentioned yesterday -- that we didn't do
11 design and engineering for this estimate, and that
12 we have substantial concerns getting the cables out
13 of the substation at Chelsea and also down Eastern
14 Avenue, which is the most direct route. So my level
15 of confidence, as I said yesterday, in this number
16 of 50.8 was not as high as some other relative
17 confidence levels, when we had more design and
18 engineering, such as related to what distribution
19 work is ongoing for the solutions aspects, 1, 2, and
20 3, though that has been adjusted -- would be
21 adjusted based upon additional mileage.

22 So what we have is, in this distribution
23 we attempted to try to come directly from Chelsea to
24 the creek and tried to come up with the multiple

1 duct banks, which we also had to increase the number
2 of cables in those duct banks because of mutual
3 heating, because of the close proximity that we had,
4 to install -- we assumed that we had to install the
5 distribution duct bank -- again, not based upon
6 design and engineering studies.

7 Q. So the estimate assumes that the
8 distribution lines would run down Eastern Avenue;
9 correct?

10 A. [ZBIKOWSKI] That is the assumption, to try
11 to get distancewise -- not necessarily, as I said
12 earlier -- we have major concerns about that.

13 Q. And fair to say that if the company
14 identified an alternate route that did not involve
15 going down Eastern Avenue but instead Highland or
16 Broadway or another street in Chelsea, that the
17 costs would either go up or go down?

18 A. [ZBIKOWSKI] They would go up or go down.
19 The only consideration that we'd have is, those
20 other distances would probably be longer in length
21 than going directly down Eastern Avenue.

22 Q. But they wouldn't encounter the problem of
23 the existing distribution lines that are already
24 under Eastern Avenue and the heating problems that

1 you referenced?

2 A. [ZBIKOWSKI] They would not encounter the
3 obstructions that we have to get through in Eastern
4 Avenue, but it wouldn't necessarily mean we wouldn't
5 have mutual heating problems, because we probably
6 would have to place these multiple duct banks still
7 on a single roadway, very close in proximity to each
8 other.

9 Q. What is it about the number of duct banks
10 creating a heating issue that exists in Solution 4
11 that doesn't exist in Solution 1?

12 A. [ZBIKOWSKI] Again, space. We're just
13 trying to get multiple lines directly down from
14 Chelsea to the creek crossing, so they really are in
15 close proximity; while on the solution, that is
16 actually an integration of the substation, cutting
17 over -- what we would term in house, we would say
18 what's the distribution cutover cost. So you would
19 take that circuit, run it over to this particular
20 point in the substation, what line would it come
21 out.

22 It's a very different analysis and
23 actually based upon a greater degree of engineering
24 than, as I have described, that we have even tried

1 to attempt for Solution No. 4.

2 Q. R?

3 A. [ANDREW] If I can help a little bit?

4 Q. Please.

5 A. [ANDREW] Transmission cables, because they
6 operate at higher voltage, carry lower current. The
7 amount of heat that's generated is related to the
8 current, $I^2 R$. The current squared times the
9 resistance of the cable is the amount of cable heat
10 that gets generated -- which is why, when we want to
11 carry large amounts of power, we use higher voltages
12 as we go up.

13 So when you're in the distribution
14 levels -- here it would be around 13,800 volts, is
15 the nominal voltage for distribution. To distribute
16 that power, your ampere levels are higher. And what
17 you do is, you get limited now by the number of
18 cables you can put in a duct bank, because that heat
19 that's generated has to dissipate through the
20 ground, and heat transfer in the earth is a very
21 slow process. Overhead lines we can load higher
22 because it's a very fast process, with wind cooling
23 it off; but underground lines, the earth acts
24 somewhat as a blanket in some cases and holds the

1 heat in and causes it all to rise, and we get what's
2 called thermal runaway, and it literally bakes the
3 cables and ultimately causes their failure. And we
4 have some very bad historical references that we can
5 refer to where we actually let that happen. So it's
6 a very important design parameter that we watch.

7 What happens is, then, the more heat
8 sources you put in a small area of earth, the more
9 they affect each other. So that's where we get into
10 the limitations, where not only is it a space
11 limitation, but then that mutual heating causes you
12 to have to derate the cables, and we get less out of
13 them as it takes place.

14 So we have limits. As we're looking at
15 our facilities, we're worried about what can the
16 transformers hold, what can the buses supply, but
17 also what can we get away, what can we get out of
18 the station with the duct banks that leave the area.

19 Q. Ultimately that's part of why the company
20 believes that Solution 4 does not provide the same
21 capacity that the proposed solution would provide?

22 A. [ZBIKOWSKI] It doesn't provide -- the
23 capacity is actually a substation constraint,
24 irrespective of the distribution concerns that we've

1 discussed.

2 Q. And the distribution concerns can be
3 addressed by, if I understand correctly, running
4 less through the lines?

5 A. [ZBIKOWSKI] The distribution side, as we
6 discussed, as Bob has also mentioned, more duct
7 bank, derating your cable; more cable. You try to
8 do that balance. So whatever capability your
9 substation can admit to that distribution
10 infrastructure, you will accommodate it in different
11 arrays of distribution design.

12 Q. And that solves the problem?

13 A. [ZBIKOWSKI] From that one little
14 perspective, it will solve the problem. But the
15 question becomes do you have the ability still to
16 bring these longer lines all the way to East
17 Eagle -- East Boston.

18 But then the other aspect is, with these
19 longer lines, you now have additional exposure of
20 cable splicing versus if you had a substation in
21 closer proximity to the load readily just
22 interconnecting to that particular substation.

23 Q. Didn't you testify yesterday, though, that
24 the distribution lines from the Chelsea substation

1 to East Boston were of normal length and in fact
2 lines in the suburbs are even longer?

3 A. [ZBIKOWSKI] The comparison there was the
4 overhead lines in the suburbs are longer than the
5 underground lines in East Boston and Chelsea.

6 Q. But the lines from Chelsea to East Boston,
7 the current distribution lines are of normal length?

8 A. [ZBIKOWSKI] They are -- all I can say is,
9 the construction, if you use Chelsea Station 488 to
10 supply, continually supply East Boston with
11 additional distribution lines, those -- as
12 comparison to East Eagle Street, those lines are
13 much longer than the connection between East Eagle
14 Street and the existing distribution infrastructure
15 in East Boston, substantially longer.

16 Q. Currently East Boston's power comes from
17 the Chelsea substation?

18 A. [ZBIKOWSKI] Chelsea Station 488, yes.

19 Q. So you're saying that the distribution
20 lines, if you were to add new distribution lines
21 because there was another transformer at the Chelsea
22 substation, those lines would be longer than the
23 ones that are already there?

24 A. [ZBIKOWSKI] They are -- no, I said those

1 lines are longer than the connection between East
2 Eagle Street and the distribution infrastructure.
3 What I am saying is, the new East Eagle Street
4 substation will bring inherent improvements in
5 reliability of distribution supply to the customers
6 of East Boston versus what they may have -- they are
7 experiencing today.

8 And again, we're talking relatively
9 aspects. They're not experiencing multiple outages
10 and multiple-lines outages, but inherently less
11 cable, less splicing, results in an improved
12 environment for the operation and supply of the
13 distribution system.

14 Q. So in an ideal world the company would
15 always like to have the shortest possible
16 distribution line; correct?

17 A. [ZBIKOWSKI] We would like to have a
18 balanced approach where you'd have the substation in
19 relatively close proximity to the load, and then you
20 look at that particular cost, both from a substation
21 distribution and transmission development versus the
22 other option itself.

23 And that's what a planner does, and
24 that's what we have to do when we make the

1 recommendations to management that this is the ideal
2 solution, this is the optimal solution, this is the
3 most cost-effective solution, this is the most
4 reliable solution, this is the least-
5 environmentally-impact solution. That's what we try
6 to do, and on that basis we are proposing this East
7 Eagle Street substation that is connected to the
8 Mystic-Chelsea 115-kV line.

9 A. [ANDREW] I think a simple answer to your
10 earlier question: If we added capacity at Chelsea,
11 the new cables that came out of Chelsea heading to
12 East Boston would be longer than the existing ones,
13 because the existing ones take the most direct route
14 today, and that direct route is full.

15 So the new cables have to take a
16 different route, which I think is what was discussed
17 in here, and that route would be longer, certainly.

18 Q. I'd like to show you witnesses another
19 document --

20 MR. THAYER: -- which I would ask the
21 staff to mark as CF-2, if there's no objection.

22 MS. SEDOR: It will be so marked.

23 (Exhibit CF-2 marked for
24 identification.)

1 MS. SEDOR: Counsel, if you would just
2 briefly describe what Exhibit CF-2 is.

3 MR. THAYER: I will represent that
4 Exhibit CF-2 consists of two overhead satellite
5 images of the Chelsea substation 488 at different
6 distances, the second one from a further distance
7 showing a larger section of the adjacent Crescent
8 Avenue.

9 MS. SEDOR: Thank you.

10 Q. Before we turn to this exhibit,
11 Mr. Zbikowski, one additional question regarding
12 distribution: At what distance do the lines need to
13 be spliced? If I understood you correctly, you were
14 suggesting that the splicing of distribution lines
15 is an additional reliability concern and that that
16 concern would not be present with respect to the
17 proposed solution but would be present with respect
18 to Solution 4. So my question is: At what distance
19 of a distribution line does that become a concern?

20 A. [ZBIKOWSKI] They're splicing in the
21 manholes, and that's all dependent upon the route
22 and the construction of the manholes. So if we have
23 a route that's very -- that is relatively longer and
24 straighter, you can have less splices, but you might

1 have to find the route that you have to go down one
2 city street a few blocks, and then up another
3 street -- because, again, of obstructions. You
4 don't have more splices in that particular
5 development. So it's very dependent upon the route
6 and the construction of the specific duct bank.

7 Q. Thank you. Turning to this exhibit:

8 Mr. Zbikowski, I believe you're the most familiar
9 with the Chelsea substation, so I'll direct my
10 question to you; but if another witness is more
11 capable of answering, please jump in.

12 What's the square footage of the
13 company's property ownership at this location?

14 A. [ZBIKOWSKI] I do not know that answer.

15 Q. Do you know the square footage of the
16 substation itself?

17 A. [ZBIKOWSKI] I do not know that answer.
18 That would be -- John Zicko may have been able to
19 answer it.

20 Q. Fair to say that this substation is
21 considerably larger than the parcel of land on which
22 the company would be asking to build the East Eagle
23 Street substation?

24 A. [ZBIKOWSKI] The parcel is larger, yes.

1 Q. Do you have a sense of whether it's two
2 times larger, five times larger?

3 A. [ZBIKOWSKI] I don't know. All I know is
4 that, as we've referenced in the petition, the East
5 Eagle Street area is approximately .4 acres. That's
6 all I know.

7 Q. Is it your understanding that the company
8 owns the grassy area to the west of the substation?

9 A. [ZBIKOWSKI] I don't have that information.
10 I don't know that.

11 MR. YOUNG: Mr. Thayer, could you
12 describe where the grassy area you're talking about
13 is?

14 MR. THAYER: Certainly.

15 Q. As I look at the first overhead image of
16 the Chelsea substation, so Page 1 of Exhibit CF-2,
17 the substation occupies the middle of the image, and
18 immediately to the north of the substation are two
19 railroad tracks. To the left of the substation,
20 which I will submit north is at the top of the page,
21 south at the bottom, east at the right of the page,
22 and west to the left of the page -- and so to the
23 left, and therefore west, of the substation, there
24 is a green area. It's my contention that that green

1 is grass and/or trees.

2 So my question is: Does the substation
3 own that grassy, tree-covered area?

4 A. [ZBIKOWSKI] I'm going to refer to an
5 exhibit --

6 Bob?

7 A. [ANDREW] John --

8 A. [ZBIKOWSKI] John would know it.

9 A. [ANDREW] John would really know that.

10 MR. THAYER: At this time Channel Fish
11 would make a record request to the company that it
12 provide a deed or other documents showing the scope
13 of its ownership interest over this property, as
14 well as a site plan.

15 MR. YOUNG: Mr. Thayer, when you say
16 "this property," do you mean the green piece on the
17 map or something different?

18 MR. THAYER: What I mean is the property
19 on which the Chelsea Station 488 is located.

20 MS. SEDOR: That will be CF-RR-1.

21 MR. THAYER: And to be clear, my request
22 is for the ownership footprint that the company
23 possesses, not merely for the dimensions of the
24 substation.

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(Record Request RR-CF-1.)

Q. The witnesses may not have the answer, but I'll ask anyway: Does the company own the green, grassy or tree-covered area to the south of the substation?

A. [ZBIKOWSKI] Again, I don't want to speculate. My understanding -- my understanding was no, but I don't want to speculate, because that's not my area of expertise.

Q. When considering alternative solutions to the transmission problem at issue in this proceeding, did the company make any inquiry regarding the acquisition of adjacent parcels of land to the Chelsea substation?

MS. KEUTHEN: Again, I think this is a question that would best be reserved for Mr. Zicko, or you could ask it as a record request.

MR. THAYER: My understanding was that, with respect to certain questions of this nature, I would ask them, and if the witnesses didn't know, we'd reserve them for Mr. Zicko. I'm not intentionally asking any questions on which I believe Mr. Zicko to be the only knowledgeable witness.

1 MS. SEDOR: The panel may respond.

2 A. [ANDREW] Can we refer to, it's the
3 PowerPoint presentation that I believe is Appendix
4 2-1. It was part of the East Eagle presentation at
5 ISO New England.

6 MR. YOUNG: Appendix 2-1 of the
7 petition?

8 WITNESS ANDREW: Of the petition, yes,
9 at Page 16 of it, which is kind of a similar
10 overhead view with some annotations put on the top.

11 MR. THAYER: Ms. Sedor, can we take a
12 quick break off the record?

13 MS. SEDOR: Yes, of course. Off the
14 record, please.

15 (Discussion off the record.)

16 MS. SEDOR: Back on the record.

17 Q. The company, before we took a break,
18 referred to a document in response to my previous
19 question. Does that document elucidate an answer?

20 A. [ZBIKOWSKI] No. Upon closer inspection,
21 it was useful for planning perspectives of
22 presenting our case to the ISO New England, but it
23 doesn't necessarily delineate the specific ownership
24 of the parcel itself.

1 Q. Thank you.

2 A. [ZBIKOWSKI] You're welcome.

3 Q. So has the company investigated alternate
4 paths of egress from the substation to the streets
5 of Chelsea that do not involve Willoughby Street?

6 A. [ZBIKOWSKI] No.

7 Q. Would the availability of alternate paths
8 of egress have an effect on the cost and reliability
9 of Solution 4?

10 A. [ZBIKOWSKI] As we discussed earlier,
11 depending upon how much cable we can install in the
12 ground and the length of those cables, the number of
13 duct banks that would be -- they could be -- they
14 would be different. It may be more. Based upon
15 length, that's what I'm speculating: it would be
16 longer. And there also may be other complexities
17 which we just don't know, in an area that we have
18 not engineered and designed this number of duct
19 banks and cable installations.

20 That's why I said yesterday during my
21 testimony, I do not have a high degree of
22 confidence -- I don't have as high a degree of
23 confidence in the 50.8 million as I have with the
24 information that was related to distribution costs

1 associated with Solutions 1, 2, and 3.

2 Q. Mr. Zbikowski, I think you've testified
3 that the Chelsea substation does not have space,
4 physical space, to install a fourth transformer; is
5 that correct?

6 A. [ZBIKOWSKI] When system planning
7 approached substation engineering, John Zicko's
8 area, we asked them to install a fourth transformer.
9 They advised us on the existing profile and
10 footprint of the substation, that was not possible.

11 And therefore, an alternative approach
12 was developed for Solution 4, which is an elevated
13 platform to support additional facilities that were
14 needed to be required for this four-transformer,
15 115-kV breakers, for the additional lines and
16 additional distribution switchgear, et cetera, which
17 are fully described in the petition.

18 Q. Earlier, I believe it was Mr. Andrew made
19 reference to a 20-MVA transformer. Is that smaller
20 than the transformer that the company would install
21 at the Chelsea substation?

22 A. [ZBIKOWSKI] Mr. Andrew referenced a
23 hypothetical transformer at different locations, and
24 the typical size that John Zicko mentioned yesterday

1 that we install at most of our Eastern Mass. north
2 substations, which is the legacy Boston Edison area,
3 the vast majority of them are 62 1/2-MVA nameplate,
4 normal rating.

5 Q. Thinking back to the numbers and capacity
6 and forecast issues we discussed this morning, is it
7 accurate that a 20-MVA transformer would provide
8 sufficient additional capacity to meet the company's
9 forecasted demand through the year 2024?

