

**In The Matter Of:**  
*STATE OF CONNECTICUT*  
*CONNECTICUT SITING COUNCIL*

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*Docket No. 461A*  
*July 25, 2017*

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1 STATE OF CONNECTICUT  
2 CONNECTICUT SITING COUNCIL

3  
4 Docket No. 461A

5 Application from Eversource Energy for a  
6 Certificate of Environmental Compatibility and  
7 Public Need for the Construction, Maintenance and  
8 Operation of a 115-Kilovolt Bulk Substation  
9 Located at 290 Railroad Avenue, Greenwich,  
10 Connecticut, and Two 115-Kilovolt Transmission  
11 Circuits Extending Approximately 2.3 Miles between  
12 the Proposed Substation and the Existing Cos Cob  
13 Substation, Greenwich, Connecticut, and Related  
14 Substation Improvements

15  
16 Siting Council Meeting held at the  
17 Connecticut Siting Council, 10 Franklin Square,  
18 New Britain, Connecticut, Tuesday, July 25, 2017,  
19 beginning at 11:00 a.m.

20  
21 H e l d B e f o r e :

22 ROBIN STEIN, Chairman  
23  
24  
25

1     A p p e a r a n c e s :

2             C o u n c i l   M e m b e r s :

3                     JAMES J. MURPHY, JR.

4                     Vice Chairman

5

6                     ROBERT HANNON,

7                     DEEP Designee

8

9                     LARRY P. LEVESQUE,

10                    PURA Designee

11

12                    MICHAEL HARDER

13                    DR. MICHAEL W. KLEMENS

14                    ROBERT SILVESTRI

15                    DANIEL LYNCH

16

17             C o u n c i l   S t a f f :

18                    MELANIE BACHMAN, ESQ.,

19                    Executive Director and

20                    Staff Attorney

21

22                    ROBERT MERCIER,

23                    Siting Analyst

24

25

1    A p p e a r a n c e s:(cont'd)

2    For EVERSOURCE ENERGY:

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4            707 Summer Street

5            No. 300

6            Stamford, Connecticut 06901

7                    BY: ANTHONY FITZGERALD, ESQ.

8

9    For THE TOWN OF GREENWICH:

10            COHEN & WOLF, P.C.

11            1115 Broad Street

12            Bridgeport, Connecticut 06604

13                    BY: DAVID A. BALL, ESQ.

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1           THE CHAIRMAN: Good morning, ladies  
2 and gentlemen. I'd like to call to order the  
3 meeting of the Connecticut Siting Council today,  
4 Tuesday July 25, 2017, at approximately 11 a.m.  
5 My name is Robin Stein. I'm Chairman of the  
6 Connecticut Siting Council.

7           This evidentiary session is a  
8 continuation of a public hearing held on July 13,  
9 2017, at the Greenwich Library, Cole Auditorium in  
10 Greenwich. It's held pursuant to provisions of  
11 Title 16 of the Connecticut General Statutes and  
12 of the Uniform Administrative Procedure Act upon  
13 an application from Eversource Energy for a  
14 certificate of environmental compatibility and  
15 public need for the construction and maintenance  
16 and operation of a 115-kilovolt bulk substation  
17 located at 290 Railroad Avenue in Greenwich,  
18 Connecticut; and two 115-kV transmission circuits  
19 extending approximately 2.3 miles between the  
20 proposed substation and the existing Cos Cob  
21 substation in Greenwich, Connecticut, and related  
22 substation improvements.

23           On May 25, 2017, the Council,  
24 pursuant to a request filed by Eversource Energy  
25 and the provisions of Connecticut General Statutes

1 4-181A, subsection B, reopened the May 12, 2016,  
2 final decision rendered in this matter.

3 A verbatim transcript will be made  
4 of this hearing and deposited with the town  
5 clerk's office in the Greenwich Town Hall for the  
6 convenience of the public. We will proceed in  
7 accordance with the prepared agenda, copies of  
8 which are available somewhere -- near the door.

9 I wish to call your attention to  
10 those items shown on the hearing program marked as  
11 Roman numeral 1D, items 1 through 84. Does the  
12 applicant or any party or intervener have any  
13 objection to the items that the Council has  
14 administratively noticed?

15 (No response.)

16 THE CHAIRMAN: Hearing and seeing  
17 none, accordingly the Council hereby  
18 administratively notices these existing documents,  
19 statements and comments.

20 We will begin with the appearance  
21 of the applicant Eversource Energy to swear in  
22 their witnesses and verify their exhibits marked  
23 as Roman numeral two, items B, one through nine on  
24 the hearing program.

25 Begin by swearing in. Attorney

1 Fitzgerald, have your --

2 MR. FITZGERALD: Do you want me to  
3 administer the oath?

4 THE CHAIRMAN: No, no. I'm just  
5 trying to get the rest of them to stand up. You  
6 don't have to stand up.

7

8 M I C H A E L L I B E R T I N E,  
9 F A R A H S. O M O K A R O,  
10 J A S O N C A B R A L,  
11 C H R I S T O P H E R P. S O D E R M A N,  
12 R O N A L D J. A R A U J O,  
13 J O H N C. C A S E,  
14 K E N N E T H B. B O W E S,

15 called as witnesses, being first duly sworn  
16 by the Executive Director, were examined and  
17 testified on their oaths as follows:

18 THE CHAIRMAN: And now if, Attorney  
19 Fitzgerald, you'll have your witnesses verify the  
20 exhibits as appropriate?

21 MR. FITZGERALD: Yes, Mr. Chairman.  
22 Looking first at item number one  
23 under -- is this on? Okay.

24 Looking first to item number one,  
25 the motion to reopen of which was accompanied

1 by -- and the exhibit B, which was a description  
2 of the then ultimate modified project which is now  
3 the project under consideration.

4 I'd like to ask Mr. Bowes if he has  
5 any corrections to that document?

6 THE WITNESS (Bowes): No, I do not.

7 MR. FITZGERALD: Now Exhibit D is  
8 like page -- take a look at D, page D4 of Exhibit  
9 D, Mr. Bowes.

10 THE WITNESS (Bowes): Yes. It's  
11 the -- if you're in the first, the first book of  
12 the petition it's the next to the last page. It's  
13 page D4 of Exhibit D. There's a cross-section of  
14 a proposed pedestrian bridge across Indian Harbor  
15 to which the two 115-kV electric cables will be  
16 attached.

17 The design of that bridge has been  
18 revised by reducing the width to eight feet by  
19 changing the walkway from concrete to wood,  
20 suspending the cables underneath the bridge  
21 instead of installing them within the concrete  
22 walkway. Accordingly, we will prepare a  
23 substitute or supplemental page to this exhibit  
24 which would show these changes.

25 MR. FITZGERALD: And I have



1 handouts that show the cross-section, the revised  
2 cross-section and the revision of the rest of the  
3 information that's on that page. It's just not in  
4 the format of a substitute page, but they're here  
5 and available for anyone who's interested and  
6 we'll follow up by the filing of the substitute  
7 page.

8 Is that acceptable, Ms. Bachman?

9 MS. BACHMAN: That's acceptable,  
10 Attorney Fitzgerald. Thank you.

11 THE CHAIRMAN: And actually, why  
12 don't we -- does anybody on the Council want that  
13 information now that you bring it up?

14 DR. KLEMENS: Yeah.

15 MR. FITZGERALD: And then just give  
16 me one, and pass them out if you would, Laura, and  
17 leave the balance of them over there so anyone can  
18 pick them up.

19 Okay. Now that was one thing.  
20 Other than that, do you have any corrections or  
21 changes to the two-volume petition that's been  
22 filed including its exhibits?

23 THE WITNESS (Bowes): There are no  
24 other changes to the two volumes.

25 MR. FITZGERALD: Okay. Now let's

1 turn to Eversource's interrogatory responses, and  
2 in particular to the response to the Siting  
3 Council question 61. And that would be item B2 on  
4 the list of exhibits with notification.

5 Do you have any correction or  
6 change to that response?

7 THE WITNESS (Bowes): Yes, there is  
8 a change to the response to Siting Council  
9 question number 61.

10 MR. FITZGERALD: Would you please  
11 tell us what that is?

12 THE WITNESS (Bowes): The change is  
13 in the third bullet -- third paragraph titled,  
14 I-95 bridge document. The cost savings difference  
15 figure of 2.8 million should be changed to  
16 1.5 million. The jack and bore alternative is now  
17 only 1.5 million more than the bridge attachment.

18 MR. FITZGERALD: And is Mr. Case  
19 prepared to explain the reason for that revision  
20 once we get started, if anybody is interested?

21 THE WITNESS (Bowes): Yes, he is.

22 MR. FITZGERALD: And we will also  
23 file a supplement to that interrogatory in the  
24 usual course sort of without the notes to correct  
25 that 2.8 million-dollar figure to 1.5.

1                   Now other than those two  
2 corrections, Mr. Bowes, are the exhibits, the  
3 documents that have been marked as Exhibits 1  
4 through 9 in the hearing program true and correct  
5 to the best of your knowledge?

6                   THE WITNESS (Bowes): Yes, they  
7 are.

8                   MR. FITZGERALD: Mr. Chairman, I  
9 offer the documents that have been marked as  
10 Exhibits 1 through 9 with the corrections that  
11 we've just given you as full exhibits.

12                  THE CHAIRMAN: Thank you. Is there  
13 any objection from any of the parties or  
14 interveners to the admission of the exhibits?

15                  (No response.)

16                  THE CHAIRMAN: Hearing and seeing  
17 none, the exhibits are admitted.

18                  MR. FITZGERALD: Now the panel is  
19 yours.

20                  Mr. Bowes will lead the panel. And  
21 of course, if you have questions for anybody  
22 directly, that's fine, but I'm not sure who's the  
23 best person to answer your question. A good idea  
24 is to start with Mr. Bowes and he'll answer it  
25 directly.

1                   THE CHAIRMAN: We'll leave it to  
2 you to decide who. Sure.

3                   Begin the cross-examination by  
4 Mr. Mercier from staff.

5                   MR. MERCIER: Thank you.

6                   In reading through the prefiled  
7 testimony in the reopened application, in some of  
8 the interrogatory responses from the Council as  
9 well as to the Town I really didn't see any  
10 information regarding any revised code forecasting  
11 for Cos Cob or Prospect Substations. I mean, this  
12 was an element in the original application that  
13 presented that, you know, the transformer capacity  
14 would be exceeded by a date certain, and I didn't  
15 really see any mention of that in the prefile.

16                   So I guess my question is, are the  
17 load projections that presented in the original  
18 application for both substations that's Prospect  
19 and Cos Cob, are they still valid?

20                   THE WITNESS (Bowes): So in the  
21 original Docket 461 we had projected a loan growth  
22 of approximately 1 percent per year. ISO at that  
23 time was projecting, I think, 1.2 percent per year  
24 in their overall New England forecast.