10 A. [ZBIKOWSKI] Considering that the
11 transformer that we would have -- if we were ordered
12 to build Station 488 expansion, Solution No. 4, we
13 have identified that 48 MVA of that 62-MVA
14 capability would be available and would meet the
15 needs of the load in this region as it grows.

16 So if we were to substitute a 20-MVA
17 transformer -- that's what you're asking -- with its
18 capacity, or said, "We'll give you 20 MVA," the
19 answer is it would meet the capacity needs of this
20 region for the forecast period.

21 Q. Thank you. Is it accurate to say that a
22 significant amount of the cost associated with
23 Solution 4's substation costs --

24 Substation cost is a component of the

1 company's Solution 4 cost estimate. Is it accurate
2 to say that a significant component of the
3 substation cost estimate is based on the notion that
4 the company would have to construct an elevated
5 platform to house the fourth transformer and the
6 attendant equipment?

7 A. [ZBIKOWSKI] That expertise is actually
8 John Zicko's area.

9 Q. If you didn't have to build an elevated
10 platform, it would be cheaper?

11 A. [ZBIKOWSKI] Again, John Zicko's area.

12 Q. Okay. And a lower-MVA transformer, such as
13 a 20-MVA transformer, is physically smaller than the
14 62.5-MVA transformer?

15 A. [ZBIKOWSKI] Again, John Zicko is the
16 person, because he could tell you exactly whether or
17 not the -- the parameters of the 62 1/2 and how it
18 would fit in this particular substation, versus the
19 parameters of a smaller transformer, whether it
20 could be accommodated. That's not my area of
21 expertise.

22 Q. Understood. I was just -- whether any of
23 the witnesses on a big-picture, nonscientificallly
24 specific level have an understanding of whether a

1 20-MVA transformer is smaller than a 62.5?

2 A. [ANDREW] I would expect -- physically,
3 yes. How much those dimensional changes are, I
4 don't really know.

5 Q. That's what we need John for?

6 A. [ZBIKOWSKI] Yes.

7 A. [ANDREW] John is -- you know, is it 1
8 inch, 1 foot? I don't know.

9 Q. The company provided information indicating
10 that Solution 4 would result in a lower
11 environmental impact than the proposed solution;
12 correct?

13 A. [BERGERON] Yes, that's correct.

14 Q. And the components of that environmental
15 impact analysis included the number of residences
16 affected by the construction; is that correct?

17 A. [BERGERON] That's correct.

18 Q. As well as the number of commercial and
19 industrial facilities that would be affected?

20 A. [BERGERON] Yes, with regard to commercial/
21 industrial, it was just the number of buildings, not
22 per se the number of individual businesses. If
23 there was a building that had multiple businesses,
24 we just counted the building as one unit.

1 Q. And Solution 4 involved substantially fewer
2 MCP sites affected; correct?

3 A. [BERGERON] Yes, according to our analysis,
4 there are 73 located along Route 1 and potentially
5 four along --

6 The transmission route -- I should
7 qualify that, as per Footnote 1 in our response
8 PA-24, Route 4 also includes approximately the 2 1/2
9 to 3 miles of distribution. That's in street --
10 excavation within city streets for an additional 2
11 1/2 to 3 miles, which isn't captured in this
12 analysis. This analysis that we're speaking to and
13 that you're questioning me on is related to strictly
14 the transmission line that would be associated with
15 Solution 1 versus Solution 4.

16 So we haven't actually added in the
17 numbers of residences, businesses, MCP sites, and
18 the other factors that would be incurred if we were
19 to build Solution 4 and the distribution associated
20 with it.

21 Q. So because the company has not fully
22 developed Solution 4, an accurate assessment of its
23 environmental impact isn't available at this time?

24 A. [BERGERON] Yeah, a detailed analysis that

1 was done for 1 versus -- yes, that's --

2 There would be additional -- there would
3 be additional impacts that we would have to quantify
4 before, to have an equal comparison to Solution 1,
5 which would then make the environmental impacts
6 greater for No. 4 than have been presented.

7 Q. Mr. Andrew, yesterday you testified that
8 ISO New England -- or that the company expects ISO
9 New England to regionalize the costs associated with
10 the solution; correct?

11 A. [ANDREW] Correct.

12 Q. Has ISO New England provided any written
13 confirmation that that's true?

14 A. [ANDREW] No.

15 Q. At what stage would the company expect ISO
16 New England to confirm its intent to regionalize
17 those costs?

18 A. [ANDREW] Well, I guess the formal
19 confirmation of that is in an ISO process that is
20 called a transmission-cost allocation, or a TCA.
21 Typically what would happen is, once we have
22 approval to construct the project and we know
23 exactly what route we have been authorized to go,
24 then we have the costs from constructing that route,

1 and we fill out the TCA form, run it through the ISO
2 internal reviews. Then we present it at the
3 reliability committee meeting, get the reliability
4 committee's recommendation to the ISO. And
5 typically within a month of that we would get a
6 formal letter back from them stating their
7 determination.

8 Q. So long after this approval process is
9 concluded.

10 A. [ANDREW] Yes. I mean, we can go in before
11 this approval process is done, but then we are
12 supposing what the approval is. So typically, you
13 know, we don't do that kind of thing; we go in when
14 we know what it is we're allowed to do.

15 MR. THAYER: Ms. Sedor, at this time I
16 have a number of additional questions in the area of
17 project alternatives. However, in light of the
18 witnesses' responses so far, I believe that
19 Mr. Zicko is the appropriate person. Would the
20 Board prefer that I ask those questions of the
21 witnesses who are here today, or could Channel Fish
22 reserve those for the appropriate time when
23 Mr. Zicko is available?

24 MS. SEDOR: I think that Channel Fish

1 could do either, whichever is more amenable to
2 Channel Fish.

3 MR. THAYER: In that case, in light of
4 Mr. Zicko's unique knowledge in this area of topic,
5 we'd like to reserve those questions.

6 MS. SEDOR: Absolutely.

7 MR. THAYER: Thank you.

8 MS. SEDOR: Staff may have a little bit
9 of followup. But why don't we go ahead and take our
10 lunch break and be back at quarter to 2:00. Off the
11 record.

12 (Recess for lunch.)

13 MS. SEDOR: Let's go back on the record.
14 At this time Channel Fish has for the moment
15 concluded its examination of the Eversource panel
16 with respect to project need and project
17 alternatives. At this point staff has a few
18 additional followup questions on those topics. I'll
19 turn it over to Ms. de Boer.

20 BENCH EXAMINATION

21 BY MS. DE BOER:

22 Q. Good afternoon, everybody.

23 A. [ZBIKOWSKI] Good afternoon.

24 Q. Just following up on some of the testimony

1 this morning. First off, Mr. Andrew, you mentioned
2 in 2004 that the transformers at the Chelsea
3 substation were upgraded with larger units. I'm
4 wondering if you could please provide some
5 additional details on the work that was undertaken
6 in 2004 and any approvals that were required to
7 complete that work.

8 A. [ZBIKOWSKI] In 2004 we had two smaller
9 transformers. I believe the top nameplate rating
10 was probably a 40-MVA rating. And we recognized
11 that those were no longer capable to meet the load
12 in the region. And they were replaced with the,
13 first, Transformers 110 A and 110 B, in relatively a
14 short period of time, associated with -- I think it
15 was done one weekend in a month. And two or three
16 weeks later, my recollection is, we did the same
17 thing on the other transformers.

18 They were all just done because the
19 construction of the station had already anticipated
20 that sometime in the future we would be putting in
21 larger transformers; there was no secondary cable
22 system needed to accommodate the larger transformers
23 nor a secondary breaker at a 3,000-amp capability.
24 So the buswork was all associated. It was basically

1 the foundations were good, take them in, just
2 replace it.

3 I do not know what local permitting went
4 on, meaning would we have to go down to the building
5 permit. John could provide you that information.
6 But it was nowhere near as elaborate as going to
7 build a substation, expanding a substation or
8 anything like that. So I know we didn't have to
9 come to the Department of Public Utilities for that
10 work.

11 Q. Did I hear you correctly that there are two
12 smaller units, but there were three transformers
13 there today?

14 A. [ZBIKOWSKI] That's correct. Subsequent to
15 that time -- and it either was -- generally in the
16 2005-2007 time frame, and I'm not really specific on
17 when the transformer went in, because we had a
18 long-term project of again expansion. We noticed,
19 yes, the first stage had met the initial needs for
20 that 2004 time frame, but more load was coming. We
21 also were concerned, some other issues that were
22 evolving in the area, that was going to have larger
23 loads. We needed to add a third transformer.

24 So a second project was carried forth to

1 install the transformer, expanding the amount of
2 115-kV breakers at that station, to actually
3 establish a 115-kV ring bus.

4 My recollection, that was sometime in
5 2005 and may have extended out into the 2007 time
6 frame.

7 Q. Thank you. Also this morning the company
8 and Channel Fish were discussing or at least
9 comparing ISO New England's forecasts for the
10 Chelsea substation and the company's own forecast.
11 If you could please turn to EFSB-N-7. I believe a
12 similar request for comparison was made by staff in
13 this information request.

14 Is that correct?

15 A. [BERGER] I'm sorry, could you repeat that
16 one more time?

17 Q. Looking at N-7, which was a similar request
18 for a comparison between the company's Chelsea
19 forecast and the ISO New England's Chelsea forecast
20 that was used in the 2015 needs assessment....

21 A. [BERGER] Yes, yes.

22 Q. I would ask that, if there have been any
23 changes to the ISO New England Chelsea forecast
24 between when this record request -- or

1 information-request response was prepared and
2 subsequent information requests, such as N-18, that
3 a revised EFSB-N-7 be prepared.

4 A. [BERGER] Okay. I do not know of a
5 difference. So your request is that this be
6 revised?

7 Q. So I guess my first question would be: Are
8 the numbers presented in EFSB-N-7 for the ISO New
9 England Chelsea forecast the same as those presented
10 in EFSB-N-18?

11 A. [BERGER] What I am seeing, in comparing
12 N-7 to N-18, is that they were both based -- the ISO
13 forecast was -- both of them were based on the 2015
14 needs assessment.

15 Q. If I'm looking at the net demand numbers
16 presented in EFSB-N-18 for Chelsea in 2018 and 2023,
17 is it correct that it's 125.8 megawatts in 2018 and
18 129.6 megawatts in 2023?

19 A. [BERGER] Yes.

20 Q. And comparing those -- while I know they're
21 different units, MVA versus megawatts -- comparing
22 those to EFSB-N-7, would it be correct I should
23 compare the 140.2- and 149.2-megawatt numbers for
24 the ISO New England forecast?

1 A. [ANDREW] I believe the request is to make
2 sure N-7's response as it's indicated today is
3 consistent with any other revised response and
4 revise N-7 if needed.

5 Q. Correct. But if you could first answer the
6 prior question. Am I looking at the same set of
7 numbers appropriately between the two responses?

8 A. [BERGER] Between the two responses. So I
9 think that one is characterized in MW, one is
10 characterized in MVA.

11 A. [ANDREW] We can do that.

12 A. [BERGER] To my knowledge, that would be --
13 that would be a difference.

14 Q. So I would ask that the company confirm
15 that, once the conversion is made to make those the
16 same units, that those are the same values, and if
17 not, that a revised response be provided comparing
18 the company's Chelsea forecast with the ISO New
19 England Chelsea forecast and describing the basis
20 for any differences that may exist between the two
21 forecasts, please.

22 A. [BERGER] Okay.

23 Q. If we can make that a record request.

24 MS. SEDOR: Yes. That will be

1 RR-EFSB-14.

2 Q. As with some of the other discussions we've
3 had around the loads, it will be very helpful to
4 specify if the company could specify if it's
5 referring to the net load or the load before the
6 contributions of energy efficiency, demand response,
7 DG, et cetera -- just so it's very clear what's in
8 the two sets of numbers, please.

9 A. [BERGER] Yes.

10 (Record Request RR-EFSB-14.)

11 Q. Earlier this morning the company and
12 Channel Fish were also discussing the 75 percent
13 normal rating of the Chelsea substation. I think
14 both the 75 percent rating of the individual
15 transformers as well as the total substation were
16 discussed. Is that correct?

17 A. [ZBIKOWSKI] Yes.

18 Q. Could you please elaborate for me on what
19 level or at what level the 75 percent criterion is
20 applied. Is that at the substation level or at the
21 individual transformer level?

22 A. [ZBIKOWSKI] The 75-percent-of-normal
23 rating applies to the individual respective
24 transformer.

1 Q. And so while the historical load at the
2 substation may not have exceeded the 140.7-MVA level
3 discussed as the total substation 75 percent rating,
4 it has exceeded the individual transformer's 75-
5 percent-of-normal rating in the past; is that
6 correct?

7 A. [ZBIKOWSKI] That is correct, as we
8 responded to in EFSB-N-8. It states there that on
9 July 19, 2013, Transformer 110 C exceeded a 75
10 percent normal rating with a peak loading of 47.4
11 MVA versus that 75 percent normal rating of 46.9.

12 Q. Could you please elaborate for me on why it
13 was the case that individual transformer station --
14 individual transformer loadings may exceed the 75
15 percent level while the substation as a whole did
16 not.

17 A. [ZBIKOWSKI] Again, every substation has
18 the unique characteristics of what lines are
19 conducted to what bus sections. Transformer 110 C
20 supplies two bus sections, 3 and 4. The number of
21 distribution circuits and lines tied to it carry a
22 larger -- because the number of lines and circuits
23 connected to the Bus Sections 3 and 4 are
24 essentially almost equal to what's on A and B. So

1 one transformer supplying this particular number of
2 circuits and lines would have a greater amount of
3 load than what A and B would be. Essentially, they
4 would have half the load -- essentially, but not
5 really. It wasn't that way.

6 The numbers -- I do have those numbers,
7 that 110 C, as I stated, was at 47.4 MVA on that
8 date, while 110 B was at 41.3 MVA; and 110 A was at
9 34.4 MVA. So you can see, all dependent upon the
10 configuration of lines and circuits that are tied to
11 each of the bus sections. That's the reason why one
12 of the transformers was more heavily loaded than the
13 other two.

14 Q. So two were below the 75 percent level,
15 while the third exceeded --

16 A. [ZBIKOWSKI] Was over.

17 Q. Is there any balancing work the company
18 could undertake to try and more evenly spread the
19 load across those three buses, to ensure that all
20 three are either below the 75 or approaching it at a
21 similar rate?

22 A. [ZBIKOWSKI] You could try to attempt to do
23 that, and we would. But also what has happened,
24 since that date, in July of 2013, in 2014 we were

1 approached by four new customers, the customers that
2 we have identified in the petition. The supply to
3 those customers are actually coming off the
4 lighter-loaded bus sections, and they're going to
5 elevate those loads closer to that 70 to 75 percent.

6 So now, if you have that particular
7 relationship of load versus transformers, what could
8 happen at any given time is a failure of a line or a
9 circuit. You could see load transferring from even
10 Bus Sections 3 and 4 to an alternative source on Bus
11 Sections 1 and 2. So you may think you're in a good
12 position and a failure of a line would then all of a
13 sudden overload your other transformer, to exceed
14 the 75-percent-of-normal rating criteria.

15 Q. So is it the company's typical practice to
16 try and balance those buses as close as possible?

17 A. [ZBIKOWSKI] Yes, we do. We try to make
18 sure -- we try to ensure that we do not violate the
19 75-percent-of-normal criteria, and in many instances
20 we do attempt to make some distribution adjustments
21 in the field. But we have to be very cognizant
22 those adjustments in the field are very temporary
23 and could be changed based upon, again, the
24 potential failure of circuits that could happen at

1 any given time.

2 So from a planning perspective, we do
3 not want to rely upon distribution switching to take
4 us out of a violation via not meeting a criteria.

5 Q. Thank you. Just before the lunch break you
6 were discussing -- or the company and Channel Fish
7 were discussing the potential for a 20-MVA
8 transformer at the Chelsea substation to address the
9 capacity needs in the area over the next ten-year
10 period; is that correct?

11 A. [ZBIKOWSKI] That's a hypothetical
12 transformer, because that's not the standard size
13 that we use within this portion of our service
14 territory. As John Zicko testified yesterday, our
15 standard transformers are 62 1/2.

16 Q. Could you please elaborate for me on the
17 importance -- or why the company views it as
18 important to standardize the size of the
19 transformers used at its substations?

20 A. [ANDREW] First is spares, system spares.
21 These transformers are a long-lead-time equipment.
22 Nine months to a year is a typical lead time to
23 obtain one.

24 So what's important for us is, we

1 generally plan on being able to address a failed
2 bulk transformer like this within a month, is the
3 time frame. So we have to have spares on hand to do
4 it.

5 If we have -- if we size each
6 transformer at each substation based on that
7 substation's load projections, we will have a
8 smorgasbord of transformer sizes. And frankly, we
9 already do, because over time the system has
10 evolved. We have replaced a transformer that's as
11 old as 80 years old, I think it was last year.

12 So we have a variety of sizes out there.
13 And one of our longer-term efforts, to minimize
14 spare parts, standardize our equipment, our craft
15 skills, is to use standard equipment to the maximum
16 extent possible.

17 And so even in the option where we were
18 looking at not being able to use the full capacity
19 of a 62 1/2 transformer, we would still put that in,
20 because then the fans that we need, the pumps that
21 we need, the bushings that we need, and then
22 ultimately if we need a new one, it comes -- you
23 know, we have a spare, and we don't have to have a
24 large variety.

1 Q. I think you mentioned an example of a
2 transformer with an 80-year asset life. Could you
3 describe for me what the typical useful life of a
4 transformer is?

5 A. [ANDREW] I think in general we look at 40
6 years, you know, as being it. The things that
7 define that, though, are generally either load
8 growth or system development -- for some reason,
9 that's no longer adequate. Or if we have one in
10 place that fails -- if what was there was a 40 but
11 we have a spare 62 1/2, we would again try and
12 standardize and use the spare, to go that route.

13 But in general, I'd say we would expect
14 a 40-year lifetime.

15 Q. And so the company and the testimony from
16 the company this morning is that a 20-MVA
17 transformer would provide sufficient firm capacity
18 for the next ten years. Does the company have any
19 concerns with the alignment between the lifetime of
20 that asset and with load growth -- or the load
21 forecast beyond the ten-year horizon?

22 A. [ANDREW] Well, yes. I think we look at
23 the larger capacity as providing that, because,
24 again, as we look forward, what the future looks

1 like today and then what the future looks like
2 tomorrow is a very different thing. We have
3 circumstances at other substations where a company
4 is trying to put in a metal recycling facility, and
5 their load alone is going to drive upgrading the
6 transformer and the substation.

7 So it can be as simple as one customer
8 that can drive, when they're large customers, or it
9 can be an area that stays static for quite a period
10 of time and what's there lasts a long time.

11 But one of the important things is, it's
12 kind of from a resource perspective. If we try to
13 add 1 MVA to our substations at a time, we would
14 need a staff that's ten times bigger than what we
15 have.

16 So what we strive to do is come into a
17 substation, set the substation up for the
18 foreseeable future, and then be able to move on to
19 the next area that may need attention.

20 Q. Would it be fair to say, though, that the
21 company has a greater level of certainty of the
22 capacity needs over the next ten-year horizon versus
23 a longer-term direction, as you were describing, for
24 the area?

1 A. [ANDREW] I believe so.

2 Q. These specific questions may be better
3 addressed by John Zicko, but I will pose them
4 anyway, given the context, and see if the panel can
5 respond. To Mr. Zbikowski, the first question may
6 be better suited to you anyway.

7 But I'm wondering what the new firm
8 capacity of the substation would be if you were to
9 install a 20-MVA transformer in a substation?

10 A. [ZBIKOWSKI] I'd have to take that as a
11 record request, because I didn't design the station
12 for that level.

13 Q. If you could, please, what the firm
14 capacity of the Chelsea substation would be with the
15 addition of a 20-MVA transformer; and then to
16 further the conversation from this morning, the
17 feasibility of accommodating such a transformer on
18 the site.

19 A. [ZBIKOWSKI] That would have to go to John
20 Zicko.

21 Q. I think a combined record request.

22 MS. SEDOR: That will be RR-EFSB-15.

23 (Record Request RR-EFSB-15.)

24 Q. With regards to the distribution system

1 costs presented in Table 3-1, whether it be the R or
2 the original, Page 3-11 of the petition: I believe
3 I understood the company's testimony yesterday to be
4 that the \$50.8 million distribution figure presented
5 for Solution 4 was viewed as the lower bound for the
6 cost estimate. This morning's discussion, I believe
7 there was a statement made that it could be higher
8 or lower than that number. And I wanted to clarify
9 for myself the company's position on where that
10 estimate lies.

11 A. [ZBIKOWSKI] My viewpoint is that this cost
12 estimate will change. As I testified yesterday, I
13 believe it is the lower bound. We will not know
14 specifically until we go through engineering design,
15 and it's perhaps the final route that will permit us
16 to install the necessary facilities and not
17 necessarily encumber additional costs. But that
18 would be rare, because just the distance alone would
19 be substantially greater than directly from Station
20 488.

21 Q. So the company's position is that the 50.8
22 million should be viewed as a lower-bound estimate
23 for --

24 A. [ZBIKOWSKI] Yes.

1 Q. -- those distribution feeder costs?

2 A. [ZBIKOWSKI] Yes.

3 Q. Thank you. Looking at this same chart, the
4 \$7.2 million distribution feeder estimate made for
5 Solutions 1 through 3: I'm wondering whether that
6 figure should be updated to reflect the longer
7 distribution feeder estimate provided in response to
8 PA-24 or whether that number has remained unchanged
9 despite the additional feeder length described.

10 A. [ZBIKOWSKI] We should take a record
11 request to update that value, based upon the latest
12 design.

13 Q. Please.

14 MS. SEDOR: So RR-EFSB-16.

15 Q. If there are any other changes to the cost
16 estimates that would be appropriate for Table 3-1, I
17 ask that you please include those updates at this
18 time as well.

19 (Record Request RR-EFSB-16.)

20 Q. One more question for me for now: This
21 morning there was a fair bit of discussion around
22 the solution that was recommended specifically
23 referenced by ISO New England in the 2015 solutions
24 study between Mystic and Chelsea and the proposed

1 project. We also discussed this yesterday.

2 I'm curious as to whether or not the
3 company thinks there's a way to receive confirmation
4 from ISO New England on its position with regard to
5 its support for the project versus the language that
6 was used in the ISO New England report.

7 A. [ANDREW] I'd have to investigate that with
8 the ISO. I mean, formally we could put a TCA
9 application in early, with the assumption that costs
10 associated with the route as given here.

11 Then the ISO's rules are, if there's a
12 10 percent difference, we have to come back and
13 revise it. That would get a formal determination
14 from them. I don't know if there are any other
15 informal methods -- if they would issue a letter or
16 anything of that nature. I'd have to ask.

17 Q. I'd be interested in an informal response,
18 if possible, from ISO in support of this docket. So
19 if I could make a record request, for you to inquire
20 of ISO to see what could be provided, that would be
21 greatly appreciated.

22 A. [ANDREW] Uh-huh.

23 MS. SEDOR: That will be RR-EFSB-17.

24 (Record Request RR-EFSB-17 .)

1 BY MR. YOUNG:

2 Q. Mr. Andrew, just on what Ms. de Boer was
3 asking you about just now: You said you were
4 standardizing sizes of transformers. And it wasn't
5 clear to me whether you were standardizing on a
6 single size or not. So in this context we're
7 talking about a 115-kV-to-14-kV; correct?

8 A. [ANDREW] Correct.

9 Q. So for 115-to-14, is Eversource or is the
10 legacy NSTAR going with just one size for that, or,
11 you know -- do you use a smaller size in a rural
12 area, or are you currently pushing to only go for
13 the 62.5 MVA size?

14 A. [ANDREW] For, say, the old Boston Edison
15 area, you know, part of our service territory, it's
16 the single 62 1/2 size. That's where we have a
17 115-kV primary to 14-kV secondary, single secondary
18 transformer. We do have some other matters of
19 transformers that are used principally in the urban
20 areas to supply network-type things that are of
21 different sizes.

22 Q. The old WMECo area is Eversource as well;
23 correct?

24 A. [ANDREW] It is, yes.

1 Q. And there you've got some more rural areas;
2 correct?

3 A. [ANDREW] We do, yes.

4 Q. Is Eversource using that same
5 standardization in the WMECo territory?

6 A. [ANDREW] Out there? We are discussing
7 standard sizes, but I don't believe they are
8 currently using that exact standard out there. But
9 we do have internal efforts to standardize equipment
10 across the larger company -- you know, Eversource
11 today, versus what was established for NSTAR. And
12 we do recognize that different parts of the system
13 have different needs.

14 Q. Following up on some of the questions that
15 you were discussing, answering from Mr. Thayer: I
16 think one of his lead-in questions was about the
17 cost per mile for transmission versus distribution.
18 I wasn't sure when you were answering what you were
19 comparing.

20 If you were just sort of generically
21 comparing one mile of new underground transmission
22 circuit, one circuit for one mile, and you were
23 comparing that to a typical one mile of a single
24 circuit of distribution, is there a clear cost

1 difference there?

2 A. [ANDREW] Well, if you were -- there is, I
3 think, a clear cost difference. But if you were
4 installing a single circuit of distribution --
5 right? -- you would be putting one duct in the
6 ground, and you wouldn't need larger manholes,
7 things of that nature. You would be able to carry
8 at most 10 MVA of load.

9 If you're installing a single
10 transmission line in the ground -- in this case,
11 solid dielectric -- you would be installing three
12 ducts, one for each of the conductors, with very
13 large manholes to splice the cables in.

14 So it's hard to compare. They're not
15 apples and apples.

16 Q. Well, that was -- that's just -- it was
17 confusing in your answer what you were comparing.
18 So I just wanted to be clear: If you're going to
19 compare an apple to an orange in this case --

20 A. [ANDREW] Right.

21 Q. -- I think we can call it that -- one mile
22 of transmission circuit costs a lot more than one
23 mile of distribution circuit, if you're just putting
24 one circuit in; is that right?

1 A. [ANDREW] If you're just putting one
2 circuit in, yes.

3 Q. So, then, if you wanted to -- so I don't
4 know if that's the question he was asking or not.
5 But that would be the answer if he was going one
6 circuit versus one circuit.

7 If the question were, that he was asking
8 was, if you wanted to carry a certain amount of
9 power and on the one hand you have, I suppose, one
10 transmission circuit and on the other hand you have
11 some number of distribution circuit, that's a
12 different question. Right?

13 A. [ANDREW] Right. In this case that single
14 transmission circuit would be able to carry
15 approaching 400 MVA of power, where that would take
16 you 40 distribution circuits to carry the same
17 amount of power. But you don't do that. You don't
18 carry 400 MVA on distribution lines, for those
19 reasons. It just doesn't....

20 Q. Just to get the baseline, just to get the
21 starting comparison: That would be 40 ducts, I
22 suppose.

23 A. [ANDREW] Right.

24 Q. And then you wouldn't put them all in one

1 duct bank because of the heating problem?

2 A. [ANDREW] It would be 40 circuits, which
3 probably would be five individual duct bank
4 circuits, maybe even six, based on doing that.
5 That's why if you had the need to move that much
6 power, you would never consider distribution; you'd
7 go to the higher voltages.

8 Q. But the cost would be much higher for the
9 distribution if that was the comparison you were
10 making.

11 A. [ANDREW] Absolutely, yes.

12 Q. So it depends on exactly what the question
13 means what your answer is.

14 A. [ANDREW] Exactly.

15 Q. Mr. Thayer, I think he was asking also
16 about comparison of the mutual heating problem or
17 potential problems in looking at Solution 1 versus
18 Solution 4. In Solution 4 you have perhaps a longer
19 distance of distribution lines coming down together
20 than in Solution 1; correct?

21 A. [ANDREW] Correct.

22 Q. But in Solution 1 you do have coming out of
23 the substation an aggregation of distribution
24 circuits; right?

1 A. [ANDREW] Yes, we do.

2 Q. And the mutual heating, does that depend
3 very much on the length of the lines, or is it
4 mostly how many lines are closely aggregated?

5 A. [ANDREW] It's how many lines are within a
6 relatively small space.

7 Q. So with respect to your describing the
8 difficulty with mutual heating on Solution 4, and
9 thinking about it in terms of what lines would be
10 coming out of East Eagle, I'm wondering if you could
11 restate a comparison of the two solutions with
12 respect to that issue. Whichever witness wants to
13 answer that.

14 A. [ZBIKOWSKI] The East Eagle Street station
15 is spreading out the distribution cables to ensure
16 that they're not in closer proximity, so that we
17 would be able to avoid the concerns of mutual
18 heating.

19 The concern that we have on the Solution
20 4 Chelsea Station 488 is trying to find a path to
21 Chelsea Creek. And we ourselves have not been able
22 to find that specific path without necessarily
23 bringing the duct banks in close proximity. And in
24 our response, in our petition, we advise that we're

1 estimating a 15 percent reduction in capabilities
2 because of mutual heating.

3 Q. Is that problem pretty much just getting
4 out of the substation, or are you talking more
5 about, once you get into the --

6 Are you talking about Willoughby Street?
7 Are you talking about closer in to the substation?
8 Or are you talking about coming down Eastern Avenue
9 after Willoughby Street?

10 A. [ZBIKOWSKI] Eastern Avenue is also a
11 concern. That's the area that we have the longest
12 run for duct bank, and that's where the mutual
13 heating.

14 We ourselves yesterday testified that we
15 could possibly only support either a transmission
16 line or a distribution duct bank, not both, on
17 Willoughby. So we haven't figured out on Willoughby
18 how to really manage that distribution
19 infrastructure if we're placing another transmission
20 line into Chelsea Substation 488.

21 Q. So you might have to go to inquire about
22 private-property easements or something like that.

23 A. [ZBIKOWSKI] Correct, or maybe even
24 possibly thinking about trying to go underneath the

1 MBTA railway out another direction and then come
2 back around and still head back towards Eastern
3 Avenue. Those are all specific design engineering
4 questions that have not been fully -- haven't really
5 been explored.

6 Q. So to pop out on Crescent Avenue on the
7 north side of the railroad?

8 A. [ZBIKOWSKI] Yeah. That's one possibility.
9 We have not looked at that. It's not been
10 engineered. It's, just, again, a potential
11 conceptual approach.

12 Q. Right within the substation do you have
13 mutual heat? It would just seem to me that you're
14 all starting very close, in the same place. So
15 before you even get out to the streets, do you have
16 difficulties with spreading the different lines
17 apart?

18 A. [ZBIKOWSKI] I would assume that your
19 assumption there is correct, given that trying to
20 place 16 more cables into the substation, that it
21 already has 30 cables, would be very, very
22 difficult, trying to fan them out.

23 Now, it is possible -- remember, we're
24 looking at an elevated platform to place

1 distribution switchgear as part of the solution, to
2 develop as part of Solution No. 4. We couldn't
3 place it all in the ground. So we may find a place
4 on that platform, build up duct bank in such a way,
5 and come to an area that has had no areas of other
6 facilities -- i.e., distribution cables. We may
7 find ourselves running into places that have control
8 cables that we'll have to adjust it.

9 So those are substantial challenges
10 proceeding with Solution 4.

11 Q. I was actually thinking more about even
12 your proposed substation, where I would think you
13 would be coming out -- maybe there are some
14 drawings. I don't remember what they look like.
15 Are your getaways coming out of East Eagle, are they
16 all together, or do you come out of East Eagle in
17 different directions?

18 MS. SEDOR: Let's go off the record for
19 a moment.

20 (Discussion off the record.)

21 MS. SEDOR: Let's go back on the record.

22 A. [ZBIKOWSKI] I appreciate the
23 identification on PA-10 that gives the present
24 design of the East Eagle Street station distribution

1 ductwork.

2 Looking at this diagram, there are three
3 duct banks coming out. There are two on the left-
4 hand side that essentially as they go out -- when
5 I'm looking at the page, my left-hand side -- that
6 are going out on East Eagle Street towards Condor
7 Street. Those duct banks are essentially -- will be
8 built one on top of each other, with at least 3 feet
9 separation, and they'll be designed specifically to
10 avoid that mutual heating.

11 The other aspect, the remaining duct,
12 which is on the right-hand side, that exits out to
13 Manhole 29357, is 8 feet apart from the other ducts,
14 and that is sufficiently far away that there would
15 not be any mutual heating between that duct bank and
16 the other two duct banks.

17 Q. Mr. Zbikowski, you're talking about the
18 green dashed lines on the figure; is that correct?

19 A. [ZBIKOWSKI] I'm talking about the -- yes,
20 those are -- they look to me -- I guess I don't have
21 the color eyesight as I used to. But there are
22 dotted lines coming directly below, right on East
23 Eagle Street -- the term "East Eagle Street"?

24 Q. They start to the right of the -- the third

1 time.

2 The map identified East Eagle Street
3 three times, I think, and the rightmost of those,
4 there's three lines that come down sort of from an
5 area where it says Bus 1, Bus 2, Future Bus 3.

6 A. [ZBIKOWSKI] Yes.

7 Q. I was seeing those as green. So if you
8 would accommodate my color description, those are --
9 that's what I --

10 A. [ZBIKOWSKI] That is what I was referring
11 to, John.

12 Q. And the ones that are stacked up are the
13 ones that go over to a proposed Manhole 13, and
14 that's where you have two or three stacked, and then
15 they split from that point?