25                   With the revised petition we are no

1 longer presenting any load forecasts as a need for  
2 this project. We are accepting the largest load  
3 in the last five years, which occurred in 2013 and  
4 proposing this as purely a reliability project at  
5 this point to address multiple issues on the  
6 distribution system in Greenwich.

7 MR. MERCIER: Okay. Thank you.

8 And regarding that 13.5 value in  
9 2013, you know, reading the prefiled on page 4, if  
10 we go to that location you basically said it was  
11 used because it's representative of current  
12 conditions. Could you just expand what you meant  
13 by current conditions?

14 THE WITNESS (Bowes): So with the  
15 changes in demand in New England as well as  
16 Connecticut, we are no longer projecting load  
17 growth. In fact, the Siting Council's forecasts  
18 of loads resources, it's in effect right around  
19 zero percent.

20 With energy efficiency, distributed  
21 generation and demand response it's actually a  
22 little bit negative by a fraction of a percent.  
23 And, you know, with those -- without those it's a  
24 little bit positive. So it's really neighboring  
25 or hovering right around zero percent.

1           We now use just overloads that have  
2 occurred on our system as the gauge of when to  
3 propose projects. And if you do recall, this  
4 project was announced in June of 2011 prior to the  
5 peak load of 2013.

6           We have seen loads in the 120s,  
7 one-teens the last couple of years, and the peak  
8 occurred in 2013 at 130. We think that's a basis  
9 to use going forward. Since it's already occurred  
10 there's a potential for it to occur again in the  
11 future.

12           MR. MERCIER: I think part of that  
13 130 value -- I'll just call it -- and I think it  
14 was explained that the underlying usage in this  
15 area of the state was the same, or actually maybe  
16 even increasing about 1.5 percent, that's  
17 Eversource's usage.

18           Is that a correct statement, that's  
19 why the 130.5 was used in the original forecast?  
20 That the underlying usage was the same in  
21 high-heat and humidity days which would most  
22 likely cause this to occur again?

23           THE WITNESS (Bowes): I think  
24 that's generally accurate.

25           We didn't see a change in the

1 number of customers. We didn't see a change, you  
2 know, specific changes in commercial or  
3 industrial activity in the area. We looked at a  
4 series of substations in Southwest Connecticut and  
5 looked at their load, but in general the  
6 underlying customer base and the underlying loads  
7 are generally there.

8           In the previous docket we  
9 identified that there was lots of opportunity in  
10 Greenwich and Stamford for energy efficiency and  
11 distributed generation, and to date that has  
12 been -- I think there's still opportunity for that  
13 to occur. So they haven't been as active in some  
14 of those energy efficiency programs as other towns  
15 have been.

16           MR. MERCIER: Okay. Maybe just to  
17 restate what I was trying to say. So right now  
18 based on -- I don't know if you have any data from  
19 the last year -- the usage was flat or maybe even  
20 declining?

21           THE WITNESS (Bowes): Usage is  
22 generally -- I mean, it does vary with weather and  
23 you've seen that in the demands as well as the  
24 usage. But in general the commercial/industrial  
25 has stayed relatively flat for, as I said, the Cos

1 Cob Substation and the town of Greenwich.

2 MR. MERCIER: Now again, 130.5 and  
3 even the year before I think it was a 128 value at  
4 Cos Cob as a peak load that was based on some  
5 high-heat/humidity days as you presented there in  
6 the previous proceeding.

7 And in an interrogatory I asked  
8 during this proceeding, what happened during the  
9 summer of last year, 2016? Were there extended  
10 periods of high heat and humidity?

11 THE WITNESS (Bowes): So let me  
12 start with 2013 and then work forward. In 2013 we  
13 had, I guess, you'd call it a heat wave,  
14 temperatures above 90 degrees for an extended  
15 period of time. It began on a Sunday and the  
16 loads actually peaked on a Friday afternoon, in  
17 that case at the 130.

18 Around noontime or so ISO  
19 implemented emergency action OP-4 and that brought  
20 the loads in New England as well as Connecticut  
21 and in Greenwich generally in line, and mitigated  
22 any further increases.

23 In 2014, 2015 and 2016 we have not  
24 seen those type of OP-4 actions by ISO New  
25 England. We have still had high average



1 temperatures. For example, in 2016 it may have  
2 actually been the hottest year on record as  
3 average temperature, but we haven't seen the  
4 intensity formed with high heat or heatwave plus  
5 the high humidity. So in general it's been  
6 weather related for the last three years.

7 MR. FITZGERALD: And if I may, I'd  
8 like to ask Ms. Omokaro to supplement that answer.

9 THE WITNESS (Omokaro): Yeah. In  
10 addition to the 130 we did as part of one of the  
11 interrogatory questions by the Siting Council, we  
12 did evaluate using 2013, '14, '15, '16 peak load.  
13 And it also confirmed that there is still a need  
14 specifically regarding the feeders that -- that  
15 overload under those conditions, that those  
16 conditions still existed even with lighter loads.

17 MR. MERCIER: Yes, I understand  
18 that. I saw that answer.

19 THE CHAIRMAN: Excuse me.  
20 Mr. Silvestri has a followup.

21 MR. SILVESTRI: Mr. Bowes, you had  
22 mentioned up to the year 2016. For this year  
23 there were, I think, two heat waves in the area.  
24 One of them July 19th and 20th, and then going  
25 back into June, the 11th, 12th and 13th. How did

1 the system fare during those two events?

2 THE WITNESS (Bowes): So the one  
3 that occurred last week, which was relatively  
4 short in duration, we had a cable fault on the  
5 27-kV feeder that feeds Byron Substation. It  
6 provided an overload for the 2X transformer at  
7 Prospect. Load was shed through the outage and  
8 then we were unable to pick up 477 customers for a  
9 period of time.

10 The load at Cos Cob Substation  
11 during that condition was approximately 112 and a  
12 half MVA. So even at lower levels than we had in  
13 2015 and '16, in 2017 we have experienced an  
14 inability to serve Greenwich customers because of  
15 capacity issues.

16 MR. SILVESTRI: And that was for  
17 the one last week?

18 THE WITNESS (Bowes): Correct, last  
19 Friday.

20 MR. SILVESTRI: And any issues back  
21 into that June 3, that heatwave?

22 THE WITNESS (Bowes): None that I'm  
23 aware of. In May we had some other issues, but  
24 not related to the heatwave in June.

25 MR. SILVESTRI: Okay. Thank you.

1 Thank you, Mr. Chairman.

2 THE CHAIRMAN: And I guess  
3 Mr. Klemens has some.

4 DR. KLEMENS: I have a follow-up  
5 question to that. You keep talking about what  
6 happened in Greenwich in the heatwave. How did  
7 that compare with the rest of the state?

8 THE WITNESS (Bowes): Hold on just  
9 a second.

10 So we did transfer loads last  
11 Thursday and Friday, but at no situation did we  
12 have where we couldn't serve customers because of  
13 a capacity deficiency. Greenwich was the only  
14 location.

15 DR. KLEMENS: Greenwich was the  
16 only location in all of Connecticut where you had  
17 an outage during the heatwave?

18 THE WITNESS (Bowes): No. It's the  
19 only place we had an outage where we could not  
20 restore the customers because the feeder capacity  
21 was not available. We had plenty of outages on  
22 those days.

23 DR. KLEMENS: But you could not  
24 restore them because you didn't have the capacity  
25 in Greenwich?

1 THE WITNESS (Bowes): Correct. We  
2 had to leave those customers out of services  
3 because on that contingency we could not supply  
4 the load.

5 DR. KLEMENS: And how long were  
6 those customers out of service?

7 THE WITNESS (Bowes): Just over two  
8 hours.

9 DR. KLEMENS: Two hours.

10 Thank you, sir.

11 MR. MERCIER: Thank you.

12 Just returning back to the summer  
13 of 2016. Does Eversource record weather as part  
14 of their data they're collecting?

15 THE WITNESS (Bowes): I would say  
16 generally not for -- for load purposes. We rely  
17 on ISO New England for -- for the weather  
18 forecasting.

19 MR. MERCIER: Okay. I believe you  
20 said there, you know, was no high-heat/humidity  
21 days in the summer of 2016 where it was  
22 consecutive or over a period of time. And that --

23 THE WITNESS (Bowes): Yeah, and I  
24 could probably elaborate on the past answer. The  
25 Connecticut load, and specifically the Cos Cob

1 load follow the ISO New England percentage load  
2 very closely. So when a 90 -- 90 percent of peak  
3 load day occurs at ISO New England, it's usually  
4 within 1 or 2 percent of that both in Connecticut  
5 and also at Cos Cob. So it follows that quite  
6 nicely as far as the weather goes.

7 And in 2016 we probably had several  
8 high-temperature days. We probably had several  
9 high-humidity days, but we did not have the string  
10 of them together where the load, or the preload  
11 builds every day and the load inches up, say, from  
12 Monday through Thursday. We didn't have that  
13 situation in 2016.

14 MR. MERCIER: Okay. I'll move onto  
15 the feeders that you just spoke about and I'll  
16 refer to page 4 of the reopened application. And  
17 it shows the existing distribution system.

18 And I see the four feeders going  
19 from Cos Cob to the existing Prospect Station, and  
20 it appears that three of the feeders on their way  
21 to Prospect also diverge into the Greenwich  
22 network. Is that correct?

23 THE WITNESS (Bowes): That is  
24 correct.

25 MR. MERCIER: Okay. And I don't

1 think this was fully explained in the last  
2 proceeding. What exactly is the Greenwich  
3 network? It's the downtown district? Is it  
4 certain large customers that are not fed by  
5 Prospect but are fed by a separate feed?

6 THE WITNESS (Bowes): So the  
7 Greenwich network is comprised of what's called a  
8 conventional underground network system. So the  
9 customers are supplied at secondary voltage,  
10 120/208 volts. So rather than supplying a large  
11 customer at a primary voltage and then stepping  
12 down with the individual transformer, they're all  
13 bussed together on a secondary network.

14 So within that secondary network  
15 it's all of the customers generally in that  
16 downtown area, all fed from an underground  
17 conventional system. It's about 9 MVA of load and  
18 we have 22 transformers that are fed by those 3  
19 circuits that then supply an integrated or grid  
20 network at one twenty-two oh-eight.

21 MR. MERCIER: Thank you. And  
22 proceeding on page 5 at the top, an adequate  
23 distribution feeder section, it basically talks  
24 about an additional event or two that occurred  
25 since the close of the last proceeding.

1           Since this prefiled was written as  
2 part of this reopened application have there been  
3 other events that you may want to elaborate on  
4 that are specific to the feeder overloads? Is  
5 there anything in late 2016 or early this spring?

6           THE WITNESS (Bowes): So there have  
7 been feeder overloads, but not on the four  
8 circuits from Cos Cob to Prospect. The 11-R51,  
9 '52, '55 and '58, we have had other overloads on  
10 underground circuits on this figure 1 of the  
11 Greenwich distribution system.

12           MR. MERCIER: Okay. So those  
13 overloads you're talking about right now, would  
14 the proposed project also eliminate those type of  
15 overloads? I know you're trying to eliminate  
16 overloads on the existing four feeders, but is  
17 there any other secondary benefit to any other  
18 feeders that feed other areas?

19           THE WITNESS (Bowes): Yes. The  
20 issues that I've mentioned in May of this year we  
21 had overloads on the 11-R56 and the 11-R53, the  
22 22-E36, those would have been mitigated by the new  
23 Greenwich Substation. In outages from May through  
24 August of 2016 there was both transformer and  
25 feeder. We'll start with just the feeder.

1                   The 11-R56 on July 10, 2016; the  
2 11-R50 on July 23rd, 2016; the 11-R53, July 23,  
3 2016; the 11 -- I'm sorry the 22-E36, July 25,  
4 2016; the 22-E12, which is a 13-kV feeder on July  
5 25th as well.

6                   The 12-H59 which fed from Tomac  
7 would not have been part of this project. And the  
8 11-R56 on August 13th, 2016, would have been  
9 mitigated by this project.

10                  MR. MERCIER: Now just getting back  
11 to the main four feeders that are going to serve  
12 the Prospect and the Greenwich network once the  
13 new transmission line is constructed, will all  
14 four of those feeders need to be maintained going  
15 forward? Or are some of them going to be  
16 abandoned? Or this is post Greenwich Substation?

17                  THE WITNESS (Bowes): We would  
18 retain them all at this point to feed the  
19 underground network and that would provide us  
20 redundancy. There would no longer be the same  
21 capacity on these feeders, but it would still  
22 provide increased reliability to the underground  
23 secondary network.

24                  MR. MERCIER: Are some of those  
25 feeders existing today? The portions that are



1 underground, are they near the end of their useful  
2 life?

3 THE WITNESS (Bowes): I would say  
4 there's certainly sections of the cable that are  
5 original, the paper and lead cable that was  
6 originally installed. So there are still portions  
7 of those cables that are, I would say, clearly  
8 at -- they've served their useful life, so I would  
9 say the answer to your question is, yes.

10 MR. MERCIER: Now with  
11 those sections -- or even though they're sections,  
12 would they have to be replaced in the short term  
13 independent of this project?

14 THE WITNESS (Bowes): So as  
15 failures occurred they certainly would be  
16 replaced. And again, because there's extra  
17 redundancy we could sustain those failures without  
18 overload. So I don't know if we'd go forward with  
19 a programmatic program to replace the paper and  
20 lead. That has not been determined at this time,  
21 but clearly as faults occurred we could service  
22 them without impacting customers.

23 MR. MERCIER: You mentioned the  
24 paper and lead. How old are they, and what era is  
25 that?

1 THE WITNESS (Bowes): Fifties and  
2 60s, 1950s, 1960s vintage. Maybe earlier.

3 MR. MERCIER: Now I saw in the  
4 responses to the town interrogatories that  
5 Eversource provided there was a mention of 5  
6 scheduled maintenance events on each feeder every  
7 24 months. I think that was question two, just to  
8 refresh your memory, but I mean, is that typical  
9 for this type of system? Or is that because  
10 they're so antiquated you need to maintain them at  
11 that interval?

12 THE WITNESS (Bowes): Yeah, the  
13 switching that would be done would be for  
14 maintenance of the 22 transformers and the  
15 secondary protectors for those transformers. So  
16 we would switch out the -- each of those feeders  
17 on an every-other-year basis and do that  
18 maintenance.

19 So it's really more for the  
20 transformation in the secondary network than it is  
21 for the primary network.

22 MR. MERCIER: Thank you.

23 Now the previous version of this  
24 project in the original application, it included  
25 the retirement of the two transformers at the

1 Byron Substation, and obviously that's been left  
2 out of this modified project. What was the reason  
3 why it was left out for the modified project?

4 THE WITNESS (Bowes): So I think  
5 there's a couple of reasons. One was to reduce  
6 the scope of this project, and based upon  
7 forward-looking energy efficiency, demand response  
8 and distributed generation in the town of  
9 Greenwich we could still move forward with that  
10 retirement at a future date.

11 We would install the new substation  
12 in Greenwich first and look at how the loads  
13 continued to evolve over the next, say, three to  
14 five years. In they were stable or declining,  
15 then we would look towards retirement of the Byron  
16 Substation as well. So in effect, it's an  
17 insurance policy for the next few years.

18 MR. MERCIER: If the station was  
19 retired where would all those these customers be  
20 fed from? The new Greenwich Substation?

21 THE WITNESS (Bowes): That is  
22 correct.

23 MR. MERCIER: If there was a  
24 continued need for that substation, what would  
25 Eversource do?

1 THE WITNESS (Bowes): If there was  
2 not?

3 MR. MERCIER: If there was.

4 THE WITNESS (Bowes): Then we would  
5 look at -- again, the trigger would be obviously  
6 increased load growth. If that did occur then we  
7 would probably look to recondition certain of  
8 those assets, and still concerned for overloading  
9 the 12.5 MVA transformers. We've seen that on  
10 other substation transformers on the system. When  
11 those are overloaded they tend to fail  
12 prematurely.

13 So if the load were to increase we  
14 would probably change out the transformers and  
15 look to recondition the switchgear there as well.

16 MR. MERCIER: So as of right now  
17 you stated that everything is kind of stable. In  
18 about three to five years you're going to  
19 reexamine the issues over at the Byron Substation  
20 and determine at that point what to do?

21 THE WITNESS (Bowes): That is  
22 correct.

23 MR. MERCIER: From the Prospect  
24 Substation over to Byron, is that just one feeder  
25 according to that diagram?

1                   THE WITNESS (Bowes): So from the  
2 existing Prospect Substation --

3                   MR. MERCIER: Yes?

4                   THE WITNESS (Bowes): -- you can  
5 see it on figure one, the 11-R58 -- I'm sorry,  
6 that does not go there.

7                   So there's one existing circuit  
8 from the existing Prospect Substation. It's not  
9 labeled there, but it's the 22-E36.

10                  MR. MERCIER: Okay. On the far  
11 left?

12                  THE WITNESS (Bowes): Yeah.

13                  MR. MERCIER: Okay.

14                  THE WITNESS (Bowes): And there's a  
15 feed from Cos Cob to Byron, the 11-R56. Those are  
16 both 27-kV feeders.

17                  MR. MERCIER: And as a result of  
18 the proposed project those feeders would remain in  
19 place?

20                  THE WITNESS (Bowes): Yes, they  
21 would.

22                  THE CHAIRMAN: Excuse me. A  
23 follow-up question from Mr. Silvestri.

24                  MR. SILVESTRI: Mr. Bowes, on that  
25 there's a difference I'm looking at between figure

1 one and figure five, that it seems that there's  
2 one figure that would be missing once the new  
3 Greenwich Substation is installed that's missing  
4 to Byron?

5 THE WITNESS (Bowes): Yes, you're  
6 correct. The 22-E35 is also on figure one between  
7 the existing Prospect Substation and Byron  
8 Substation. I failed to mention that in the last  
9 question.

10 MR. SILVESTRI: Does that stay or  
11 does that go away?

12 THE WITNESS (Bowes): That would  
13 also stay in the -- in the new configuration.

14 MR. SILVESTRI: So figure five  
15 would be revised then to have another line going  
16 there. Would that be correct?

17 THE WITNESS (Bowes): Yes, it  
18 would.

19 MR. SILVESTRI: Thank you.

20 Thank you, Mr. Chairman.

21 MR. MERCIER: Now with the  
22 Greenwich -- excuse me, yes, the new Greenwich  
23 Substation, I believe you have the transformer  
24 listed at 60 MVA, your input in with the spare. I  
25 think in response 23 it listed it as a permissible

1 load level, as 60. Now I thought, and correct me  
2 if that's not the case, that the permissible load  
3 level is a two-hour rating?

4 THE WITNESS (Bowes): So a couple  
5 responses for that. First, the reason the spare  
6 at the new Greenwich Substation, both of the 60  
7 MVA transformers -- two would be installed. They  
8 would share the load at all times so they would be  
9 active and in service.

10 The permissible load rating, as I  
11 mentioned in Docket 461, the company was  
12 evaluating how it loaded substation equipment.  
13 And we're now moving forward with a change from  
14 2-hour and 22-hour load ratings to a nameplate  
15 rating for future installations.

16 We know we have some historic  
17 locations where we're looking at how the ratings  
18 change would take effect, but for the new  
19 Greenwich Substation we're not using emergency  
20 ratings on the equipment any longer.

21 MR. MERCIER: So this would be a  
22 normal nameplate rating of 60 for each  
23 transformer?

24 THE WITNESS (Bowes): Correct, and  
25 we would account for loss of one of those

1 transformers, so the overall substation rating  
2 would be 60 MVA.

3 MR. MERCIER: Thank you.

4 Okay. I'm going to talk a little  
5 about the underground route, and you know, from  
6 the Cos Cob Substation. I'll look at the blowups  
7 in Exhibit 6 so I can actually see them.

8 On map two it just shows the  
9 underground line going down Sound Shore Drive, and  
10 I believe there was previous testimony in the  
11 record at the last proceedings that Sound Shore  
12 Drive was filled up with utilities and could not  
13 be used for any underground installation.

14 That made it actually point into  
15 fact number 26 where you would have to relocate  
16 utilities and obtain easements to install your  
17 line. So if you'd please clarify if there are --  
18 is there available space in the road?

19 THE WITNESS (Bowes): So you are  
20 correct. In the preceding Docket 461 there were  
21 issues identified with this highway. Again,  
22 Mr. Jason Cabral addressed the changes that have  
23 taken place that would now allow the facilities to  
24 be installed.

25 THE WITNESS (Cabral): So if you



1 move to appendix 11 of the motion for  
2 reconsideration, volume 2, when you look at the  
3 hundred-scale drawings you can -- those would be  
4 zoomed in so you can see exactly -- of a, you  
5 know, approximate location of the preliminary  
6 route.

7                   And you'll notice when you first  
8 come out of Cos Cob we're not in Sound Shore  
9 Drive. We're in the adjacent --

10                   MR. FITZGERALD: Excuse me?

11                   THE WITNESS (Cabral): Yeah.

12                   MR. FITZGERALD: Could you tell us  
13 all what segment -- what map we should be looking  
14 at?

15                   THE WITNESS (Cabral): Sure. Map  
16 sheet one of eight, in appendix eleven. So as you  
17 exit Cos Cob you'll see that we cross Sound Shore  
18 Drive and then run through the parking lot that's  
19 adjacent to Sound Shore, where we go under 95.