16 A. [ZBIKOWSKI] I do not see a proposed
17 Manhole 13 on this diagram I have.

18 Q. At the intersection of Trenton Street,
19 Glendon Street, and East Eagle?

20 A. [ZBIKOWSKI] As you always say, a picture
21 is worth a thousand words. It's hard to describe
22 them.

23 But on the dotted green lines coming to
24 the -- exiting the substation to the left are those

1 distribution duct banks that will be stacked on top
2 of each other 3 feet apart. I see a proposed
3 Manhole No. 10, at least on my diagram.

4 Q. But if you continue on that, you get to 12,
5 and then I thought at 13 you had a divergence of
6 dashed lines.

7 A. [ZBIKOWSKI] They're actually -- they're
8 already -- as they go down, it's hard to represent
9 this diagram itself. But I see the two paths going
10 down East Eagle Street towards Condor. There is --
11 what I have is proposed Manhole 10. I have a
12 proposed, also, Manhole 11. I'm not sure if I'm
13 looking at the same route from your diagram.

14 A. [O'MALLEY] Can I assist with the answer?

15 Q. Sure.

16 A. [O'MALLEY] The two stacked duct banks that
17 come out of the East Eagle Station, they come out,
18 on the page that you're looking at -- they come
19 down. They take a -- if you're looking at it, they
20 take a left on East Eagle. And they're still
21 stacked for, I'm not sure exactly, maybe 100 feet or
22 so.

23 Then one -- and they sort of split right
24 where Lexington Street comes into East Eagle. One

1 of them continues down East Eagle, and the other
2 continues up to Lexington Street.

3 Q. Oh. So when you're -- let's see. How
4 many --

5 A. [O'MALLEY] Want me to point it out to you?

6 Q. No, no, I see where you mean.

7 A. [O'MALLEY] Okay.

8 Q. How many distribution circuits are coming
9 out of the East Eagle substation?

10 A. [ZBIKOWSKI] The ultimate design is for
11 three bus sections, with potentially up to 24
12 circuits. The first --

13 Q. So that would be 24 --

14 A. [ZBIKOWSKI] Up to 24.

15 Q. You're going to put 24 conduits in?

16 A. [ZBIKOWSKI] Potentially up to 24. It
17 doesn't mean that we'll ever roll it all out that
18 way, given that the substation itself will be 110
19 MVA. Whether or not we need 24 --

20 Q. When you're building the duct bank now, you
21 can put the plastic tubes in that you could use for
22 circuits later; is that right?

23 A. [ZBIKOWSKI] That is correct.

24 Q. So are you going to put the duct banks in

1 for your buildout now?

2 A. [ZBIKOWSKI] Yes.

3 Q. You'll be putting in something like 24
4 conduits?

5 A. [ZBIKOWSKI] We'll have all the necessary
6 conduits to support the 20 -- if we ever had to go
7 to 24 circuits-slash-lines, we'd have all the
8 conduits there to support it.

9 Q. Thank you. So on this diagram,
10 Mr. O'Malley, you're showing three dashed lines
11 coming out of the substation, but those three
12 actually include -- those three actually represent
13 some part -- whichever part of the 24 that you're
14 proposing to use right now?

15 A. [O'MALLEY] Yeah, there are nine conduits
16 in each duct bank, so 9 times 3 would be 27.

17 Q. So the green lines are actually duct banks.

18 A. [O'MALLEY] Yes, that is correct, yes.

19 Q. And so two of your duct banks, once you get
20 onto East Eagle Street, are going to travel close to
21 each other, up till about Lexington Street.

22 A. [O'MALLEY] Yeah, they come out stacked,
23 and then they split. One continues down East Eagle,
24 and the other one goes up to Lexington.

1 Q. So when you're talking about stacking, it's
2 the whole duct bank stacked and it's got --

3 A. [O'MALLEY] Two blocks of concrete on each
4 other.

5 Q. So if you go two blocks to the left, now
6 you've got just one duct bank, and there you're
7 going to split up and some of the conduits go up
8 Glendon Street and some of them continue on East
9 Eagle?

10 A. [O'MALLEY] Yes.

11 Q. Okay. So the area that would be the most
12 concern for mutual heating would be that first block
13 or so on East Eagle Street, where you're stacking
14 the two duct banks?

15 A. [O'MALLEY] Yeah, I would believe so, yeah.

16 Q. How about just coming out of the
17 substation, you know, north of East Eagle Street?
18 Are you stacked in there as well?

19 A. [O'MALLEY] Going north of East Eagle? I
20 believe those are side by side.

21 Q. Okay. And that's -- is that better for
22 mutual heating?

23 We need to be on the record or off the
24 record. If you want to consult, ask, and then do

1 that.

2 A. [O'MALLEY] Yes, off the record, please.

3 MS. SEDOR: We're off the record.

4 (Discussion off the record.)

5 MS. SEDOR: Let's go back on the record,
6 please.

7 A. [O'MALLEY] In response to the duct bank
8 that heads north: That is approximately 12 feet
9 away from the distribution duct banks, and there
10 would be no mutual heating there.

11 Q. I just wanted to make sure we're talking
12 about the same area. Those are the three lines,
13 dashed lines that sort of trail off heading up
14 towards the purple boxes marked Bus 1, Bus 2, Bus 3?

15 A. [O'MALLEY] Yes.

16 Q. Okay. Thank you.

17 BY MS. DE BOER:

18 Q. I believe earlier the witnesses mentioned
19 that Solution 4 would provide only 48 MVA of
20 capacity compared to the proposed Solution 1. Is
21 that difference in capacity driven by this mutual
22 heating discussion, or can you please explain why
23 adding the transformer at Chelsea would provide less
24 capacity than adding the new transformers at East

1 Eagle?

2 A. [ZBIKOWSKI] As yesterday we briefly talked
3 upon this subject, it relates strictly to the 14-kV
4 bus configuration. Adding Buses Nos. 5 and 6 and
5 trying to get the power out of the transformers with
6 the bus configuration with the existing bus
7 configurations, we were not able to accommodate more
8 than 48 MVA.

9 Q. Thank you.

10 A. [ZBIKOWSKI] You're welcome.

11 Q. Just a followup on the congestion concerns
12 with regards to the distribution feeder conduit
13 coming out of Chelsea: Do you have similar concerns
14 for space once you're getting towards the creek
15 crossing, or is it purely getting out of the
16 substation and getting down towards around East
17 Boston rather than into East Boston?

18 A. [ZBIKOWSKI] The primary concerns were both
19 Willoughby and Eastern Avenue. We have again not
20 fully engineered and designed the rest of the route
21 as such. We may find ourselves also impinged,
22 depending upon how that is designed, that we may be
23 in proximity to other duct banks that we've recently
24 installed to accommodate distribution. There could

1 be a similar concern. I don't know that. I would
2 not know that until the full design is available.

3 Once we get to the creek itself, they
4 fan out, to bring it to specifically part of the
5 creek crossing. There would not be issues at that
6 location. But it's trying to get to that creek
7 that's been causing us a great difficulty.

8 Q. So the existing duct bank that crosses the
9 creek would have sufficient space on it to
10 accommodate either the necessary distribution feeder
11 route from Solution 4 versus the new transmission
12 line in Solution 1?

13 A. [ZBIKOWSKI] There's enough conduits to say
14 if we went to Chelsea 488 and had to put all the
15 distribution in, we could put those in. However,
16 you couldn't put the transmission conduit in at that
17 time. You could not put both. At this time, if you
18 put the transmission in, you can't put all the
19 distribution from Chelsea. You have the ability to
20 still put additional -- some additional conduit, but
21 nowhere near what we were talking about from
22 Solution No. 4.

23 Q. So if you implemented Solution 4 and in the
24 future a new line was required in East Boston, a new

1 crossing of the creek would be required.

2 A. [ZBIKOWSKI] Yes.

3 Q. Thank you.

4 BY MR. YOUNG:

5 Q. Mr. Zbikowski, I have a question on this
6 table that we've been looking at, the transmission
7 alternative comparison summary, that seems to have a
8 number of different designations. I happen to be
9 looking at Page 3-17. It's Table 3-1. Page 3-17 or
10 Page 3-11, depending on things I do not understand.

11 A. [ZBIKOWSKI] I think I have it.

12 Q. Mr. Zbikowski, we like that you brought a
13 calculator, so I'll give you one more. On Footnote
14 1, this table -- and this is again off of a question
15 Mr. Thayer asked that I didn't quite understand what
16 was the set of answers.

17 If you would take --

18 You know how many feet there are in a
19 mile; correct?

20 A. [ZBIKOWSKI] Yes, 5280.

21 Q. I'll give you the long side of it, and
22 would you convert the 3 miles in Footnote 1 to feet?

23 A. [ZBIKOWSKI] 15,840 feet.

24 Q. And then would you divide by the number

1 that's provided in this table, not the revised
2 number that you have --

3 A. [ZBIKOWSKI] What number?

4 Q. If you would divide that by 3,175 feet.

5 A. [ZBIKOWSKI] Yes. The number is
6 approximately 4.99.

7 Q. That's about five times?

8 A. [ZBIKOWSKI] That's correct.

9 Q. Mr. Thayer was asking about per-mile
10 distribution costs. While we're at it, let's
11 divide -- in the table itself, do you see the
12 distribution cost figures for Solution 1 and
13 Solution 4?

14 A. [ZBIKOWSKI] Yes.

15 Q. If you would divide 50.8 by 7.2.

16 A. [ZBIKOWSKI] It's approximately 7 times
17 more.

18 Q. So the table is showing a distribution cost
19 7 times higher for a distance that's 5 times higher;
20 correct?

21 A. [ZBIKOWSKI] Yes.

22 Q. When you were answering Mr. Thayer, one of
23 the things you said was that you have a higher
24 degree of uncertainty with the figure 50 million;

1 correct?

2 A. [ZBIKOWSKI] Yes.

3 Q. But you've said more recently that that's
4 your lower-bound figure. Correct?

5 A. [ZBIKOWSKI] Meaning lower bound -- if we
6 were to engineer and design, I would think the cost
7 would be more than \$50.8 million.

8 Q. So if you take out your concern about
9 uncertainty, that's -- your concern -- you're saying
10 right now that your concern about uncertainty is not
11 reflected in that 50 million figure. Correct?

12 A. [ZBIKOWSKI] Yes.

13 Q. But it's still higher -- it's still a bit
14 higher than on the other one.

15 Another thing you said was that it's
16 longer. But if we're doing it on a per-mile basis,
17 that's a wash; correct?

18 A. [ZBIKOWSKI] The distance -- if you're
19 comparing Solution 1 and Solution 4, they're not
20 really exactly a true apples-to-apples comparison of
21 just distances, because you're trying to -- No. 1 is
22 a distribution cutover from existing facilities to
23 the distribution lines and circuits emanating from
24 East Eagle Street. They're in relative close

1 proximity, slightly less, probably, duct bank, cable
2 installations.

3 This other development coming from
4 Chelsea 488, again, longer lines, more cables being
5 installed in these duct banks because of mutual
6 heating. So we're getting a very different type of
7 assessment and reasons driving those costs.

8 Q. Are the lengths provided in Footnote 1 of
9 this table, is that length of excavation? Is that
10 length of duct bank? Is that length of circuit?
11 What is that?

12 A. [BERGERON] I actually can speak to that.
13 That's length of city streets that either a
14 distribution facility or a transmission facility --
15 where a distribution facility is multiple duct banks
16 and transmission is just one.

17 It's simply length of city street the
18 project would have to be located along. It's not
19 circuit miles or duct bank miles.

20 Q. Thank you. Is there a difference of
21 what's -- not looking at what they tie into yet.
22 But is there a difference of what you're putting in
23 the city street between Solution 1 and Solution 4?

24 A. [BERGERON] Back to Mr. Zbikowski.

1 Q. Good call.

2 A. [ZBIKOWSKI] We are placing a number of
3 different additional circuits in Solution 4 to meet
4 the needs of East Eagle Street, substituting for
5 East Eagle Street.

6 Q. Had you told us how many that was?

7 A. [ZBIKOWSKI] I don't recall -- at this time
8 I don't recall the specific numbers that we got at
9 that location. I'd have to take it back.

10 Q. Is it more circuits, is it more duct bank
11 than you have for the proposed project per mile of
12 city streets, as Mr. Bergeron described?

13 A. [ZBIKOWSKI] We would be putting two duct
14 banks in service, and those two would generally try
15 to accommodate 16 lines and circuits.

16 Q. From Chelsea station --

17 A. [ZBIKOWSKI] From Chelsea. Now, some of
18 those would eventually serve only Chelsea load. The
19 rest of those would be serving East Boston load.

20 Q. Is most of your mileage of city streets in
21 East Boston, whether you're looking at 3,175 feet or
22 the revised figure -- is that not mostly two duct
23 banks in one street?

24 A. [ZBIKOWSKI] We talked -- we just described

1 the distribution getaways a moment ago, of PA-10, I
2 believe was the response. And duct bank was a
3 single duct bank emanating north, and two other duct
4 banks going south, which would eventually split off.

5 So there isn't -- many times, other than
6 a short distance, most of the duct banks are
7 single-duct-bank arrangements.

8 Q. So looking at EFSB-PA-10(1), you've got a
9 block or a half a block coming from the substation
10 over about to Lexington Street, where you have
11 multiple duct banks in one city street?

12 A. [ZBIKOWSKI] Yes.

13 Q. And then some amount of multiple duct banks
14 coming out of the substation itself; right?

15 A. [ZBIKOWSKI] Yes.

16 Q. So if the -- if you're going per mile of
17 city streets, like Mr. Bergeron said, that might not
18 be -- you're not necessarily putting the same thing
19 into the city street. So is that why the cost are
20 different, because sometimes -- because the mileage
21 of -- one mile of distribution in city streets has
22 different costs depending on how many circuits
23 you're putting in?

24 A. [ZBIKOWSKI] That would be correct, yes.

1 Also, the number -- again, the complexity of the
2 duct banks.

3 A. [ANDREW] And the underground obstacles
4 you'd run into.

5 Q. Is there a difference between Chelsea and
6 East Boston in that, that you know of now?

7 A. [ANDREW] Well, I think what we know is,
8 from the work that has been done in the area, is
9 that there are numerous obstacles. Coming out of
10 East Eagle, where we were describing the two duct
11 banks that were one on top of the other -- that's
12 done -- that's not a preferred construction method.
13 So if we've done that, that's been a method to get
14 by obstacles in an area, because if anything happens
15 to the duct bank on the bottom and we have to try
16 and go in and do a repair, that's a very extensive
17 construction job. So we would prefer not to be in a
18 vertical configuration. We'd much rather prefer to
19 be horizontal. But in, you know, older urban
20 settings, you know, as Mick Jagger would say, you
21 can't always get what you want.

22 I think some of the recognition in the
23 costs of the alternate path is that, is that we
24 recognize we are going to come into challenges. We

1 haven't done enough underground survey to determine
2 where they are.

3 Q. It's been a little unclear as to how much
4 of that uncertainty has been factored into --

5 A. [ANDREW] Into the numbers already.

6 Q. -- this number, which on the face of it
7 shows a higher per-mile cost, I believe, than your
8 preferred solution?

9 A. [O'MALLEY] And my recollection of that
10 area on East Eagle Street coming out of the station
11 and turning right towards Condor, I know that
12 section of the street was heavily congested with
13 already-existing facilities. That's why we had to
14 stack those two above them, so we could get through
15 all the existing utilities. And it wasn't until we
16 split at Lexington Street that we could go, you
17 know, one deep.

18 Q. Okay. Thank you very much.

19 BY MS. SHAPIRO:

20 Q. To keep on on Table 3-1, when we're talking
21 about the differences between -- talking about the
22 differences between the costs of the distribution
23 lines for 4 versus 1, 2, and 3: It seems like
24 there's not that much of a difference.

1 Let me just ask the question: In
2 looking at the transmission lines in the different
3 solutions, do you see that same type of distinction,
4 where Line 1 has one cost or factor and Line 4, or
5 even the other lines, are a different factor? They
6 seem to be running closer, if that makes any sense.

7 A. [ANDREW] I think one of the things with
8 the transmission line is the duct bank dimensions
9 are consistent. It's a single approximately
10 2-foot-square duct bank, if I'm right, Mike.

11 A. [O'MALLEY] This one was that?

12 A. [ANDREW] The transmission duct bank.

13 A. [O'MALLEY] It's approximately that, a
14 little bit bigger.

15 A. [ANDREW] A little bit bigger than 2 foot
16 square; you know, a set number of pipes in there for
17 pulling the cable. Manhole locations are determined
18 based on longer pulling lengths, in terms that the
19 transmission wires can take more than the
20 distribution wires can.