20                   And then we cross back across Sound  
21 Shore Drive where we're on the opposite shoulder,  
22 if you will, to Sound Shore Drive. And the reason  
23 we avoided going right down the middle of Sound  
24 Shore Drive is for the reasons that were indicated  
25 in Docket 461. And then that brings us, you know,

1 to Indian Field Road, which is map sheet two of  
2 eight.

3 MR. MERCIER: Okay. This location,  
4 it does appear just off the road on map sheet two.  
5 It would be the one you were just talking about,  
6 the two splice vaults. Is that area -- like, what  
7 is that land? Or what's the terrain there to  
8 install the -- do you have to clear out some  
9 trees? Is it landscaping? What's over there?

10 THE WITNESS (Cabral): The area  
11 right there is generally a grassed area. Right  
12 about the edge of where our work is there, there  
13 is a terrain. The grade does increase and there's  
14 trees there, but where our work area would be  
15 would be a current grassed area adjacent to Sound  
16 Shore Drive.

17 MR. MERCIER: Do you know if that's  
18 DOT property or some other property owner off the  
19 top of your head?

20 THE WITNESS (Cabral): It is all  
21 DOT property. We would need an encroachment  
22 agreement from DOT to install this section of the  
23 route.

24 MR. MERCIER: I know there was  
25 previous testimony in the last proceeding they

1 didn't like longitudinal installations along their  
2 highway, but I mean, have you presented this  
3 preliminary plan to DOT for any type of feedback?

4 THE WITNESS (Cabral): So this,  
5 this alternate modified project was presented to  
6 them. We haven't had detailed meetings about this  
7 route yet because they originally concentrated on  
8 the, you know, the proposed project. So there  
9 still needs to be ongoing meetings with DOT on  
10 this route.

11 THE CHAIRMAN: Dr. Klemens has a  
12 followup.

13 DR. KLEMENS: Thank you,  
14 Mr. Chairman.

15 Going back to map sheet two where  
16 the splice vaults are located. From what I'm  
17 looking at on the overhead photograph these are  
18 located extremely close, if not into trees. Isn't  
19 all that construction so close to the trees you're  
20 going to cut the roots and kill those trees? Is  
21 there going to be loss of vegetation? And that's  
22 following up to what Mr. Mercier said.

23 The mere fact that you're in the  
24 grass, that you're near the trees and so close to  
25 the trees, are you not going to have an impact on

1 those trees?

2 MR. FITZGERALD: Mr. Libertine?

3 THE WITNESS (Libertine): We did  
4 take a close look at this. One of the challenges  
5 with presenting this on a map at this scale,  
6 Dr. Klemens, as you probably can appreciate, is  
7 that some of this is a registration issue.

8 So it does look like as though  
9 we're right on top of the tree, or the treeline.  
10 There's a good 20 to 22 feet between the edge of  
11 the road before that slope starts, so we're  
12 confident we can install the line and those vaults  
13 without getting heavily into the root systems of  
14 those trees.

15 DR. KLEMENS: Are you telling me  
16 that you're going to be installing those vaults  
17 basically beyond the drip line of those trees?

18 THE WITNESS (Libertine): Yes.  
19 Yeah.

20 DR. KLEMENS: Thank you.

21 THE CHAIRMAN: I think Mr. Hannon  
22 had a followup.

23 MR. HANNON: Thank you.

24 It's in the same general area you  
25 started talking about needing approval from DOT,

1 but as this proposed route turns south with Indian  
2 Field Road my understanding is there appears to be  
3 some trepidation about getting the okay from DOT  
4 to do that particular route, for whatever their  
5 reasons are.

6                   You have come in with a proposal  
7 that is proposing to jack and bore under the  
8 highway. Is anybody looking at going overhead at  
9 this point? And if not, why?

10                   THE WITNESS (Cabral): So we have  
11 done a preliminary analysis of going overhead in  
12 this area and the analysis, when you factor in the  
13 additional underground route to get to the  
14 location to go overhead, the riser structures, all  
15 the traffic control you would have to do, that  
16 there would actually not be any cost savings of  
17 doing that.

18                   And we would expect based on  
19 previous conversations with Conn-DOT that they  
20 would not want an overhead structure basically in  
21 the median between an onramp/offramp on I-95. So  
22 we have done a preliminary analysis of that, but  
23 we don't think that that would be a feasible  
24 solution at this location.

25                   MR. HANNON: Okay. Now is that

1 based on the 2.8 million that was originally  
2 proposed? Or the correction, 1.5 million?

3 THE WITNESS (Cabral): It's based  
4 upon the correction.

5 MR. HANNON: Okay. Thank you.

6 THE CHAIRMAN: Dr. Klemens?

7 DR. KLEMENS: Yeah, I'm just  
8 looking at sheets one and two. You have two sets.  
9 You're crossing I-95 twice. Is any thought given  
10 to just taking it on the south side of 95? So  
11 there seems to be woods, a highway embankment.

12 THE WITNESS (Cabral): So the first  
13 crossing of I-95 you reference is an overpass. So  
14 it would be a traditional open-cut trench.  
15 There's no -- there wouldn't be any type of  
16 trench-less crossing there.

17 So it would allow us to stay right  
18 in that parking lot and -- and just be under that  
19 overpass. So it actually would be a less  
20 impactful design than going on the south side.

21 DR. KLEMENS: But wouldn't you  
22 avoid the second if you went along -- I understand  
23 that you're going underneath there, but wouldn't  
24 it make more sense just to run the whole thing  
25 along the south side of I-95 and avoid this whole

1 conversation that you just had with Mr. Hannon?  
2 It seems there's quite a bit of room there to bury  
3 electrical wires.

4 THE WITNESS (Cabral): So if you  
5 look at the map you see a line list 1139.

6 MR. FITZGERALD: Which map?

7 THE WITNESS (Cabral): The map  
8 sheet we're referencing, map sheet one of eight.  
9 So we would get outside of Conn-DOT property.  
10 We'd need a separate private easement to go  
11 through that parking lot of that facility there.

12 DR. KLEMENS: That's the only  
13 reason you haven't done it? It just seems to me  
14 you can avoid a lot of highway, that whole mess  
15 going back over Indian Field Road if you could  
16 keep the whole thing on the south side?

17 THE WITNESS (Cabral): We have not  
18 looked at that. That's something we could  
19 evaluate as a followup.

20 DR. KLEMENS: Thank you.

21 MR. MERCIER: This was a  
22 question on that. Are easements difficult to  
23 obtain on private property? Are they costly and  
24 what's involved there?

25 THE WITNESS (Cabral): Say that

1 again? I'm sorry.

2 MR. MERCIER: If you wanted to run  
3 an easement, say, through that office building's  
4 parking lot, is that easy to obtain usually? Or  
5 is it excessively costly? Does this vary  
6 depending on locations?

7 THE WITNESS (Cabral): It depends  
8 on, you know, each individual property owner.

9 MR. MERCIER: Thank you.

10 THE WITNESS (Cabral): We would not  
11 anticipate it to be an easy process at this  
12 location.

13 And then going back to the last  
14 question, I could touch on -- one other item was,  
15 there is a -- and Mike, you might be able to add  
16 something here. If we were to stay on the south  
17 side of I-95 the terrain does go down to the  
18 wetland that you see at Cos Cob Park harbor. So  
19 there would be some challenges of constructing and  
20 ducting there, managing your spoils and dealing  
21 with the terrain that slopes down into the harbor.

22 I don't know, Mike, if you have  
23 anything else to add to that?

24 THE WITNESS (Libertine): Well,  
25 certainly the terrain is an issue as well as it's



1 a substantially wooded area. So we'd certainly  
2 have a lot more land clearing on that side of the  
3 road than we would if we stayed to the north.

4 MR. MERCIER: And just to confirm  
5 on these maps, the black line, that's the property  
6 line south of the highway and there's one on the  
7 north side. So that would be DOT land?

8 THE WITNESS (Cabral): Correct.  
9 correct.

10 MR. MERCIER: North of the black  
11 line?

12 THE WITNESS (Cabral): Correct.

13 MR. MERCIER: Thank you.

14 Staying with map two, this was the  
15 Indian Field Road crossing and I asked a question  
16 about this in interrogatory 42 from the Council.  
17 It had to do with, you know, if the bridge was  
18 rehabilitated or replaced, that Eversource would  
19 have to be responsible to relocate the line to  
20 another abutment or some other location to  
21 accommodate construction.

22 And now I saw in the next  
23 interrogatory that there was 22 of these  
24 installations up in the Massachusetts region. So  
25 I'm trying to determine, you know, if replacement

1 has occurred up in the Massachusetts region, or if  
2 not. Or if so, like, what's the cost associated  
3 with something like relocating a line to another  
4 abutment, or burying it at that point?

5 THE WITNESS (Bowes): So I'll start  
6 with the first part of that.

7 Yes, there have been relocations  
8 because of bridge attachments in the Boston area.  
9 The costs, I'll have John Case talk to it in a  
10 moment.

11 In this case the -- this bridge  
12 was, I guess we'll call it repaired or worked on,  
13 rebuilt in just the past few years. So we would  
14 anticipate that if changes were to occur in this  
15 bridge it would probably be decades from now  
16 pending any other future project on I-95.

17 So there is some comfort that this  
18 bridge was just worked on by the DOT, so it would  
19 probably be a fairly lengthy period of time before  
20 we would have to do any relocation.

21 And John maybe you could speak to  
22 what the typical costs would be?

23 THE WITNESS (Case): Yeah, so the  
24 typical costs are going to depend variably on the  
25 different constructions, the length, what -- how

1 far you need to relocate it.

2 And it would be speculative to put  
3 a suggestion, but in this area our original  
4 estimate was in the, you know, half a  
5 million-dollar range to install it on here. So  
6 you can probably assume similar relocation costs.

7 MR. MERCIER: That would have to be  
8 re-spliced, or anything of that nature? Or to,  
9 say you had to move it south or north of its  
10 current location?

11 THE WITNESS (Case): It's hard for  
12 me to speculate on what's going to happen.

13 THE CHAIRMAN: Mr. Harder.

14 MR. HARDER: How would you actually  
15 do it? I mean, if the bridge had to be replaced  
16 at some point, I assume it would have to be  
17 replaced. And there was a temporary bridge put in  
18 use during that project, would these lines be  
19 placed under the temporary bridge? Or would they  
20 be placed overhead temporarily?

21 THE WITNESS (Case): If -- if there  
22 was a temporary bridge that was going to be put in  
23 place there, we would probably have to follow  
24 that, meaning they're going to remove the entire  
25 bridge in one section.

1                   What might be more typical of a  
2 bridge replacement would be they do portions of it  
3 at a time. They -- they would flow traffic on one  
4 side to the other. So we would relocate our --  
5 our ducts from one side of the bridge to the other  
6 while they would reconstruct it and rebuilt one  
7 lane at the time.

8                   MR. MERCIER: Thank you.

9                   And in regard to the Massachusetts  
10 installs, is that from a certain era, or are they  
11 still going on today? Are those the ones listed  
12 in interrogatory 43?

13                   THE WITNESS (Case): The -- are you  
14 asking if we are still proposing installations on  
15 bridges?

16                   MR. MERCIER: Yes, or was that like  
17 a past practice? Or is it still current?

18                   THE WITNESS (Case): I know that we  
19 are trying to get away from that because of the  
20 problems that we've had with coordinating with the  
21 DOTs with exposure to the elements. We have had  
22 some recent pipe type failures, and I should  
23 clarify these are all pipe type cables that have  
24 been attached.

25                   We have a, to my knowledge, have an

1 XLPE attachment, so we are trying to stay away  
2 from it. In some cases I'd say there may be no  
3 options and we would have to be forced to do that,  
4 but it is becoming much and much less a preferred  
5 design alternative for us.

6 MR. MERCIER: Thank you.

7 If this location on figure two, you  
8 know, was installed by jack and bore, would that  
9 be mostly on the east side of the bridge, or the  
10 west side? Has that been determined with any  
11 discussion with DOT? And also, would it be, you  
12 know, outside the exit ramp, I assume?

13 THE WITNESS (Case): We would  
14 actually have to propose this inside the exit  
15 ramps. It would be in median between the -- the  
16 exit ramp and I-95 and that open area there.

17 The Town has -- has recently  
18 completed a similar jack and bore across Indian  
19 Field Road. It actually shows up on that map  
20 sheet two. You can see the jacking pit and the  
21 receiving pit on the other side of Indian Field.

22 MR. MERCIER: I was going to ask  
23 what that was. Okay.

24 THE WITNESS (Case): That -- that's  
25 their, I believe, their force main. So there's

1 very limited space in that little area between  
2 Sound Shore and Exit 4. So we think we'd be  
3 forced to put our jacking pit in the median  
4 between the exit ramp and I-95. And -- and we  
5 would favor the east side because it would be a  
6 shorter length for us for cable.

7 MR. MERCIER: Now that you mention  
8 that the sewer line is installed, is your cable  
9 going to be above or below that?

10 THE WITNESS (Case): Depending on  
11 final design, yeah, we don't know quite where it's  
12 going to be located yet. We are in the process of  
13 finding our subsurface utilities and working on  
14 where that cable actually would be installed. I'm  
15 not sure the depth of the main right now.

16 I mean, I can say I know that jack  
17 and bore is probably a 15 to 20-foot deep dig and  
18 bore. So I'm guessing where we'd cross that, we  
19 would probably be over at -- I don't think that  
20 would be that deep underneath that jack and bore.

21 MR. MERCIER: Okay. What's the  
22 approximate duration you believe that activity  
23 would take place with the jack and bore?

24 THE WITNESS (Case): The jack and  
25 bore would probably be within 30, 30 days in

1 other -- within a month to complete that jack and  
2 bore.

3 MR. MERCIER: And do we know the  
4 traffic shutdowns related specific to that  
5 activity? Is that correct?

6 THE WITNESS (Case): We would -- we  
7 would manage our worksite to be free of any  
8 traffic shutdowns. We think we could get far  
9 enough back from the pavement. There may be some  
10 signage required, but I don't think we'd be  
11 shutting down any lanes.

12 MR. MERCIER: Thank you.

13 Now flipping over to -- staying  
14 with volume two, appendix ten, was the photo  
15 simulation of the pole yard at 281 Railroad Avenue  
16 of the proposed indoor substation design?

17 THE WITNESS (Bowes): This is  
18 page 2?

19 MR. MERCIER: Yes, it's viewpoint  
20 two. I haven't seen one of these before and it  
21 took me a while to look at the plans. I didn't  
22 really have a magnifying glass to understand what  
23 parts were indoor, but I did take a good look at  
24 it.

25 And you know, I understand that,

1 you know, just the opening is going to be  
2 basically where the -- is the opening for the  
3 transformers where that decorative fence is on the  
4 top?

5 THE WITNESS (Bowes): So there is  
6 an arrangement drawing. The decorative fence is  
7 probably a little bit larger than what would be  
8 required for the transformers. It's really more  
9 there for aesthetics than it is for finding cover  
10 there, the opening.

11 MR. MERCIER: Okay. But opening  
12 dimensions are on the plan. So I could look at  
13 those.

14 Has Eversource ever installed  
15 something like this in Connecticut?

16 THE WITNESS (Bowes): We have not.  
17 We do have a building for a GIS substation, but  
18 it's the -- really looks more like a control house  
19 building, just a larger sheet-metal type  
20 enclosure. This would be the first one.

21 MR. MERCIER: You know, I'm looking  
22 at the siding here is all different colors. I  
23 mean, is that a factory applied color, or is this  
24 something you have to apply later, some paint?

25 THE WITNESS (Bowes): So it's a



1 siding -- and I probably should revise the  
2 previous statement. Going back a hundred years we  
3 have, you know, low-voltage substations that are  
4 inside mills or inside brick buildings. So it's  
5 really the first substation, I would say, in the  
6 modern-day where we have had -- had it inside  
7 where we clearly have placed electrical equipment  
8 that transforms voltages especially from small  
9 hydro generators, you know, to our distribution  
10 system.

11 In this case, getting back to the  
12 siding it's really, you know, a nonflammable or  
13 fireproof siding that would be used and it could  
14 be any color. In fact, we've received some, I  
15 would say, preliminary comments from the Town that  
16 they might like a different color scheme on this.

17 MR. MERCIER: Okay. So it's a  
18 factory order item?

19 THE WITNESS (Bowes): Yes.

20 MR. MERCIER: And it doesn't  
21 require further painting 20 years down the road or  
22 something?

23 THE WITNESS (Bowes): I would say  
24 there would be minimal maintenance in the future,  
25 probably some cleaning of it.

1           MR. MERCIER: For any type of  
2 equipment going within the structure is there  
3 sufficient airflow to provide cooling for the  
4 transformers, or is there some other type of  
5 cooling required?

6           THE WITNESS (Bowes): I don't think  
7 we're proposing any external fans or anything like  
8 that. So it would just be natural cooling.

9           MR. MERCIER: Now in the past  
10 proceeding there was some discussion about  
11 transformer fires on some of these larger units.  
12 In looking at this site if there was some type of  
13 fire or something of that nature would there be,  
14 you know, enough room for emergency personnel to  
15 get into this structure?

16           THE WITNESS (Bowes): So I would  
17 say we would design it based upon the various  
18 applicable standards, the National Safety Code and  
19 the IEEE standards that pertain to indoor  
20 substations. It probably would warrant some  
21 additional training with the Town of Greenwich  
22 around entry into the substation, especially  
23 during an emergency event, where in another  
24 substation we have offered that training to the  
25 fire departments because it is somewhat

1 specialized.

2 Now you're -- you're dealing with a  
3 potential fire in, you know, a confined area  
4 rather than an open area, but it certainly can be  
5 designed safely and with the right training can be  
6 operated and responded to during emergencies  
7 safely.

8 MR. MERCIER: And so far -- sorry.

9 THE CHAIRMAN: Mr. Silvestri has a  
10 followup.

11 MR. SILVESTRI: Mr. Bowes, what  
12 type of fire warning and fire suppression systems  
13 are there available for enclosed substations like  
14 that?

15 THE WITNESS (Bowes): So there are  
16 a variety of substation fire suppression. There's  
17 smoke detection. There's heat detection for the  
18 detection portion of it, and there's also  
19 various -- both water systems as well as chemical  
20 systems, like halon used to be used in computer  
21 rooms, various fire suppression systems that could  
22 be used in this substation system. That would be  
23 part of our design as well as both fire detection  
24 and fire suppression systems.

25 MR. SILVESTRI: What would

1 determine the usage between, say, a traditional  
2 deluge system versus something like halon?

3 THE WITNESS (Bowes): So it's  
4 really that happens with the -- the water itself.  
5 If there was proper on-site drainage, which will  
6 be part of the design, we'd like to contain the  
7 water on site so it didn't exit and have a  
8 combination of oil and water, you know, leave the  
9 premises, because that would be the major  
10 consideration of using a non-water system -- would  
11 be the amount of water that would be released and  
12 then the containing of that water on site.

13 MR. SILVESTRI: Thank you, Mr.  
14 Chairman.

15 THE CHAIRMAN: Okay. Dr. Klemens  
16 and then Mr. Hannon.

17 DR. KLEMENS: I have just one  
18 question. Is it really your intent when this is  
19 completed to have this unfenced and accessible in  
20 this manner to the street?

21 THE WITNESS (Bowes): So for  
22 security purposes a fence would not be necessary.  
23 For aesthetic reasons we could certainly add a  
24 fence, but there's really no reason to have a  
25 security fence, if that was the question.

1 DR. KLEMENS: My question was the  
2 security fence. This facility is secure in this  
3 manner?

4 THE WITNESS (Bowes): Yes, it is.

5 DR. KLEMENS: Thank you.

6 MR. HANNON: I just want to try to  
7 get something clear in my head because I know  
8 there's been dialogue in the past about a fire  
9 that occurred at Cos Cob.

10 In your response to Siting Council  
11 question 56 you talk about there was a fault that  
12 caused protective relays to immediately and  
13 automatically trip which isolated the electric  
14 supply and deenergized the station and service  
15 transformers. This is at Cos Cob, but yet we've  
16 documentation -- or at least we heard  
17 comments about a fire at Cos Cob where it may have  
18 taken over an hour to get the appropriate people  
19 to the station to be able to turn off the power.

20 So I'm kind of confused in dealing  
21 with some of these fire related issues. So what  
22 you have for the answer to the Council question  
23 56, is that the same fire that other people are  
24 talking about?

25 THE WITNESS (Bowes): Let me just

1 get there.

2                   So I'll answer it in several parts.  
3 So yes, it was the same fire that we've -- we've  
4 talked about.

5                   MR. HANNON: Okay.

6                   THE WITNESS (Bowes): It was a  
7 station service transformer, or what looks like a  
8 pole top distribution transformer that failed and  
9 caught fire. That section of bus was immediately  
10 deenergized by the protective relays. The  
11 question that came in was with the first  
12 responders and fire department being able to  
13 access and put out the fire, and there was a delay  
14 in that. Many things have happened since that  
15 fire occurred for the positive.

16                   In June of last year we resolved an  
17 historic contract labor agreement we had that had  
18 different contracts for Greenwich and different  
19 contracts for Stamford as well as many other parts  
20 of the state. We identified those contracts as  
21 the blue and the green contracts.