21 So it's probably much more consistent in
22 relation to a dollar-per-mile application. But I
23 think if you do look at the numbers, there are
24 differences in the different ones, when we run into

1 major obstacles -- bridges, things of that nature --
2 to be gotten around.

3 Q. So basically, if you're dealing with
4 transmission line on a per-mile basis, you're more
5 consistent or the estimates are usually more
6 consistent across areas, as opposed to distribution
7 lines, because of the number of conduits, et cetera?

8 A. [ANDREW] Well, I think some of the
9 challenges is, dealing with the transmission line is
10 one. Dealing with the distribution lines, many
11 times we may be trying to get two sets of duct
12 banks, like as we come out of East Eagle Street, you
13 know, and get to a position where they can fan out.

14 So there are kind of different sets of
15 obstacles. The distribution duct banks are a little
16 bit larger. I believe they're closer to 3 foot
17 square.

18 A. [O'MALLEY] Yeah.

19 A. [ANDREW] And they'll have different turn
20 radiuses. When you need to make a turn, the cables
21 that are inside them have what's called a
22 minimum-bend radius, which you can't allow the cable
23 to exceed that or you potentially damage the cable.
24 So a lot of times the bend radiuses are different,

1 and that puts you into different obstacles that you
2 have to clear in different ways.

3 Q. So in looking at the two routes, Solution 1
4 and Solution 4, they have about the same, for
5 transmission-line cost per mile, they're about the
6 same amount?

7 BY MR. YOUNG:

8 Q. If you divide the 47.3 million
9 transmission-line cost on the first line by the 4.74
10 miles in the table next to that, is that about \$10
11 million per mile? Correct?

12 A. [ZBIKOWSKI] Yes.

13 Q. And then if you look at the bottom line, if
14 you look at the \$32 million for transmission-line
15 cost and divide that by the 3 miles, is that 10 or
16 10 1/2 million dollars --

17 A. [ZBIKOWSKI] 10.6.

18 Q. So in the two cases where you have just one
19 transmission line per street, or per street mile,
20 then the transmission line cost is very consistent,
21 in your estimate; correct?

22 A. [ANDREW] Yes.

23 A. [ZBIKOWSKI] Yes.

24 Q. So that's -- I think Ms. Shapiro is asking

1 if that's more -- whether you're doing this --
2 whether you're using a more consistent per-mile
3 basis for the transmission line than Channel Fish
4 was seeing in the distribution cost per mile. And
5 is that because of a single consistent transmission
6 line versus a variable number of ducts and circuits?

7 A. [ANDREW] Yeah. We don't have the actual,
8 you know, detailed cost estimate in front of us, but
9 that's a reasonable characterization of it.

10 BY MS. SHAPIRO:

11 Q. Well, is there somewhere where -- would we
12 need a record request for someone to describe
13 actually how these numbers were developed? Because
14 we just explained why we may think, and you said
15 that sound reasonable. But I'm wondering if that's
16 actually the way it happened.

17 BY MS. DE BOER:

18 Q. If I could refer to Table 5-25 of the
19 petition on Page 5-258R. I believe the company
20 indicated that it used a generic per-mile cost
21 estimate for all of the transmission line assumed in
22 Solutions 1 through 4. Is that correct?

23 A. [ZBIKOWSKI] Yes.

24 BY MS. SHAPIRO:

1 Q. But then you didn't use a generic for the
2 distribution miles.

3 A. [ZBIKOWSKI] No.

4 Q. Where did the nongeneric come from?

5 A. [ZBIKOWSKI] The Chelsea cost estimates --
6 again, we've not done substantial engineering for
7 the distribution, while the East Eagle Street is
8 further along in its design and engineering. So the
9 cost-estimate phase was different, based upon those
10 parameters.

11 Q. If you could look at Page 3-9R. I'd like
12 to just clarify. We keep on talking about different
13 costs and different cost estimates. But are all
14 four cost solutions -- the costs for all four
15 solutions listed in Table 3-1, are those all at a
16 minus 25 percent, plus 50 percent estimate?

17 A. [ZBIKOWSKI] That would be a fair
18 characterization, yes.

19 Q. So it's not 1 -- or the Solution 1 is at a
20 20/10. They're all at the same.

21 A. [ZBIKOWSKI] Yes. At the time of
22 submittal, they're all the same, though we had
23 additional information related to the East Eagle
24 Street site -- though you saw by the record request,

1 that was also adjusted afterwards based upon some
2 changes to design at East Eagle Street, increasing
3 the amount of conduit and cable.

4 Q. Thank you.

5 A. [ZBIKOWSKI] You're welcome.

6 MS. KEUTHEN: Can we take a short break?

7 MS. SEDOR: Yes, certainly. It's about
8 time for a break anyway. Why don't we take a
9 15-minute break. Off the record.

10 (Recess taken.)

11 MS. SEDOR: Let's go back on the record.
12 I believe that concludes staff followup for the
13 moment.

14 I understand that counsel for Channel
15 Fish has a few additional. Mr. Thayer?

16 MR. THAYER: Thank you.

17 FURTHER CROSS-EXAMINATION

18 BY MR. THAYER:

19 Q. At the outset, the EFSB's Record Request 16
20 requested updated numbers for Table 3-1. Channel
21 Fish would also request that that record request
22 include an instruction for the company to correct
23 its now-outdated estimate of 3,175 feet of
24 distribution line for Solution 1 and reflect the

1 company's revised estimate of 1 mile.

2 MS. SEDOR: Is that acceptable to the
3 witnesses?

4 WITNESS ANDREW: I think so. I thought
5 we agreed to do that in one of the previous record
6 requests, but we'll certainly --

7 WITNESS ZBIKOWSKI: That's what I heard.

8 Q. Thank you. Channel Fish would also make an
9 additional record request for any communications
10 between personnel with the company and personnel
11 with ISO New England that relates to this project or
12 the various solutions discussed in connection with
13 this project. That would include any meeting
14 minutes, emails, letters, memoranda, et cetera.

15 MS. KEUTHEN: I think the company can
16 try to do that. I note that it seems to be more in
17 the nature of an information request, that's
18 customarily requested during discovery, as opposed
19 to something that you would ask on the stand.
20 Obviously, they would have documents to produce.
21 But in any event, I think we will do our best to try
22 to respond.

23 MR. THAYER: In light of the degree to
24 which ISO New England's statements -- discussions

1 with the company regarding the key issues have been
2 at issue in this testimony, we think that records
3 that reflect those communications are appropriate
4 and necessary to completing the record.

5 MS. SEDOR: That will be RR-CF-2.

6 (Record Request RR-CF-2.)

7 A. [ANDREW] Is there a time frame associated
8 with that? Because this project is also tied with
9 the Greater Boston study. So any and all, it's
10 going to be voluminous.

11 Q. Channel Fish would request -- or would
12 clarify that its request is tailored to this -- what
13 the company would consider this project to
14 encompass.

15 A. [ANDREW] Portion of it, okay. So maybe
16 from a time frame where we began discussions with
17 the ISO about modifying the Mystic-Chelsea solution
18 to include going to East Eagle?

19 Q. That would be appropriate, assuming that
20 that encompasses -- that that does not omit any
21 discussions that the company understands to relate
22 to its conclusions and requests to the Siting Board.

23 A. [ANDREW] Right. Okay.

24 MS. SEDOR: Thank you, Mr. Barten and.

1 I think that's a helpful modification.

2 Q. In the company's response to PA-10, looking
3 back at the chart that was the subject of the
4 testimony just before the break, there was
5 discussion of three, I believe, duct banks coming
6 from the proposed East Eagle substation onto East
7 Eagle Street. Is that correct?

8 A. [ZBIKOWSKI] Yes.

9 Q. And did I hear correctly that those three
10 duct banks would hold up to 24, is it distribution
11 lines?

12 A. [ZBIKOWSKI] Distribution lines or
13 circuits. There's a slight difference of
14 designation internally how we refer to a line versus
15 a circuit. But essentially they are distribution
16 cables, all 24, yes.

17 Q. And during the portion before two of the
18 duct banks go off to the west and one of them goes
19 off to the east, during the portion where the three
20 of them are still together exiting from 338 East
21 Eagle Street onto Eagle Street itself, is the
22 company concerned about a mutual heating that will
23 occur at that place?

24 A. [ZBIKOWSKI] No. We'll be designing

1 specifically to address any of those concerns.
2 That's typical construction and design -- design
3 engineering and then construction at a substation,
4 trying to ensure that we would not have mutual
5 heating events at that station, at the very
6 beginning. It's one thing that we always ensure, to
7 make sure we avoid that potential consequence.

8 Q. And there's a correlation between the
9 number of lines and the amounts of mutual heating;
10 correct? More lines equals more heat?

11 A. [ZBIKOWSKI] Yes.

12 Q. Am I correct in assuming that the Solution
13 4 would involve 16 distribution lines?

14 A. [ZBIKOWSKI] Up to 16 distribution lines,
15 yes.

16 Q. So it's actually one third less than the
17 number of distribution lines that are a part of the
18 proposed solution.

19 A. [ZBIKOWSKI] That's right. However, you
20 have to consider what is already in there. There
21 are 30 lines to date at Chelsea station.

22 Q. Right. But if Solution 4 involved the 16
23 new lines going in a different direction down a
24 different path than the 30 existing lines, then

1 those 16 lines would not be affected by the 30
2 existing lines?

3 A. [ZBIKOWSKI] If we would be able to find
4 that particular path, et cetera, that is correct.

5 Q. What are the sorts of things that the
6 company typically does to prevent the mutual heating
7 that you've discussed?

8 A. [ZBIKOWSKI] The primary view is to try to
9 keep adequate distances between them, meaning
10 upwards of 6 to 8 feet would pretty much guarantee
11 you would not have mutual heating. Other aspects,
12 when building the duct bank itself, you could put
13 special concrete, which would essentially ensure
14 that whatever heat it's having does not necessarily
15 generate itself onto an adjacent duct bank, so try
16 to isolate the two of them.

17 There are special construction
18 techniques. They're more suited, my understanding,
19 for transmission. They're not usually done on the
20 distribution side, but they could be applied
21 accordingly.

22 Q. Is that what the company plans to do for
23 the portion of the proposed solution where the three
24 duct banks are close together on Eagle Street?

1 A. [O'MALLEY] I'd have to confer with my
2 consultant to actually find that out, what we have
3 planned for that area.

4 Q. Fair to say they will not be -- the duct
5 banks will not be 6 to 8 feet apart, however?

6 A. [O'MALLEY] I believe we stated previously,
7 where they come out of the station, two of them are
8 stacked, and I believe those have separation of 3
9 feet between them. And the single one coming out
10 had approximately 10 to 12 feet separation.

11 Q. So for two of them it's less than 6 to 8
12 feet, but for the third one it's more?

13 MR. YOUNG: Could you answer audibly, or
14 did you?

15 WITNESS O'MALLEY: Did I answer? I
16 think so.

17 Q. I think the issue was you may have nodded,
18 and we weren't sure if the court reporter picked up
19 an affirmative answer to the question.

20 MR. YOUNG: Mr. Thayer said, "So for two
21 of them it's less than 6 to 8 feet, but for the
22 third one it's more?"

23 WITNESS O'MALLEY: And I stated that the
24 two that are stacked, there's approximately 3 feet

1 clearance between those two, and for the third one,
2 that is on the other side, that is approximately 10
3 to 12 feet away from the two stacked ones.

4 A. [O'MALLEY] Does that answer your question?

5 Q. It does. Thank you.

6 A. [O'MALLEY] Okay.

7 Q. How deep under the ground will the lower of
8 the two stacked duct banks be?

9 WITNESS O'MALLEY: Can I go off the
10 record to find that answer out?

11 MS. SEDOR: Yes, you may.

12 (Discussion off the record.)

13 MS. SEDOR: Let's go back on the record,
14 please.

15 A. [O'MALLEY] The bottom of the lower duct
16 bank is approximately 14 feet below grade, existing
17 grade.

18 Q. Does the company need space on either side
19 of the duct banks to do repairs, replacements, et
20 cetera?

21 A. [O'MALLEY] Yeah, generally speaking, we,
22 of course, try to maintain as much clearance as
23 possible.

24 Another factor involved with that is

1 existing facilities in the street. So depending
2 upon congestion in the street, we do coordinate, for
3 example, with Boston Water and Sewer Commission in
4 this area, and they have stated, I believe, a 2-foot
5 clearance from their facility. So several feet
6 would be preferable in all cases.

7 Q. At this time does the company have an
8 understanding of whether it has sufficient space on
9 the eastern side of the -- whichever duct bank is
10 further east than the others, does the company have
11 an understanding of whether it has sufficient space
12 on the eastern side to do the necessary repairs and
13 replacements, in light of the fact that there's a
14 pre-existing business located there?

15 A. [O'MALLEY] For the duct bank coming out of
16 the station into East Eagle?

17 Q. Correct.

18 A. [O'MALLEY] So the question is, between our
19 duct bank and, I'm assuming, the property line of
20 the adjacent property, do we believe we have enough
21 space to do any maintenance-type work?

22 Q. Right. Has that been worked out?

23 A. [O'MALLEY] I believe we have sufficient
24 space to do that.

1 Q. And the basis for that is?

2 A. [O'MALLEY] One of the bases is that we
3 have to put -- install it, also. So we have enough
4 space to install that duct bank. So that will
5 probably require several feet adjacent, outside of
6 the duct bank as a minimum to be able to be down
7 there, put the form work up, and do the construction
8 work available. I don't know the exact dimension
9 between the property line and the edge of the duct
10 bank.

11 Q. But your understanding is that there will
12 be several feet between the duct bank and the edge
13 of the property line.

14 A. [O'MALLEY] There should be, yes. I can
15 find out that exact dimension.

16 Q. Has the company taken into account the
17 existence of the CSO that's located along the
18 property line, the combined sewer outflow?

19 A. [O'MALLEY] Yes.

20 Q. So beyond the property line there's also
21 space that has to be -- the duct bank has to be
22 several feet from that as well; correct?

23 A. [O'MALLEY] Yeah, there's an existing CSO,
24 Boston Water and Sewer Commission CSO. I believe

1 it's 48 by 60 inches. And it also has an easement
2 that I believe is a foot or two wider than that
3 dimension. If I remember correctly, on the access
4 easement into the station itself, that is less of a
5 concern there.

6 Q. How wide is the company's easement in the
7 area that we're talking about, so the portion of 338
8 East Eagle Street as you go towards Eagle Street
9 itself? How wide is that easement?

10 A. [O'MALLEY] I would have to look at the
11 drawing for that.

12 Q. Please do. We can go off the record.

13 MS. SEDOR: Yes, we can go off the
14 record.

15 (Discussion off the record.)

16 MS. SEDOR: Let's go back on the record.

17 A. [O'MALLEY] The access and utility easement
18 granted to us by the City of Boston is approximately
19 80 feet wide. Coming off of East Eagle, it's
20 approximately 80 feet. It comes in a little, but
21 then it flares back out by the time it gets to the
22 station. So overall it's at least 80 feet wide,
23 generally speaking.

24 Q. At its narrowest point, it's narrower than

1 80 feet?

2 A. [O'MALLEY] It may be a couple feet
3 narrower.

4 Q. Does the company do an assessment of
5 structural impacts to adjacent structures when it's
6 digging, say, 14 feet below the surface?

7 A. [O'MALLEY] As in evaluating whether
8 excavating a 14-foot-deep hole would undermine any
9 adjacent properties?

10 Q. Sure. If you're digging here, are you
11 going to affect a building here?

12 A. [O'MALLEY] In this case we are so far away
13 from the building, and the excavation will be short,
14 as is typically done and as is required by, you
15 know, OSHA and other organizations for protection of
16 workers in any excavation, an analysis I believe has
17 not been performed, due to the distance between
18 them.

19 Q. From the easternmost duct bank to the edge
20 of the adjacent company's building, does the company
21 have an understanding of how far that is?

22 A. [O'MALLEY] I do not have that information.
23 That would have to be measured.

24 Q. It raises the question of what's the basis

1 for the company's conclusion that the adjacent
2 building is far enough away that an assessment of
3 structural impact is not needed.

4 So I think that either -- to the extent
5 the company can't say right now how far away Channel
6 Fish's building is from the easternmost duct bank --

7 A. [O'MALLEY] Certainly.

8 Q. -- we would submit as a record request that
9 information; and as part of that, the distance at
10 which the company would consider it necessary to do
11 a structural impact.

12 A. [O'MALLEY] Yes.

13 MS. SEDOR: That will be RR-CF-3.

14 (Record Request RR-CF-3.)