22                   Last year through labor  
23 negotiations we combined all of our labor  
24 agreements together for physical workers in the  
25 state of Connecticut. So that resolved any

1 jurisdictional issues of where you could call  
2 people from to respond to emergency events.

3           Also as part of that contract we  
4 added emergency responders 24 hours a day. So we  
5 now have both line crews that respond seven days a  
6 week on shift and we also have substation  
7 electricians that would cover this shift. So we  
8 would have -- we wouldn't first need to call  
9 people in. They would already be at work and  
10 working on our system. So two developments have  
11 happened as far as the response goes.

12           Now if a situation were to occur  
13 today we would have the same type of limitation on  
14 the first responders. Just because the protective  
15 systems worked and deenergized where the fire was,  
16 the rest of the Cos Cob Substation, the NRG  
17 Substation, the C-DOT substation were still  
18 energized. So we would not want the emergency  
19 response personnel to enter the substation without  
20 a qualified -- an electrically qualified employee  
21 to make sure they could safely do their work to  
22 put out the fire, or in some cases contain the  
23 fire, or stand by to make sure the fire did not  
24 spread.

25           So the actual protocol of waiting

1 at the fence would be the same today, but we would  
2 be able to respond much quicker than what occurred  
3 in this fire situation.

4 MR. HANNON: What's your opinion on  
5 much quicker?

6 THE WITNESS (Bowes): Well, they're  
7 on shift now, so there's no call in. So our goal  
8 would be to get there within 30 minutes.

9 MR. HANNON: Because I think, if I  
10 remember correctly, people said it was a little  
11 over an hour the last time. So?

12 THE WITNESS (Bowes): I think it  
13 may have been a little longer than that, actually.

14 MR. HANNON: Thank you.

15 MR. MERCIER: Staying with the fire  
16 theme, you know, for these large transformers is  
17 there a rate that they would fail and catch fire?  
18 You know, like, .5 percent of the units? Or is  
19 there any type of statistic that Eversource has or  
20 uses?

21 THE WITNESS (Bowes): So I know  
22 I've mentioned this the last time. I'm aware of a  
23 single event that occurred in my now 33 years at  
24 Northeast Utilities, and now Eversource. There  
25 was a substation in Franconia, Massachusetts,



1 where the bulk substation transformer failed  
2 catastrophically. The main tank was breached and  
3 it did catch fire. In that case the entire -- oil  
4 was maintained on the property itself within the  
5 traprock. So I'm aware of a single event.

6           There clearly have been spectacular  
7 fires elsewhere in the United States and across  
8 the world, so it is -- it is a possibility. I  
9 would say it's a rare event. I would say the  
10 standards have also changed dramatically since,  
11 since that time.

12           We now look for physical separation  
13 between the transformers and we also now install  
14 firewalls around our transformers. In this case  
15 we're proposing, you know, an indoor substation  
16 where it would be contained. In addition to that,  
17 the containment below the transformers we have now  
18 standardized on secondary oil containment. So if  
19 that were to breach it would be contained within,  
20 you know, underneath the transformer foundation  
21 itself.

22           So we've put a containment system  
23 in there. We have oil/water separators that would  
24 activate if the oil were to get out. So I think a  
25 lot has happened with the design for the

1       substation as well.

2                       MR. MERCIER:   For this indoor  
3       substation are there firewalls separating the  
4       transformers from other components?

5                       THE WITNESS (Bowes):   Yes, there  
6       would be firewalls.

7                       MR. MERCIER:   Okay.   And obviously,  
8       that's the same for the Pet Pantry site.   There's  
9       firewalls there also?

10                      THE WITNESS (Bowes):   There would  
11       be firewalls for all of the various options.

12                      MR. MERCIER:   Okay.

13                      THE WITNESS (Bowes):   Either indoor  
14       or outdoor substations.

15                      MR. LEVESQUE:   That structure you  
16       want to build, does it have any wood in it?

17                      THE WITNESS (Bowes):   Does it have  
18       any wood in it?

19                      MR. LEVESQUE:   The enclosure  
20       building?

21                      THE WITNESS (Bowes):   Not to my  
22       knowledge.   I mean, there may be some, you know, a  
23       desk or a chair that would be in -- in the office  
24       area, but the structure itself would be concrete  
25       and steel, and the then siding would be a

1 fireproof siding.

2 MR. LEVESQUE: Some kind of  
3 composite?

4 THE WITNESS (Bowes): And metal  
5 doors, obviously, for the -- for the exits and  
6 entrances to service the equipment.

7 MR. LEVESQUE: For the commercial  
8 area did you consider just facing it with brick  
9 and then it would be even less maintenance than  
10 the composite materials? Instead of 20 years, you  
11 might not have to wash it for 30 years.

12 THE WITNESS (Bowes): So I'm  
13 probably not the right person to ask about  
14 aesthetics. Maybe someone else would offer an  
15 opinion. I still think that overhead transmission  
16 lines are desirable. So many other people do not  
17 share that opinion.

18 So as an engineer I look at it as,  
19 you know, a technology that is very effective. So  
20 asking me what type of facade on a substation,  
21 there are people more qualified than me.

22 MR. LEVESQUE: It's just a personal  
23 comment there. I just thought that those older  
24 utilities that were built from the twenties, the  
25 brick, they seem still to fit in, you know,

1 commercial streets even to this day.

2 THE WITNESS (Bowes): They clearly  
3 do it. And again, that doesn't mean there's not  
4 maintenance for those brick facades or brick, you  
5 know, real brick buildings as well.

6 MR. LEVESQUE: Thank you.

7 MR. MERCIER: Just regarding the  
8 substation placements, are you aware of any codes  
9 or standards by any entities that would require  
10 certain distances in certain types of adjacent  
11 land uses? You know, in this case maybe storage  
12 of gas or propane? Are there others, any type of  
13 standards such as that?

14 THE WITNESS (Bowes): So I would  
15 say that newer standards look for uses around a  
16 substation. Obviously there are some historic  
17 locations, the company's own Cos Cob Substation  
18 where we used to own the generation on the Cos Cob  
19 site. It since has been divested. That has a  
20 very large fuel storage tank on premises. Would  
21 that be built the same way today? Probably not.

22 So as you look for either  
23 residential customers that are in proximity to a  
24 substation or commercial customers, I think you  
25 have to be cognizant that they could either impact

1 the substation or the substation could impact  
2 them. I think the designs that we've proposed  
3 here, whether it's enclosed within a building, it  
4 certainly would contain external things from  
5 impacting the substation very nicely, and would  
6 minimize any impact from the substation to  
7 neighbors.

8 I think the concrete wall that was  
9 proposed would have benefits, but not as good as  
10 an enclosure.

11 MR. MERCIER: The concrete wall,  
12 meaning at the Pet Pantry location?

13 THE WITNESS (Bowes): Or again,  
14 that was representative of Pet Pantry, but that  
15 concrete wall could be placed at either 281 or  
16 290. I think it is not as robust as the interior  
17 or enclosure design.

18 MR. MERCIER: Well, I guess I'll  
19 ask the question again. Are there any codes or  
20 standards that would preclude you from placing the  
21 substation, say, at the Pet Pantry location?

22 THE WITNESS (Bowes): I'm not aware  
23 of any codes. There is separation that we like to  
24 maintain, you know, 50-foot separation from  
25 transformers, for example and that's why we

1 typically put a wall between them, or around them.  
2 That is a IEEE standard.

3 In this case we would, you know,  
4 have both firewall as well as a wall at the --  
5 near the property lines, so we would have two  
6 walls in place. So that's the one standard that  
7 I'm aware of that deals with the issue.

8 MR. MERCIER: Just out of curiosity  
9 for the pole yard site, would an open-air  
10 substation actually fit there enclosed by a brick  
11 wall? Or is that site too limited for that type  
12 of installation?

13 THE WITNESS (Bowes): As you  
14 actually look at the -- the design configurations,  
15 the layouts, it can fit at that site.

16 And the difference, although it  
17 appears to be much smaller, it's only about 3,000  
18 square feet in difference between 281 and 290, 281  
19 being a slight bit smaller. So there's really no  
20 difference in the physical space of the two  
21 locations.

22 MR. MERCIER: Let's see. I'm going  
23 to move to interrogatory 49 -- of Council  
24 interrogatory number 49. That had to do with the  
25 crossing of Indian Harbor. Now in item A it

1 basically says the coffer dam, if it was selected,  
2 would be in the same general location as the  
3 pedestrian bridge. Was that location selected by  
4 the Town?

5 THE WITNESS (Bowes): I believe it  
6 was, and I'll ask, you know, either John or Jason  
7 to supplement that.

8 In addition, there were some  
9 advantages to going on -- on that side as well, as  
10 you know, we would have the -- then certain  
11 property rights to do the work. We wouldn't have  
12 to acquire additional rights. It would be in  
13 essence protected from any storm surge were it to  
14 occur sometime in the future.

15 It is a little bit longer, I  
16 believe, than the -- than the path to the south,  
17 but it has a couple of advantages and it would be  
18 outside the -- Mike may actually disagree with  
19 this, but there would be less tidal influence, you  
20 know, inside the bridge than outside. It may be  
21 equivalent, but from a layperson it seems like  
22 there would be less impact on the -- on the  
23 environment.

24 I don't know. Maybe John wants  
25 to -- and Jason were actually at the site walk

1 with the Town, and can confirm that that's what  
2 the Town desired.

3 THE WITNESS (Case): So the  
4 crossings would occur in very close proximity to  
5 each other, whether it was the pedestrian bridge  
6 or the -- or the coffer dam. They're shown a  
7 little bit closer.

8 When we met with the Town we did  
9 talk about a location that would be a little bit  
10 further away from -- a little further north of the  
11 Davis Avenue Bridge and what is shown on those  
12 maps. So a final location to be determined, but  
13 they would both be in the same general  
14 location north of the bridge.

15 THE WITNESS (Bowes): And that's  
16 map sheet five of eight.

17 MR. MERCIER: Okay. I just wanted  
18 to make sure there was enough room in case they  
19 did reconstruct their bridge over the harbor.

20 THE WITNESS (Case): Yes, that's  
21 part of the discussion.

22 THE WITNESS (Libertine): Yeah, and  
23 one of the considerations there, is there a -- on  
24 the east shore there is a retaining wall that  
25 extends north into the park slightly. So I think



1 the intent would be to just be north of that wall,  
2 which would be sufficient room for the new bridge  
3 if and when that becomes viable.

4 MR. MERCIER: I lost my place here.

5 THE CHAIRMAN: Do you have a  
6 question, Dr. Klemens?

7 DR. KLEMENS: Yes, I do. I have a  
8 two-part question.

9 When you said it was more protected  
10 from storm surge, is it because it is upstream, or  
11 up harbor from the Davis Avenue Bridge?

12 THE WITNESS (Bowes): Yes, and the  
13 bridge would act as some protection for it.

14 DR. KLEMENS: As a barrier?

15 MR. LYNCH: Right. There's a  
16 series of culverts, Dr. Klemens, that allow the  
17 water to flow in both directions, but it does  
18 impede a certain amount of water coming on the  
19 incoming --

20 DR. KLEMENS: There is some  
21 protection by putting it up harbor of that. The  
22 coffer dam, is that a permanent structure, or a  
23 temporary structure to lay the pipe?

24 THE WITNESS (Case): The coffer dam  
25 would be a temporary dam that would allow you to

1 dewater on site. So it would just be a  
2 temporary -- temporary dam that would allow you to  
3 construct using typical construction methods.  
4 Then you would remove the dam and it would just --

5 DR. KLEMENS: That's what I  
6 thought. So why are we putting in a pedestrian  
7 bridge when we can accomplish this with a coffer  
8 dam?

9 THE WITNESS (Case): During  
10 discussions with the Town, that was their request.

11 DR. KLEMENS: And how much more  
12 money is this going to cost the ratepayers of  
13 Connecticut to have a pedestrian bridge versus a  
14 coffer dam?

15 THE WITNESS (Case): The -- the  
16 difference is about \$1.8 million additional for  
17 the coffer -- or for the bridge.

18 DR. KLEMENS: So we can accomplish  
19 this project for one and half million dollars less  
20 by using the coffer dam, sir?

21 THE WITNESS (Case): \$1.8 million  
22 less.

23 DR. KLEMENS: 1.8. Thank you, sir.

24 THE WITNESS (Bowes): And just to  
25 be clear on the construction method that's

1 proposed, it's -- the coffer dam would not extend  
2 a hundred percent across. We propose  
3 approximately 50 percent to be worked at a time so  
4 the water would be able to flow between Indian  
5 Harbor and the, say, the pond area.

6 DR. KLEMENS: What you're saying  
7 though, is that you can have that crossing without  
8 environmental impact and save \$1.8 million by  
9 not constructing a pedestrian bridge?

10 THE WITNESS (Bowes): Or maybe said  
11 the other way, we would certainly save the  
12 1.8 million, and the environmental impacts would  
13 be approximately equivalent whether we had to  
14 build a bridge abutment or an open trench with a  
15 coffer dam.

16 DR. KLEMENS: Thank you.

17 THE CHAIRMAN: It's open, I guess.

18 MR. SILVESTRI: Thank you, Mr.  
19 Chairman. A couple of followups on that one. Let  
20 me go back.

21 Back in appendix 11 we mentioned  
22 that the cost of the bridge was listed at  
23 2.9 million, and the coffer dam was 1.1. With the  
24 revised bridge that you provided us with a drawing  
25 earlier this morning, does that stay the same,

1 that 2.9 million?

2 THE WITNESS (Case): That  
3 2.9 million is the revised bridge price, so there  
4 is no change to that.

5 MR. SILVESTRI: Would the bridge be  
6 constructed on site, or would you have a prefab  
7 that could be brought in?

8 THE WITNESS (Case): At this point  
9 I would say that has not been determined. There's  
10 going to be quite a bit of on-site assembly. It's  
11 going to be a fairly lengthy bridge, so I would  
12 say there's probably going to be a majority that's  
13 going to be assembled on site.

14 MR. SILVESTRI: On site? Okay. A  
15 couple other related questions. To go and  
16 construct a coffer dam, would that be done by  
17 barge?

18 THE WITNESS (Case): The -- the  
19 initial part of the installation of the coffer dam  
20 may be done by, what we call, floating work  
21 platforms. There's a lot of sediment at the  
22 bottom of this, so to be able to work the coffer  
23 dam in you would be working from a -- typically a  
24 floating platform that would allow you to please  
25 these coffer dams.

1 MR. SILVESTRI: And that would be  
2 from the north side?

3 THE WITNESS (Case): From the  
4 east -- yeah, north side of the dam -- or the  
5 bridge, yes.

6 MR. SILVESTRI: Roughly, to  
7 construct a coffer dam, roughly how long would it  
8 take?

9 THE WITNESS (Case): Within  
10 probably a thirty-day -- about a one-month  
11 construction period approximately.

12 MR. SILVESTRI: The last question  
13 on that one. In discussions with the Town is  
14 there any prediction as to when the Town might  
15 replace the existing bridge that you might be able  
16 to access for a crossing?

17 THE WITNESS (Case): In our  
18 meetings with the Town on site they did mention  
19 their desire to replace that bridge. I don't  
20 recall the -- the timeframe, unless Jason knows?

21 THE WITNESS (Cabral): Our  
22 understanding is that they're currently in the  
23 preliminary engineering, and the bridge would be  
24 installed sometime within the next two or three  
25 years based on our meetings with the Town.

1 MR. SILVESTRI: That's all I have  
2 for now. Thank you.

3 THE CHAIRMAN: Mr. Hannon?

4 MR. HANNON: No, they answered my  
5 question before I got it out.

6 THE CHAIRMAN: The question was  
7 answered.

8 This is an aside, but is that  
9 bridge the -- obviously the Town wants it. Is  
10 that pedestrian only, or is it pedestrian and  
11 bike? Do you know?

12 THE WITNESS (Case): It -- it's  
13 roughly an eight-foot deck on there, so as long as  
14 the pedestrian and the bikes were on their own  
15 side they -- they can both fit through there.

16 THE CHAIRMAN: If it's a two-way  
17 bridge that's -- I'm not trying to make it any  
18 bigger, but I just want to -- didn't know whether  
19 the Town was using this to connect bikeways as  
20 well as pedestrian walks.

21 THE WITNESS (Case): One of our  
22 changes that we did mention earlier was reducing  
23 the width from a 12-foot to an 8-foot to save  
24 costs.

25 THE CHAIRMAN: I understand.

1                   MR. MERCIER: For construction of  
2 the coffer dam you just stated that, you know, you  
3 would have the barge most likely, or ship one in.

4                   How are you going to access the  
5 water? Do you have to cut through Bruce Park?  
6 Has that been determined where you're going to be  
7 able to install equipment to facilitate the coffer  
8 dam construction?

9                   THE WITNESS (Case): We would  
10 definitely need to access from Bruce Park drive to  
11 the water. We would -- we would be on the grass  
12 in that area to get to the crossing.

13                  MR. MERCIER: Okay. So would you  
14 need some type of equipment staging area also? I  
15 mean, would that be in close proximity to the dam  
16 taking up park space?

17                  THE WITNESS (Case): The most  
18 convenient location for the construction of that  
19 coffer dam, whether it's a coffer dam or a bridge  
20 crossing, would be as close to the worksite as  
21 possible so you're not trucking in materials.

22                  And we haven't determined a final  
23 layout area for construction vehicles, materials.  
24 There may be some other sites that are in close  
25 proximity, but I would say the closer we can get

1 to them, that crossing is the most efficient.

2 MR. MERCIER: And again, for the  
3 bridge installation that would also require some  
4 type of crane or heavy equipment that has to be --  
5 probably would have to enter park land and not  
6 stay on the road. Is that correct?

7 THE WITNESS (Case): That is  
8 correct, yeah.

9 THE CHAIRMAN: I believe Mr. Harder  
10 has a followup.

11 MR. HARDER: You indicated that  
12 there's a fair amount of sediment in the area.  
13 Will the project require removal and disposal of  
14 that sediment anywhere, either on the project or  
15 off site?

16 THE WITNESS (Case): Yeah. There  
17 is quite a bit of sediment in there. It would be  
18 proposed for removal. I could talk with  
19 Mr. Libertine about the -- how he proposed to  
20 handle that soil during the excavation.

21 THE WITNESS (Libertine): Yeah, as  
22 part of that we've -- we've got some preliminary  
23 boring data in that area. There's approximately  
24 seven feet of sediment over bedrock in the general  
25 area we're talking about. So to accommodate the



1 lines and the duct banks some of that sediment  
2 would have to be removed and shipped off site and  
3 not replaced. It would be displaced by the actual  
4 conduits.

5 So we would use standard  
6 construction methodology. It might be a little  
7 bit more than standard here because we are talking  
8 about wet sediments, and that would be something  
9 that would have to be trucked off site and staged  
10 appropriately and sampled prior to disposal.

11 MR. HARDER: Thank you.

12 MR. MERCIER: Assuming there was a  
13 coffer dam built, I understand you're excavating  
14 the sediment down to the bedrock. Are you  
15 adhering the duct bank onto the bedrock, or are  
16 you digging it?

17 THE WITNESS (Case): We would place  
18 it on -- on the bedrock. We would probably have  
19 to, you know, depending on what the topography of  
20 that bedrock looked like we might have to do some  
21 leveling of that to be able to kind of key in our  
22 duct bank, but probably minimal work in the rock.

23 MR. MERCIER: In that location it's  
24 just concrete, the pipe encased in concrete  
25 attached to the rock or some suitable substrate?

1                   THE WITNESS (Case): There would be  
2 some pinning of the duct bank to the rock to keep  
3 it from moving.

4                   MR. MERCIER: Would saltwater  
5 degrade the duct bank faster than, say,  
6 freshwater?

7                   THE WITNESS (Case): Yeah, we would  
8 have to check on that.

9                   MR. MERCIER: And for the coffer  
10 dam, as the trench leaves the harbor on either  
11 shore, what's the excavation depth required on  
12 land? As you're going from the water you're  
13 probably what? I think you said seven feet down  
14 or so. Are you raising up at that time? Or are  
15 you staying at seven feet?

16                   THE WITNESS (Case): We would  
17 typically try to keep that same seven-foot to  
18 five-foot cover as we're coming out of the water.

19                   MR. MERCIER: Okay. I just see a  
20 large rock outcrop on the west side, so I wasn't  
21 sure if you had to do some blasting or chipping.  
22 Or have you determined what type of work might be  
23 needed in that particular location?

24                   THE WITNESS (Case): There would be  
25 some removal of rock by mechanical means. I don't

1 believe we would be blasting in that area, but we  
2 would be removing rock.

3 MR. MERCIER: Okay. Thank you.  
4 Looking at Davis Drive, you know, the trench goes  
5 down Davis Drive. When you're constructing the  
6 project does the entire road have to be blocked  
7 off? Or would it be one lane of car travel during  
8 construction within the road?

9 THE WITNESS (Cabral): We would  
10 block off a segment of Davis Ave, probably  
11 somewhere to 200 to 300 feet during our work each  
12 day, and that would be reopened at the end of the  
13 day.

14 MR. MERCIER: So the entire road  
15 would have to be closed, is what you're saying?

16 THE WITNESS (Cabral): In these  
17 locations, yes. There's not enough width. In  
18 order to keep the trench entirely within the  
19 asphalt, there's not enough room to be able to  
20 keep it open.