15 Q. On the subject of structural impacts from
16 this digging: Has the company done any assessment
17 of the impact that its excavation or installation of
18 the duct banks would have on the CSO?

19 A. [O'MALLEY] No, we haven't, because the CSO
20 is further over from the duct banks.

21 Q. It sounds like at least one of the duct
22 banks will be as little as several feet from the
23 CSO, given that the CSO straddles the property line
24 between the easement that the company has and the

1 adjacent property. And in light of that, I guess
2 what I'm asking is: Is it the company's position
3 that there will nonetheless be sufficient distance
4 between the CSO and the installation of the
5 easternmost duct bank that a structural analysis is
6 not necessary?

7 A. [O'MALLEY] Probably. I'll look at that.
8 We'll take a look at that and determine whether we
9 should be doing a structural analysis.

10 Also, we are in discussions with the
11 City of Boston, Boston Water and Sewer, about that
12 particular point.

13 Q. And to date has the City of Boston
14 expressed any concerns or placed any limitations on
15 the company's installation of that duct bank?

16 A. [O'MALLEY] Not as yet.

17 Q. Is that discussion ongoing?

18 A. [O'MALLEY] I have a meeting set with
19 them -- set up with them for next week.

20 Q. Could we submit as a record request, then,
21 a copy of any documents exchanged in that meeting
22 that are germane to this subject or, in the
23 alternative -- or in addition, rather, a description
24 of any information or demands placed by the BWSC on

1 the company that relate to this issue?

2 MS. SEDOR: That will be RR-CF-4.

3 (Record Request RR-CF-4.)

4 Q. Do I understand correctly that you have
5 already had discussions with BWSC on this issue?

6 A. [O'MALLEY] We've had discussions with
7 Boston Water and Sewer coordinating several items.
8 One is site plan approval for the substation itself,
9 which they have a review process for that. And the
10 other item with Boston Water and Sewer is the
11 routing of the transmission and distribution
12 facilities through the -- through City of Boston
13 streets. And that is ongoing discussions. As we
14 progress design on these elements, we meet with them
15 and get their input on any concerns they may have.

16 Q. So to date have you discussed the potential
17 impact of the project on the CSO with BWSC?

18 A. [O'MALLEY] They have mentioned that there
19 is a CSO adjacent to the site -- actually, almost
20 straddles the property line; and they are concerned
21 about the age of it and any impacts our construction
22 may or may not have.

23 Q. And at present, where do those discussions
24 stand? They've expressed their concern. How has

1 the company responded?

2 A. [O'MALLEY] We're in the process of
3 finalizing or progressing our foundation details.
4 And once we have our foundation details finalized,
5 we can review that with Boston Water and Sewer and
6 see if they have any concerns about that, and we can
7 present our, you know, approach for installing
8 foundations and what, if any, impacts we believe it
9 may have on adjacent facilities.

10 Q. Who have you -- or who has the company been
11 communicating with at BWSC on this issue?

12 A. [O'MALLEY] Phil Laroque and Louis Merela.

13 Q. Is the cost of installing lines, either
14 transmission or distribution lines, at MCP sites
15 more expensive than installing distribution or
16 transmission lines at non-MCP sites?

17 A. [O'MALLEY] I don't know the answer to
18 that.

19 Q. I would open that up to the witness panel?

20 A. [ANDREW] I don't know what an MCP site is.

21 Q. MCP. It's Massachusetts General Laws 21E.

22 A. [O'MALLEY] Potentially contaminated site?

23 Q. Right. Loosely, the statute places
24 requirements on sites that are or may contain

1 contaminated materials, and there are additional
2 steps that are placed on activities that occur at
3 those sites.

4 So again, my question is: Is the
5 company aware -- or does the company have a position
6 with respect to the relative cost of doing
7 construction at an MCP site versus at a non-MCP
8 site?

9 A. [BERGERON] I can respond to that. You
10 can't make a general statement, versus an MCP site,
11 because you have to know what's there. There are
12 obviously different constituents that can be found
13 in the soil at various MCP sites, some of which may
14 be more expensive to dispose of and/or deal with
15 than others.

16 So in general, when you are digging in
17 an area, whether it's along a transmission line or a
18 distribution line circuit in streets where there are
19 MCP sites or on a substation site, typically you
20 need to understand what chemical constituents are in
21 the soil that cause that area to be an MCP site and
22 then correlate that to the concurrent cost to
23 dispose of or deal with that soil as you're
24 excavating it.

1 Q. And in light of the fact that the proposed
2 solution has, I think it was, 73 MCP sites or 75 MCP
3 sites, has the potential additional cost of MCP
4 site -- of construction that occurs at MCP sites or
5 installation that occurs at those sites, has the
6 potential additional cost of that been built into
7 the estimate for the proposed solutions cost?

8 A. [BERGERON] Yes, as part of our analysis,
9 our routing analysis, we research the various MCP
10 sites on each route. There's a Mass. DEP database
11 that's available that identifies what the
12 constituents are associated with that particular
13 remediation action.

14 And so I can say that none of the MCP
15 sites along the preferred route are associated with
16 anything that would require special disposal --

17 Let me restate that. They're all
18 associated with, say, hydrocarbon-type sites, sites
19 that can be handled where you're on the lower-end
20 cost. And so yes, the amount of soil to be
21 excavated, anticipating that there's a certain
22 percentage of the route we may encounter, that has
23 been incorporated into the cost to construct the
24 project, based upon understanding of what has been

1 characterized there by Mass. DEP.

2 Q. Do you have an understanding of what the
3 cost associated with the MCP sites is for the
4 proposed solution?

5 A. [BERGERON] I do not have that number
6 available. I would have to go back to the project
7 estimates in more detail, take a look at it, and
8 provide that to you.

9 Q. Does that information exist somewhere?

10 A. [BERGERON] Yes, it does.

11 Q. We would then submit a record request for
12 that information.

13 MS. SEDOR: It will be RR-CF-5.

14 (Record Request RR-CF-5.)

15 Q. Earlier you mentioned that you had talked
16 to the BWSC about site plan approval. Has the
17 company filed an application for site plan approval
18 with respect to this project?

19 A. [O'MALLEY] No, we're still in the process
20 of reviewing that.

21 Q. Does the company anticipate doing so at any
22 particular time?

23 A. [O'MALLEY] I don't have a specific date in
24 mind, no.

1 MR. THAYER: Nothing further.

2 MS. SEDOR: Thank you, Mr. Thayer.

3 FURTHER BENCH EXAMINATION

4 BY MS. DE BOER:

5 Q. Just in followup to the record request
6 Channel Fish has just made: In responding to one of
7 the prior record requests from staff to update Table
8 3-1, if you do identify differences in the costs
9 between the different solutions, 1 and 4, associated
10 with MCP sites, if you could please include those
11 unique costs in that cost table.

12 A. [BERGERON] Sure.

13 Q. Thank you.

14 MS. SEDOR: At this time Ms. Shapiro is
15 going to begin with route selection, unless the
16 company --

17 I'm sorry, I just don't remember, Ms.
18 Keuthen. I know that I asked you. But did you have
19 any redirect for the panel?

20 MS. KEUTHEN: Not at this time.

21 MS. SEDOR: Thank you.

22 BENCH EXAMINATION

23 BY MS. SHAPIRO:

24 Q. Good afternoon. I think most of these

1 questions may have to go to Ms. Berger, but feel
2 free to jump in, anybody else.

3 Can you tell me when -- and I'm looking
4 at particularly Section 4 of the petition, the
5 routing analysis -- when the routing analysis was
6 conducted, what was the time frame?

7 A. [BERGERON] The routing analysis was
8 conducted in 2014 into early 2015.

9 Q. And so approximately when were the proposed
10 and the alternative route identified?

11 A. [BERGERON] Can I go off the record just to
12 check a few things with counsel?

13 Q. Sure.

14 (Discussion off the record.)

15 MS. SEDOR: Let's go back on the record.

16 A. [BERGERON] We filed our petition in
17 December of 2014. So therefore our routing analysis
18 would have been concluded approximately two months
19 prior to our filing.

20 Again, we may have been -- for instance,
21 we were working on the -- we had a variation in the
22 application that was presented, has been since
23 removed based upon additional information. So in
24 essence, our routing analysis for the preferred and

1 the noticed alternative included variations when we
2 filed. And so we made conclusions a couple of
3 months before filing. However, we continued through
4 the information requests and through continued
5 outreach with the City and other stakeholders to
6 refine our routing analysis, and obviously have
7 concluded now what our preferred and noticed routes.

8 Q. If you could turn to EFSB-G-8(R1). So in
9 July of 2014, when you met with Everett, it says in
10 the discussions that it was the likely preferred and
11 alternative routes. So you discussed different
12 alternatives and some different variations? Is
13 that....

14 A. [BERGERON] We settled in on our preferred
15 and noticed alternatives probably earlier, in 2014.
16 Again, we had a couple of variations that we were
17 looking at, and it was presented on our candidate
18 route in Section 4, mapping in Section 4. So at
19 this point, when we met with City officials for this
20 particular meeting, we were confident and presented
21 the preferred route with the variation, the Bow
22 Street variation.

23 Q. So here it says -- stated when you met with
24 Everett, you focused on the likely preferred and

1 alternative routes, and that was in July 2014. Can
2 you tell me, if you go to the second page of the
3 response, you didn't meet with Chelsea -- you met
4 with Chelsea three months later? Is that correct?

5 A. [O'MALLEY] I can -- you're referring to
6 the meeting with Chelsea on 10/21/14?

7 Q. Yes.

8 A. [O'MALLEY] Yeah, I was at that meeting.
9 What we tried to do in late 2014 is meet with
10 different organizations, whether it was, you know,
11 the city governments -- Chelsea, Everett; also
12 different associations such as Eagle Hill and Island
13 End.

14 And basically what we've done at these
15 groups is presented to them really the entire
16 project, focusing on the preferred route. But we
17 also mentioned typically in our discussions that
18 there's also, as part of the requirement, that an
19 alternate route also has to be identified. But in
20 all of the discussions with these entities, we
21 always focused on the preferred route as the route
22 that we discussed mainly, and if they had any
23 comments or concerns about those preferred routes
24 that we were going to be taking.

1 Q. And is it usually -- it seems -- there's
2 three months' difference between when you met with
3 Everett and then met with Chelsea officials. Was
4 that usual, that -- you were going to both Towns --
5 that you would contact one Town first and then wait
6 a number of months to then contact the other Town?

7 A. [O'MALLEY] I don't think so. It's a
8 matter of getting in there and aligning schedules,
9 you know. It's not that we wanted to go to Town A
10 first and then settle them down and then go to Town
11 B. It's just a matter of scheduling.

12 Q. And also in this discussion here it
13 looks -- and it could be just the way it's
14 written -- that when you met with Everett, you
15 focused on preferred -- likely preferred and
16 alternatives, but when you met with Chelsea, you
17 just focused mostly on the preferred route. Did you
18 also discuss alternatives for Chelsea?

19 A. [O'MALLEY] For Chelsea, yes.

20 Q. Also in this response there's a discussion
21 of different stakeholders and groups that you met.
22 With regard to the Island End Business Association,
23 is that just an Everett-only association?

24 A. [O'MALLEY] My understanding of the Island

1 End group -- I believe the Island End name is sort
2 of the section of Everett, and I believe it's
3 primarily along that Beacham Street area. I don't
4 know how they got the name. But it's basically a
5 collection of businesses who have, you know, an
6 interest, because they're all sort of contiguous to
7 each other.

8 But I was going to say, I believe it's
9 primarily the Everett area. It may slip over to
10 Chelsea, but I believe it's primarily Everett.

11 Q. Do you know if Chelsea has a similar -- or
12 a business group, also?

13 A. [O'MALLEY] I do not.

14 Q. Is it that -- I don't mean to say -- it's
15 that you don't know if they have one, or did anyone
16 look into whether they have one?

17 A. [O'MALLEY] Well, one of the things we've
18 done when we've met with primarily municipal
19 officials is, you know, we've tried to meet with
20 them first, and then we've always asked them, "Who
21 else do you think we should talk to?" With the
22 Everett folks, they, you know, indicated the Island
23 End group is a big business organization within
24 Everett. "You need to talk to them because it may

1 impact them because a lot of those businesses are
2 located along the Beacham Street corridor." I don't
3 recall specifically if Chelsea had an Island End
4 group.

5 Q. When you met with Chelsea, was there any
6 discussion about any meetings or that the company
7 should meet with regard to the area that may be in
8 the Williams to Beacham Street area?

9 A. [O'MALLEY] What we did -- if you go to
10 Page 3, on 3/12/14, there was a Chelsea community
11 meeting, and invitations were sent to abutters
12 within 300 feet of the preferred and alternate
13 routes, and there was an advertisement, also, in
14 several papers.

15 Q. And this was similar to the one that was
16 also held in Everett at that same time?

17 A. [O'MALLEY] Yeah. The one in Everett was
18 held -- I guess it's right above it -- 12/1.

19 Q. But there wasn't a separate meeting in
20 Chelsea that had to do with the business community?

21 A. [O'MALLEY] Not that I recall, no.

22 Q. Also, was there any work that the company
23 did with the Everett Chamber of Commerce after the
24 meetings that they had?

1 A. [O'MALLEY] When you say "work," what do
2 you mean?

3 Q. Any meetings or followup meetings or
4 communications or discussions.

5 A. [O'MALLEY] Well, in the record here it
6 does show various meetings with City of Everett.
7 There's another one in October of '15, October 28th.
8 Let's see, going back 7/22/15 there was a meeting
9 with Everett officials again.

10 What we've been trying to do is on an
11 occasional basis, because the project is, I don't
12 want to say slowly developing, but it takes a while
13 for significant new things to occur at this stage in
14 the project -- the planning and engineering phases.

15 But what we've been trying to do is, you
16 know, occasionally, every two, three, four months,
17 whatever the case may be, we do have a community-
18 relations representative who does talk to these
19 folks on a consistent basis, not only because of
20 this project but potential other projects.

21 But we also try to go into each of the
22 communities. We ask them if they'd like an update,
23 and we may give them a verbal update, you know, by
24 telephone or by email, and they may say, "Yeah, why

1 don't you come back in and just update, you know,
2 the city council folks because they weren't at the
3 last meeting," or whatever the case may be.

4 Q. In terms of the businesses that are located
5 in the Beacham/Williams Street area, are most of the
6 businesses located in Everett or Chelsea? Do you
7 remember?

8 A. [O'MALLEY] I believe most of them are in
9 the Everett area.

10 Q. Do you have a list or a map of all the
11 businesses located in that -- along that route?

12 A. [O'MALLEY] I believe as part of one of
13 these requests there was -- there was the Island End
14 meeting, and I believe it had an attendance sheet,
15 if I'm not mistaken. Island End business group,
16 RS-8.

17 Q. I believe that that group or that meeting,
18 again, was only confined to Island End, and a lot of
19 them may not even have been abutting the -- it's
20 hard to tell if they were actually Beacham Street
21 and Williams Street or were just in the Island End
22 area.

23 A. [O'MALLEY] Association.

24 Q. I guess I'd like to make a record request,

1 to provide a list and a map -- that would be
2 helpful -- of all the businesses located across the
3 Beacham and Williams portion of the route, and what
4 city they're located in. I'm pretty sure, if
5 they're all Beacham, they're Everett. Well,
6 Williams is Chelsea -- but I'm not sure.

7 A. [O'MALLEY] Yes.

8 MS. SEDOR: That will be RR-EFSB-18.

9 (Record Request RR-EFSB-18.)

10 Q. And the New England Produce Center, is that
11 located in -- that's located in Chelsea, or portions
12 of Chelsea?

13 A. [O'MALLEY] I believe it's located -- it
14 straddles the line, if I'm not mistaken.

15 Q. And did the company -- has the company ever
16 contacted or had meetings with the Chelsea -- the
17 New England Produce Center?

18 A. [O'MALLEY] Yeah, I know, speaking with my
19 community relations representative -- I don't have
20 the exact date. It might have been a month or two
21 ago. I can get the exact dates. He did try to
22 contact --

23 Well, I take that back. I'm thinking it
24 might have been the property owner, Jacobs, which

1 I'm not sure if they're the New England Produce.
2 No.

3 I'd have to check on exact New England
4 Produce contacts.

5 Q. Are there other specific individual
6 businesses in that Everett -- excuse me, in the
7 Williams/Beacham area that you've had contact with
8 that aren't on this list? I'm looking at G-8, R-1.

9 A. [O'MALLEY] This list?

10 Q. Yeah.

11 A. [O'MALLEY] Are there other businesses in
12 the area? I don't know.

13 Q. That is, when contacted by the company.

14 A. [O'MALLEY] I would have to find that out,
15 but I don't know specifically.

16 Q. I guess I'd like to make a record request,
17 if there's any additional information --

18 A. [O'MALLEY] Certainly.

19 Q. Thank you.

20 -- about any contacts the company had
21 with businesses in the Williams/Beacham Street area.

22 MS. SEDOR: That will be RR-EFSB-19.

23 (Record Request RR-EFSB-19.)

24 Q. Did the company meet with any of the

1 stakeholders that are listed or abutting -- any of
2 the property owners, abutting property owners, prior
3 to or during the route selection process?

4 A. [O'MALLEY] I'm not aware of that.

5 A. [BERGERON] If I could just refer to the
6 summary. Is it G-8 you were referring to before?

7 Q. Uh-huh.

8 A. [O'MALLEY] Yeah.

9 A. [BERGERON] Many of the meetings noted here
10 were done during the course of the route selection
11 process.

12 A. [O'MALLEY] During the time, yeah.

13 A. [BERGERON] Including the meetings noted
14 with the Island End Association. I think that one
15 of the -- in the open house that we had, that
16 Mr. O'Malley referred to in December, one of the
17 things that we already try to do in our routing
18 analysis is, we try to gain an understanding of what
19 the project study area is and some of the key issues
20 within it. And then we always look to feedback from
21 municipal officials or from these public open houses
22 to make sure that we've got it right and that we're
23 capturing and looking at the right factors to rank
24 and score, put the right weights to them, through

1 our routing selection process and our scoring
2 process.

3 Q. But by the time you had the open houses, in
4 December of 2015, you basically had submitted
5 whatever -- I don't know the exact date the petition
6 was submitted -- but December 22nd. Did you go back
7 in after, and were there any updates to the route
8 selection analysis based on those community
9 meetings?

10 A. [BERGERON] At that point we hadn't -- we
11 had a good understanding of what the issues were. I
12 mean, clearly we understand that traffic is a key
13 issue, access to these businesses is a key issue.
14 We discussed a lot of these issues with City
15 officials, because they have a better understanding
16 of how these businesses operate, as well during that
17 time.

18 So we didn't hear anything at the open
19 houses that caused us to pause and revise our
20 application prior to submission.

21 Q. I believe it looks like the first meeting,
22 in it looks like EFSB-G-8(R1), was the introductory
23 meeting in Everett, and that was July of 2014. By
24 then had you -- those -- I guess there was that

1 meeting, and then one in September and October,
2 November. Was there any information that you
3 gleaned from any of those meetings that changed or
4 were input into the route selection process?

5 A. [BERGERON] I didn't personally attend
6 these meetings; some of my staff did. I'm familiar
7 with the minutes of those meetings as well and some
8 of the information that was taken back to the
9 routing analysis.

10 There were certain things that were
11 discussed, such as utility density in certain
12 streets, upcoming roadway projects that the City
13 wanted us to try to avoid, recently completed
14 roadway projects that the City had asked us to
15 avoid.

16 And I think that all of this information
17 is presented in our routing analysis as we developed
18 our universe of routes, segments that we analyzed.
19 And we screened some of them out. We can work
20 through some of the specifics, if you want. But
21 Section 4 outlines routing segments that were
22 eliminated based on input from these particular
23 meetings.

24 Q. And were any -- were any of the meetings --

1 I believe that you had specific stakeholders or
2 abutters, so most of the meetings were with City
3 officials; is that correct? Or with the Island End
4 Association?

5 A. [O'MALLEY] Correct. I'd like to add, in
6 the meetings with Chelsea, Everett, they were sort
7 of, you know, they were -- government officials and
8 even the Island End group, they're all sort of
9 concerned about traffic impacts, how will it
10 potentially impact egress and access to their
11 businesses. A lot of these businesses are
12 24-hour-a-day businesses.

13 And our discussion, our presentation of
14 how we go about it with traffic mitigation plans,
15 maintaining access to properties, and, you know, how
16 we'll go through a review process with the City on
17 each of those -- on each of those items I believe
18 gave them some level of comfort. I can't say it
19 would be 100 percent. But I think they have a
20 better understanding of the project, as opposed to,
21 oh, someone is going to come down and tear up my
22 street and I'll never get back into my business
23 again.

24 Q. I guess I just wanted to go back: So in

1 terms of the businesses that you're talking about or
2 the people that you're talking about that you had
3 these conversations with --

4 A. [O'MALLEY] Yeah.

5 Q. -- are you just talking about the Island
6 End Association, or are you talking about other
7 businesses along the routes, or are you talking
8 about --

9 A. [O'MALLEY] Island End and City officials.

10 Q. And if we look at the Island End list of
11 people -- I can't remember exactly what IR that is.

12 A. [O'MALLEY] Is it G-8?

13 Q. The original?

14 A. [O'MALLEY] No, it's not G-8.

15 Island End is RS-8.

16 Q. Thank you. In looking at that list under
17 RS-8 of the Island End attendees, do you have an
18 idea of which ones of those are located -- are
19 direct abutters to the project that are located
20 either on Williams or Beacham?

21 A. [O'MALLEY] I believe Distrigas is. I'd
22 have to look at exactly where they're located. But
23 I believe Distrigas is one of the ones that is.
24 Exelon may be. But I would have to go back and look

1 at where their address is versus where the preferred
2 route is.

3 Q. I guess I would like to make a record
4 request for the -- I'm looking at EFSB-RS-8(1), the
5 addresses or locations of the members that attended
6 the meeting. If it's Northeast Utilities or NSTAR
7 or the fire department, that doesn't need to be
8 noted.

9 A. [O'MALLEY] Just the more private
10 businesses?

11 Q. Yes. Thank you.

12 MS. SEDOR: This will be RR-EFSB-20.
13 (Record Request RR-EFSB-20.)

14 Q. I believe in one of the information
15 requests -- or there's some discussion about the
16 company has a hotline for this project.

17 A. [O'MALLEY] The hotline will be
18 established, yes.

19 Q. I thought it was established already.

20 A. [O'MALLEY] It is?

21 Q. I'll find it later. In terms of location,
22 I see that the City of Everett under EFSB-G-8
23 Revised talked about the Wynn project and that the
24 company should meet with the Wynn Corporation, and

1 that you did. And there's discussion now about the
2 use of Robin and Dexter Street as will be turned
3 into one-way streets. How does that affect the
4 plans for the project, or would it have affected the
5 scoring?

6 A. [BERGERON] Could you just repeat the first
7 part of the question, please?

8 Q. I think for the Wynn development -- and
9 they're proposing that Robin and Dexter Street,
10 which are leading out of the Mystic Station, that
11 now will be one-way, where there are now two-way
12 roads. Does the company have any opinion on how
13 that's going to affect plans for the company's
14 project?

15 A. [BERGERON] It shouldn't affect it. Our
16 involvement on those two streets is just going to be
17 temporary during construction, and I think that the
18 company has continued to discuss Wynn Casino's
19 construction schedule, to understand how it's going
20 to align, if it is going to align or overlap with
21 our schedule. So at this point in time we don't
22 anticipate the conversion of those two streets to a
23 one-way to affect this project. Again, if they
24 overlap during the course of getting our grants of

1 locations and as we engineer the specific traffic
2 control plans for those particular streets, that may
3 cause the approach that we take to change, as far as
4 how we're going to mitigate traffic on those streets
5 during construction, which is something still to be
6 completed for this project.

7 Q. Along those lines, and then we'll talk some
8 more about traffic mitigation -- but can you tell me
9 how the costs of traffic mitigation get scored or
10 are incorporated into your scoring sheet, which
11 would be Page -- I'm looking at Page 3-45 of the
12 petition. I also think it was updated in an IR.

13 A. [BERGERON] It was. I can answer that.
14 The costs associated with traffic mitigation aren't
15 something that is scored in the routing selection.
16 What's scored is the potential for the construction
17 project to cause traffic congestion in the area.

18 The analysis that's done for that is to
19 understand is one street better than the other from
20 a planning perspective. A traffic engineer -- I'm
21 sorry, a traffic planner takes a look at that and
22 identifies the potential for traffic congestion
23 during the construction of the project when we're
24 selecting streets, or at least we're analyzing

1 streets and trying to compare them for would one
2 have a more negative impact from a traffic
3 perspective. We don't actually know what the exact
4 costs are at this point in time because we are in
5 the process of collecting detailed traffic data
6 counts along the preferred route. And so those
7 would be used to design the actual site-specific
8 control measures.

9 Q. So if you could look at also Page 4-30.
10 That describes the definition of potential for
11 traffic congestion. Those are listed as existing
12 traffic volumes, presence of major commuting routes,
13 roadway widths, number of travel lanes, existence
14 and utilization of parking, and the number of MBTA
15 bus routes and frequency of service.

16 What about if there's going to be future
17 projects along the roadway or businesses that are
18 located along the roadway that you may need
19 different types of mitigation that are laid out or
20 thought about in terms of just the width of a road
21 or traffic volumes? How would that get factored
22 into a site-selection analysis?

23 A. [BERGERON] Sure. As part of gathering
24 information to identify the potential for traffic

1 congestion, our traffic planners try to visit the
2 local offices, the planning department or whoever is
3 responsible for maintaining documents. We also
4 typically go to any recent MEPA-related filings for
5 large projects in the project area.

6 So we try to canvass what we can on line
7 and in City departments, and also in information
8 available from the Mass. DOT, to identify what we
9 can get for existing traffic volumes that's out
10 there that's published, and also, if there are any
11 big projects coming up, such as the Wynn Casino,
12 those are also considered when we assign a rank and
13 a scoring to those.

14 Q. And so in terms of like the Wynn Casino or,
15 I think, the new, perhaps, reconstruction of Beacham
16 Road, where, again, like under potential for traffic
17 congestion -- I'm looking specifically at Table
18 4-2 -- and I guess maybe we need to go back to how
19 these numerical values were developed. So I'm
20 wondering if you could help me with that.

21 A. [BERGERON] I can. At the time we did this
22 routing evaluation, our construction was not going
23 to overlap with Wynn Casino, so therefore our
24 construction would have been either completed or --

1 it would have been completed prior to the start of
2 their project. So it was not a factor that was
3 worked into this routing evaluation.

4 Q. When -- has the Wynn Casino's moved up or
5 have you moved back?

6 A. [O'MALLEY] I can address that. We met
7 with Wynn Casino I think back in October originally,
8 and we've shared with them our routing documents for
9 that area, which would include Broadway, Dexter, and
10 Robin. We had that meeting. I have been actively
11 pursuing Wynn Development for a followup meeting.
12 I've already put a -- I've had an email
13 correspondence with one of their representatives,
14 trying to get a meeting with them next week to
15 follow up based on what they believe their schedule
16 is and based upon what their construction scope is
17 going to be.

18 My understanding is that they will be
19 reworking Broadway, which is the Boston section
20 before it goes into, oh, Alfred, which is in Boston,
21 to Broadway, when it comes into Everett, and they're
22 also going to be reconstructing the Robin and Dexter
23 Streets.

24 And back when we had our initial

1 conversations, we were not positive of when we would
2 be proceeding with our construction based on the
3 proceedings we'd have to go through in front of the
4 DPU. But there was a general consensus that it
5 would be a good thing, and actually Everett even
6 prompted us -- the City officials at Everett
7 prompted us to talk to Wynn Development about this,
8 about trying to do both constructions at the same
9 time, which I'm all for because I don't want to dig
10 up that street twice for, you know, whoever is in
11 that area.

12 So we're trying to continue to
13 coordinate with them to understand what they're
14 doing, and when we finalize our plans, then we can
15 see how they match up. And if we can do work
16 concurrently, it would be a win-win, w-i-n.

17 Q. So in looking at G-8, when you met with the
18 City of Everett in October of 2014, they discussed
19 the Wynn Casino Group with you. And then you all
20 met with Wynn --

21 Had you communicated with Wynn in the
22 year -- and you didn't meet with them for another
23 year. Had you been discussing --

24 A. [O'MALLEY] We met with them in -- what was

1 it? -- October of '14?

2 Q. No, October of '15.

3 A. [O'MALLEY] October of '15?

4 I think the first time that I heard
5 about the Wynn Development -- well, yeah, it says
6 October of '14. I know we had some difficulty
7 coordinating schedules with them. The record
8 obviously shows that it took approximately a year.
9 And again, I'm still having -- we're still trying to
10 coordinate a second meeting, and it's been several
11 months already.

12 Q. So I guess I go back to Mr. Bergeron: Is
13 there anything in what you understand about the Wynn
14 project now -- or I guess you can't go back in the
15 past. But if someone had contacted them earlier,
16 would there be anything in the site selection or the
17 evaluation matrix that could have been reflected or
18 do you think that there is anything that should have
19 been reflected based on a major construction project
20 perhaps overlapping?

21 A. [BERGERON] No, I don't believe so, because
22 given the proximity of their facility to the Mystic
23 substation -- I mean, their construction is at the
24 termination point of any of the routes that we've

1 chosen. So it would not have factored into any of
2 the routes that we selected to get from the East
3 Eagle substation over to the Mystic Station.

4 Q. So Robin and Dexter Street? Are they going
5 to do any construction on Robin and Dexter, or are
6 they just going to turn it into a one-way street?

7 A. [O'MALLEY] I can add that: The indication
8 from them -- and just to add to Marc's indication
9 about the construction of the Wynn development:
10 That's essentially going to be localized to their
11 site. So, you know, although there will be vehicle
12 traffic in and out, they'll have access points off
13 of Broadway there.

14 But in regards to Dexter and Robin, it
15 was probably a couple of months ago, a month ago,
16 that the first indication was that they would be
17 doing -- they knew they would be doing something
18 there, and as part of, I don't know if it's
19 community development or whatever they call it, they
20 would be reconstructing a full-depth reconstruction,
21 I believe, of Robin and Dexter. And that must have
22 been an arrangement that they have with Everett
23 officials, I'm guessing.

24 You know, you mentioned would that have

1 an impact on route selection. I don't believe it
2 would, because we did have a variation to that Robin
3 and Dexter, which was going up Bow. But for various
4 reasons, one of them being a large, I believe, MWRA
5 either water or sewer main, the Bow variation was
6 even excluded and the preferred route still remained
7 Dexter and Robin.

8 Q. So I guess I wanted to go back to, I
9 believe, on RS-9(1), sort of a discussion about how
10 you get to the traffic scoring.

11 A. [BERGERON] Yes.

12 Q. It's a little confusing. So I'm trying to
13 figure out how this matrices in RS-9(1) is then
14 turned into the potential-for-traffic-congestion
15 number that you see on Table 4-R revised, or 4-R
16 regular.

17 A. [BERGERON] I can provide an overview. It
18 is somewhat complicated. However, it's a matrices
19 that was developed, an analysis that was developed,
20 in an effort to add a little bit more science, if
21 you will, and quantitative rather than a qualitative
22 assessment as to potential for traffic congestion.

23 So the matrices that was presented in
24 RS-9-1, or 9(1), in response to the information

1 request, shows all the backup work that we did. So
2 there are actually -- there's a calculation to get
3 to the number that is then presented in our routing
4 score on Table 4-2R.

5 So to come back to the matrices to
6 identify a quantitative score to the potential for
7 traffic congestion: As you can see -- do you have
8 that table in front of you? Do you see across the
9 top? What we have are, we've got the East
10 Eagle-to-Mystic routes, and you'll see they're all
11 identified, as they are in the potential, Route A, A
12 1, Hybrid A/B, Route B, Route C, and Route D. And
13 then you'll see in the next set of columns you have
14 the Eagle to Chelsea routes, 2 and 3. And then we
15 identify road segments. Because as you go from one
16 road segment to the next, the characteristics can
17 change. Width can change. Available parking can
18 change. Inherent volume can change, because it's a
19 main thoroughfare versus a side street. So in an
20 effort to actually characterize each individual
21 segment, that's what this table is doing. As you
22 move across is the categories of daily traffic
23 volume where available from public information was
24 inserted. We inserted the number of travel lanes,

1 the direction of those lines, if there's available
2 parking on either side, parking that is used on a
3 daily basis, what the bus routes are along that, and
4 then any other particular factors or variables that
5 need to get considered into that score.

6 And then you'll see our traffic planners
7 actually give each segment a 1, 2, or 3 score, 1
8 being has the less potential for congestion, up to a
9 3, being the highest potential. You'll see the
10 actual segment length of that particular street
11 segment. And then the score times length is
12 actually the score and the overall length of the
13 route itself.

14 Then what you have to do is, as you look
15 down, you have to piece together each individual
16 road segment, because there are overlapping road
17 segments for each route. So if you see the columns,
18 you'll see where -- for instance, if you look down
19 and follow through Route A as an example, you see
20 where it first appears, the road section of Beacham
21 Street.

22 Q. Uh-huh.

23 A. [BERGERON] As you move down the column for
24 A, you'll see that those are all the road segments

1 that comprise our Route A. And then they're all
2 assigned a score based upon the distance. We get a
3 scale of 1-to-3 score.

4 Q. That's what I don't understand, where the
5 1-to-3 score comes from.

6 A. [BERGERON] What we do is, we hope analyze
7 each segment on its own merit. Say one segment is
8 600 feet, and the route is 3.2 miles. So if that
9 particular road segment has a score of 3, then what
10 we would do is, we add up all of the road segments
11 along that route that have a 3. It a distance
12 variable. And then --

13 Q. I understand that part. I don't understand
14 how you got to 1, 2, or 3.

15 A. [BERGERON] How each segment was assigned a
16 1, 2, or 3?

17 Q. Yeah. I know how you get to the scores.
18 I'm not sure how you get to the....

19 A. [BERGERON] That's done by our traffic
20 engineers -- by our traffic planners, based upon
21 their professional opinion and experience, and based
22 upon the fact that if a road has a high volume of
23 traffic versus others that do not, as best we can
24 tell, they actually -- our traffic planners will

1 assign a score of 1, 2, or 3 -- and again, factoring
2 in that typically roads that are wider, that are
3 two-way, that have multi-travel lanes, don't have
4 parking, we could keep open. So therefore the
5 potential for traffic congestion on those roadways
6 is less than a street where you have one travel
7 lane, you have potentially parking, and you may not
8 have the availability of room when you're installing
9 a duct bank to keep that particular roadway open or
10 you have to reroute traffic or come up with some
11 more mitigation on that street.

12 Q. So I'm looking at the Williams -- the
13 Beacham Street, Williams Street, to Everett City
14 line; and I'm looking at that particular portion.
15 And that's where most of the businesses -- that's
16 the portion of Beacham/Williams Street roadway;
17 correct?

18 A. [BERGERON] That's correct.

19 Q. And that only got a 2. So I --

20 A. [BERGERON] That's correct.

21 Q. And that's based on the fact that it had
22 two-way traffic or --

23 A. [BERGERON] That particular roadway section
24 is fairly wide, has two lanes of traffic, doesn't

1 have parking on either side. Generally -- it
2 doesn't have any bus routes. So generally it has a
3 high potential to be able to keep travel along that
4 roadway open while you're constructing the project.
5 It got a 2 because the heavy truck use and traffic
6 on that street was factored into that section of
7 street.

8 So it is wide. We feel that we are
9 going to be able to keep that street open. However,
10 we do recognize there is a lot of truck traffic on
11 that street, so rather than assign it a 1, it was
12 assigned a 2.

13 Q. In terms of the daily traffic-volume
14 numbers that are listed down here, many of the --
15 many of the segments don't have that yet. I don't
16 mean were they penalized by not having particular
17 numbers. But how would one that didn't have
18 numbers --

19 A. [BERGERON] They weren't -- the numbers --
20 again, when we do our analysis here, there are so
21 many street segments, it's not feasible to go out
22 and collect traffic data on every single one of
23 these streets. It's a fairly intense effort.

24 And quite frankly, we don't feel it's

1 necessary, because this is a planning-grade
2 analysis. So what we do is, we look for published
3 information, as I said before. We also do a field
4 reconnaissance. Our traffic planners go out into
5 the field. They spend several days out in the field
6 during peak times along these various segments of
7 roadway. And you'll see some of their comments are
8 based upon those observations in the field.

9 They can't make counts, but again, they
10 can identify what roadways are typically used during
11 peak times, off times. They can make comments such
12 as heavy truck traffic. So these numbers are
13 ground-truthed by our traffic planners. They're not
14 penalized for not having traffic counts, and neither
15 are --

16 That information is the baseline, and
17 then we go out in the field to make that
18 determination.

19 The traffic counts that we're doing now,
20 those are -- again, we think we've selected routes
21 where we could engineer solutions on traffic
22 control. So we're collecting specific traffic
23 counts to understand the exact amount of traffic
24 flow and the type of traffic flow on those, so that

1 we can engineer the appropriate mitigation measures
2 to keep those roads open and traffic flowing during
3 the course of construction.

4 Q. And given that -- this is just for
5 potential traffic construction congestion, but it
6 could be different on some of the other criteria
7 that are listed on Table 4-2. I mean, they're not a
8 hard-and-fast -- some maybe could have been a 2 or a
9 1 or a 3. As you said, it's a planning-grade
10 estimate.

11 How much could the numbers -- when you
12 look at Table 4-2 and you look at all the different
13 criteria, the total scores at the end, some of them
14 are fairly close. It seems like they could have
15 gone either way. Did you take that into
16 consideration at the end, when you were looking at
17 your scoring?

18 A. [BERGERON] We did, actually. As outlined
19 on Page 4-29 of our petition, we used a ratio
20 scoring technique that rates the route with the
21 highest potential impact as a 1. And so what we've
22 done is, we've taken the qualitative analysis out of
23 all of the other factors, so that it's a straight
24 quantitative analysis.

1 For instance, if you look at residential
2 land uses on Table 4-2R that was submitted for
3 analysis for the East Eagle-Mystic candidate route,
4 there are various numbers of housing units along
5 each route, with 532 being the highest.

6 So rather than looking at it and saying,
7 "Well, I think that 532 is a 3, but where do we make
8 a 2 versus a 1," what we do is, we put it into a
9 ratio scoring that actually does the math for us and
10 identifies the actual value. And that's why you'll
11 see values of the ratio scores of .17, you know,
12 versus a 1, 2, or 3.

13 Q. So if you're looking at all the criteria
14 that are listed on Table 4-2R, is the only one that
15 isn't necessarily based on hard numbers, because
16 housing units are a number, I assume sensitive
17 receptors are a particular number, historic and
18 archeological resources, public shade trees -- I'm
19 not sure about potential to encounter subsurface
20 contamination, and then the utility intensity and
21 road width -- is just the potential for traffic
22 congestion the only one that's more not strictly
23 numerically based?

24 A. [BERGERON] I would also add utility

1 density into that. Again, the utility density
2 score or analysis is based upon collecting mapping
3 from all the underground providers that are within
4 the various street segments. We put those together
5 as we receive them on a map and provide them to the
6 project team's underground engineer, who's
7 responsible for designing a project of this type.
8 And we ask them to take a look at all of the mapping
9 that we've compiled for the various street segments
10 and to assign a 1, 2, or 3 score to various street
11 segments based upon their expertise in how
12 difficult, if there's enough space to construct.

13 So to answer your question: I would say
14 that two categories that involve some sort of a
15 qualitative analysis would be the potential to --
16 for traffic congestion and utility density. All of
17 the others are straight numerical calculations.

18 Q. And also the potential to encounter
19 subsurface contamination? Was that just based on
20 the number of MCP?

21 A. [BERGERON] That's correct. It's based on
22 the number of MCP sites along each route.

23 Q. And so is there anything in the chart that
24 reflects like upcoming construction or any other

1 activities that could be occurring along a route
2 that may affect the construction in terms of roadway
3 repair -- new roads or major developments or
4 something like that?

5 A. [BERGERON] Not this particular case,
6 because we did not identify any potential major
7 construction that we felt was going to be in direct
8 conflict with this project that should be factored
9 into that particular routing selection.

10 I will say that certainly we are in
11 continued discussions with Wynn Casino, because if
12 their schedule changes or our schedule changes, as
13 we go and get our grants of locations from the two
14 Cities, if they have projects that come up or there
15 are projects that are identified, we will certainly
16 factor the potential impacts from the overlap from
17 those projects with this project into our traffic
18 control plans that are going to be developed as part
19 of those applications, to ensure that all of those
20 things are considered as the contractor gets into
21 place and we go to construction.

22 Q. In terms of other information that you've
23 received along the way from when you started having
24 meetings till when you submitted the petition:

1 Except for, I think, the addition of the Bow Street
2 variation, was there any other -- any other
3 suggestions or ideas?

4 A. [BERGERON] Are you asking about from City
5 officials?

6 Q. From anybody.

7 A. [O'MALLEY] Well, I know from City
8 officials, like I stated earlier, coordination with
9 business organizations, the Island End, you know,
10 Chelsea Community -- I forget the exact name of the
11 organization -- Chelsea Community Meeting, we've
12 had --

13 We've met with MWRA. We need to get
14 some permits from MWRA. We've met with folks over
15 in East Boston, the Eagle Hill Association, Everett
16 Chamber of Commerce.

17 So we continually outreach to whoever
18 will listen to us. And if, for example, City
19 officials say, "Hey, you need to go talk to these
20 folks," we'll go talk to those folks.

21 A. [BERGERON] I would also point you to
22 Section 4.3.3 of our application, where we detail
23 out how initial street segments were screened. I
24 think it's important to remember that, as presented

1 on Section -- Figure 4-2, there are quite a few
2 street segments that we looked at in this area. I
3 mean, our job is to look at -- we know that there
4 has to be a substation in one location, and the
5 line's going to go from East Eagle over to Mystic.
6 How do we get there in a fairly direct manner?

7 And there are a certain amount of street
8 options available. So we tried to find a reasonable
9 number of streets that we can investigate to provide
10 options to get there. Again, Section 4.3 identifies
11 how we screened out all those various options and
12 identifies those that were eliminated prior to
13 getting incorporated into a candidate route and
14 scored in the petition.

15 Q. And earlier -- I do have questions about
16 the physical routes and different route segments and
17 some of the scoring that were talked about that were
18 especially close. But I just wanted to ask one more
19 question about -- we talked about the hotline, and
20 I'm looking at EFSB-G-14, and it talked about -- it
21 makes it seem like there hasn't been a hotline in
22 place.

23 MS. KEUTHEN: I believe the company's
24 response to G-7 contains the hotline information.

1 MS. SHAPIRO: Oh, okay.

2 Q. So I'm wondering has the company been
3 receiving a lot of calls from the hotline and have
4 any been related to route selection or site
5 selection?

6 A. [O'MALLEY] I believe, based on some
7 information -- and I will try to get additional
8 information if any is forthcoming -- that our
9 community representative did receive one hotline
10 call, to date, that I'm aware of.

11 Q. Do you know how people find out about the
12 hotline or when it was activated and if it's been
13 widely disseminated?

14 A. [O'MALLEY] I don't know when it was
15 activated. I would believe it's on our website,
16 project website.

17 Q. And how people would find out? They'd have
18 to know about the project website, and then they'd
19 have the hotline --

20 A. [O'MALLEY] When we've had meetings in the
21 past, it been publicized that we will be activating
22 a website specific to the project; and in the
23 interim, we always provide the community relations
24 contact information, typically --

1 When we have these slide presentations
2 with community groups or whomever, we typically have
3 a slide for the contact information, whoever the
4 individual is, typically the phone number, and also
5 his email number -- email address, sorry.

6 Q. And you're saying so I believe one person
7 has called in for the hotline?

8 A. [O'MALLEY] That's my understanding. I
9 will check to make sure that -- if it was one or
10 zero or fifteen. I can check that information.

11 Q. Thank you.

12 In terms of the scoring, when you're
13 looking at RS -- the revised Table 4-2, which is
14 under EFSB-RS-9, I believe --

15 A. [BERGERON] Yes.

16 Q. -- 9(2), if you're looking at the hybrid
17 A-B route and Route A, are those scores fairly
18 similar?

19 A. [BERGERON] As presented in the table,
20 Hybrid Route A-B has a higher score, which indicates
21 that it's a less-desirable route. Its ratio score
22 was a 7.93, versus a 7.23. And that's a base score.

23 Once you apply the weights, which the
24 weights identify those particular categories that we

1 felt we needed to emphasize, such as residential
2 units, the presence of commercial/industrial
3 buildings, the potential for traffic congestion, all
4 got the highest weight possible.

5 Once you apply the weight to that score,
6 the difference between the two routes is a little
7 bit greater, in that the weighted score of Route A,
8 which is the preferred route, is a 12.42, which is
9 13.42 for Hybrid Route A/B.

10 Q. And again, the proposed and alternative
11 routes, if you're looking at Table 4-2R, the
12 proposed is Route A. And you did identify a
13 variation, A-1, in your petition as a noticed
14 alternative?

15 A. [BERGERON] That's correct, noticed
16 variation.

17 Q. And the alternative route is --

18 A. [BERGERON] B.

19 Q. Excuse me?

20 A. [BERGERON] It's Route B.

21 Q. Could you explain why Route B is the
22 alternative versus the Hybrid A/B route -- where
23 Hybrid A/B route has a lower score for both ratio
24 and weighted?

1 A. [BERGERON] I just need a minute to make
2 sure I'm looking at the right section.

3 As presented in the petition on Page
4 4-39 -- and I believe we also provided a little bit
5 more detail in a couple of the information requests,
6 and I can look at those in a second. We selected
7 Route B as our noticed alternative because it is
8 geographically distinct. And although it did have
9 the second-lowest environmental rank, we felt that
10 it took away the overlap. It gave -- in these
11 proceedings, it would give the greatest amount of
12 noticed alternatives to be reviewed in these
13 proceedings.

14 Q. And I believe we had -- there was an
15 information request that talks about how much
16 overlap is necessary to be geographic diversity.

17 A. [BERGERON] Do you know which request that
18 is? I believe it's RS-12.

19 Q. Great. Thank you.

20 A. [BERGERON] As presented there, to answer
21 your question: It's our understanding that the
22 noticed alternative route doesn't have to be 100
23 percent geographically diverse. But as stated in
24 this response, they have some measure of geographic

1 diversity. And so we selected Route B as the
2 noticed alternative because it provides an
3 alternative to the .6-mile overlap along Beacham,
4 Robin, Dexter, and Alfred Streets that exist between
5 Routes C and A, and that Route B allowed for the
6 consideration of such an alternative to the project
7 along the stretch.

8 Q. And if, hypothetically, Bow Street was able
9 to be used, would that have taken away some of the
10 overlap?

11 A. [BERGERON] I would need a minute to go off
12 the record and review the maps, please. There's
13 quite a few candidate routes here.

14 (Discussion off the record.)

15 MS. SEDOR: Let's go back on the record.

16 A. [BERGERON] Thank you. Could you just
17 restate your question?

18 Q. Actually, I do think my question was
19 incorrect. But my question was: If you had added
20 the Bow Street, would you have eliminated the
21 overlap? Because I believe you said something about
22 Beacham. But is it correct that you're talking
23 about the overlap on Marginal and Williams?

24 A. [BERGERON] Are you talking about the

1 overlap that we've identified in that response
2 between Route A and Route C?

3 Q. I'm looking at Figure 4-3.

4 A. [BERGERON] Yes.

5 Q. And you stated that Route A and Hybrid A/B
6 are too closely overlapped.

7 A. [BERGERON] I'm sorry. I was speaking --
8 in that response we were comparing Route A and Route
9 C. I apologize. On Figure 4-3, Route C is the
10 green-colored line, and Route A is the solid-red
11 line.

12 Q. Correct.

13 A. [BERGERON] And those overlap along Beacham
14 and Robin, Dexter, and Alfred.

15 Q. But my --

16 A. [BERGERON] I apologize. I was not
17 answering the question that you asked in regards to
18 Hybrid Route A/B.

19 Q. But I guess my question goes to -- we'll
20 look at two different ones. We'll look at Figure
21 4-3 and Figure 4-7, because 4-3 shows what was the
22 ultimate -- ultimately the preferred and alternative
23 route.

24 A. [BERGERON] Yes.

1 Q. Correct? And if you look at 4-3, I'm asked
2 why Route A and Hybrid A/B -- because Hybrid A/B was
3 the second-best-scored route, except for the
4 variation with Bow Street -- why Hybrid A/B was not
5 selected as the noticed alternative route?

6 A. [BERGERON] So the overlap wouldn't be on
7 that end of the project. The overlap of the Hybrid
8 A/B would be on the eastern end of the project,
9 where it overlaps Willow, Marginal, and Williams
10 Street. And again, that's to -- to avoid that
11 overlap, we put forth Route C, which is the green
12 line, which is located on different streets to the
13 north.

14 Q. Do you know what percentage -- I mean, if
15 you're looking at Figure 4-3, it's still about 50
16 percent of the route would be different; is that
17 correct? At least?

18 A. [BERGERON] I would say that's a fair
19 estimation.

20 Q. Thank you.

21 MS. SEDOR: We're going to stop for the
22 day. It's almost 5:00 o'clock. And staff will have
23 additional questioning on route selection and
24 hopefully site selection when we reconvene on the

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2nd. Let's go off the record.
(4:58 p.m.)

REPORTER'S CERTIFICATE

I, Alan H. Brock, the officer before whom the foregoing proceedings were taken, do certify that this transcript is a true record of the proceedings on January 7, 2016.

Alan H. Brock, RDR, CRR

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I N D E X

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