21 MR. MERCIER: I just see a, you  
22 know, a few residences on map sheet five that feed  
23 directly into Davis Drive. So you would have to  
24 coordinate with these residences?

25 THE WITNESS (Cabral): Yeah, we

1 would have to -- we would coordinate with all of  
2 the residences. We would actually have a  
3 full-time project outreach person that would be  
4 coordinating with all our residents during  
5 construction.

6 So they are fully aware of where  
7 our work zones are, where the maintenance  
8 protection traffic measures are, and how they will  
9 have continuous access to their properties.

10 MR. MERCIER: Thank you.

11 I'm going to flip over to  
12 interrogatory 55 of the Council interrogatories.  
13 I think it was two drawings I requested so I could  
14 have a better handle as what you were doing there  
15 on an aerial photograph. I guess, I'll just look  
16 at the Pet Pantry site that's is the 290 Railroad  
17 Avenue location.

18 Now I know this site was designed  
19 to have a spot for a mobile transformer. If the  
20 need arises, if there was a need for a mobile  
21 transformer, where would it be located. Where  
22 would you ship it in? Over to the southwest side  
23 and hook it up there? Again, this is the Pet  
24 Pantry location.

25 THE WITNESS (Case): For the Pet

1 Pantry site the mobile south location is on the  
2 southwest area. There's a triangular open area.  
3 That's -- the mobile transformer would be in the  
4 southwest area.

5 MR. MERCIER: Okay. You know,  
6 looking at the layout there it looks kind of  
7 wedged into towards the south. Is this the  
8 optimal layout for this substation for this  
9 particular property, you know, for any other  
10 expansion or any other type of need you may have?

11 THE WITNESS (Bowes): I would say  
12 it's a suitable layout. You know, obviously you  
13 could try to compact it more for future expansion,  
14 but I think in Docket 461 it's pretty clear future  
15 expansion was -- was not going to be needed.

16 MR. MERCIER: The only reason I'm  
17 really asking is because, you know, looking at the  
18 photos simulations that were provided in appendix  
19 five, that was the facade of volume two in  
20 appendix five. It kind of showed the brick wall  
21 right up against the sidewalk along Railroad  
22 Avenue.

23 So I was wondering if it could be  
24 pulled back slightly to put a little more space  
25 there instead of being so stark?

1 THE WITNESS (Bowes): Yes, it  
2 could.

3 MR. MERCIER: And again, looking at  
4 volume two of appendix five of the photo  
5 simulation there of the wall, the brick wall, the  
6 addition of any windows, say, on the corner here,  
7 you know, the corner of Railroad and Field Point,  
8 some fake windows that you kind of make it look a  
9 little more like a building. Is that like a  
10 costly item?

11 THE WITNESS (Bowes): It is not.  
12 It's really just cosmetic, and it will be minimal  
13 costs.

14 MR. MERCIER: Thank you.

15 I'm going to flip to interrogatory  
16 57 of the Council's interrogatories. Looking at  
17 the two substation costs they seem pretty much  
18 similar. I understand the Railroad Avenue, 290  
19 Railroad Avenue site has a little more components  
20 you can put on it such as lighting arrestors and  
21 things of that nature.

22 The pole yard site, did it have a  
23 location for our temporary mobile transformer  
24 also? I also don't remember.

25 THE WITNESS (Bowes): No, there is

1 not.

2 MR. MERCIER: Okay. And now  
3 looking at the distribution feeder relocation,  
4 that looks to be about 1.7 million more to have  
5 the substation at the pole yard rather than the  
6 Pet Pantry site. Is that correct?

7 THE WITNESS (Bowes): Subject to  
8 check on the math, I would agree. It's roughly  
9 1.5, 1.6 million.

10 MR. MERCIER: What's driving that  
11 extra cost just to go a couple hundred feet down  
12 the street?

13 THE WITNESS (Case): It is -- it is  
14 the distance. I believe we filed a map that shows  
15 the distance of those feeders. It is roughly  
16 twice as much circuit feet to go to 281 Railroad  
17 Avenue.

18 MR. MERCIER: Yeah, I believe that  
19 was probably in the Town's response?

20 THE WITNESS (Case): Yeah, that's  
21 Town, 'oh seven 'oh.

22 MR. MERCIER: Is it the excavation?  
23 Or is it just the equipment? What's driving the  
24 cost? I'm just trying to get a handle on that. I  
25 know it's a couple hundred feet away.

1                   THE WITNESS (Case): Yeah, so  
2 the -- I would say if you're looking at the 290  
3 Railroad Avenue, the total feet of that is  
4 790 feet of duct bank excavation. For 281  
5 Railroad Avenue it's 1550. So it's the additional  
6 feet.

7                   It's nearly twice as many feet to  
8 get there. So it is excavation, relocation of  
9 utilities, the length of the cable, the materials,  
10 all of that combined.

11                  THE CHAIRMAN: Dr. Klemens?

12                  DR. KLEMENS: I just have one  
13 question as we're comparing these two sites. I  
14 know somewhere -- where I can't put my finger on  
15 it now, you said that the 281 Railroad Street was  
16 not subject to inundation during hurricane surge.  
17 Is 290 Railroad Street subject to inundation from  
18 hurricane surge?

19                  THE WITNESS (Libertine): No, sir.

20                  DR. KLEMENS: So they're both not  
21 affected by hurricane surge?

22                  THE WITNESS (Libertine): That's  
23 correct.

24                  DR. KLEMENS: Thank you.

25                  MR. MERCIER: Just turning to



1 Council interrogatory response number 61 -- oh,  
2 the first bullet. It talks about the 1.4 million  
3 extra for the indoor substation design.

4 Now is that based on the difference  
5 between the indoor and outdoor at the pole yard  
6 site? Or is that based on one substation at the  
7 pole yard and one substation, open-air substation  
8 at the Pet Pantry site? My understanding of it,  
9 it's a pretty large brick wall at the Pet Pantry  
10 site, so I'm just trying to determine what's the  
11 proper cost there?

12 THE WITNESS (Case): The -- the  
13 construction -- the \$1.4 million for the indoor  
14 substation at 290 Railroad would be in place of  
15 the wall. You would -- you would put that, that  
16 building that's currently shown at 281, put that  
17 over at the substation, 290.

18 THE WITNESS (Bowes): Was that  
19 clear?

20 MR. MERCIER: Yes. I don't think I  
21 was clear, but you were clear. Thank you.

22 THE CHAIRMAN: We have a clear  
23 follow-up question.

24 MR. SILVESTRI: So you could have  
25 the facade at either location?

1 THE WITNESS (Case): That is  
2 correct.

3 MR. SILVESTRI: If you put the  
4 facade at the Pet Pantry site, would you enclose  
5 it as well or would you just have the outside  
6 looking as a, you know, condominium complex?

7 THE WITNESS (Case): It would be  
8 the -- essentially the same building moving from  
9 one site to the other.

10 MR. SILVESTRI: Okay. So you would  
11 get rid of the lighting mast that was proposed for  
12 Pet Pantry. You would have the ten-foot high air  
13 terminals instead in that area?

14 THE WITNESS (Case): That is  
15 correct.

16 MR. SILVESTRI: The related  
17 question then, if you do enclose the Pet Pantry  
18 location could you then bring in a temporary  
19 transformer?

20 THE WITNESS (Bowes): So it was not  
21 designed to do that. I will say that we have been  
22 relatively creative in the past of being able to  
23 cable into locations even from -- from outside the  
24 existing substation fence location. So I think it  
25 will -- it will be a challenge for us to do it,

1 but I think we could probably do it with cables.

2 MR. SILVESTRI: But if you have the  
3 brick wall you could use the temporary  
4 transformer?

5 THE WITNESS (Bowes): Yes.

6 MR. SILVESTRI: Okay.

7 THE WITNESS (Bowes): And if we had  
8 the enclosure we would have to figure out a way to  
9 have temporary cables exit the enclosure, maintain  
10 the physical protection while we did that. So  
11 there would probably be some temporary fencing  
12 that would be needed for both the mobile  
13 transformer and also for the cabling that would  
14 enter the building.

15 MR. SILVESTRI: Understood. Thank  
16 you.

17 DR. KLEMENS: So what I'm hearing  
18 in terms of actually having reliability, the most  
19 flexible and best service is to minimize the  
20 amount of structure that you're having on these  
21 footprints.

22 So you bring in the extra  
23 transformer to generate what you need. And this  
24 structure that you've proposed at 281 is really  
25 severely limiting -- or if it were taken to 290,

1 severely limiting the flexibility of your  
2 operations. Is that correct?

3 THE WITNESS (Bowes): So I'm not  
4 sure I would characterize it as severely limiting.  
5 I would say there's some constraints with an  
6 enclosure that we can work with. It's not as  
7 flexible, but I don't really see it as being a  
8 major deterrent.

9 DR. KLEMENS: And you said earlier  
10 that you generally don't build these enclosed  
11 structures. I mean, is this a unique situation,  
12 because I'm all over the state? I see  
13 transformers sitting exposed everywhere. Do you  
14 normally do this, or are you doing this because  
15 you're being pushed into it by the Town?

16 THE WITNESS (Bowes): So I would  
17 answer it in two parts.

18 DR. KLEMENS: Great.

19 THE WITNESS (Bowes): We don't  
20 normally do it, but we also look for properties  
21 where we have several acres. You know, it's not  
22 unusual to have a substation site with a 20-acre  
23 parcel where we use, you know, three or four acres  
24 of that.

25 Here we don't have that same

1 ability to have a large amount of space between  
2 the locations we have selected, either one of  
3 them, and adjacent neighbors, much like the  
4 existing Prospect Substation which is located  
5 in -- in close proximity to the building there.

6           So it's a very, I would say -- I'm  
7 not sure "urban" is the word, but it's a -- it has  
8 customers and neighbors that are in close  
9 proximity to either location. That drives you to  
10 doing some unique things. We don't typically  
11 locate substations within cities, so this is a  
12 somewhat unique one. At least in my experience in  
13 the last, say, ten years we haven't had or  
14 proposed a new substation to the Siting Council  
15 that has the same physical property constraints.

16           Yes, there are some aesthetic  
17 concerns as well and some, I believe, some  
18 legitimate concerns around noise as well as  
19 around, you know, safety from these locations that  
20 we've tried to address with a couple of options  
21 for the Council to consider.

22           DR. KLEMENS: Is the noise muffled  
23 equivalently with the two different types of  
24 screening, the totally enclosed versus the wall?

25           THE WITNESS (Bowes): No. The wall

1 is -- the wall has minimal impact, I would say,  
2 versus the enclosure has significant impact.

3 DR. KLEMENS: Thank you.

4 MR. HANNON: Thank you. I just  
5 want to follow up a little bit on the mobile  
6 transformer. So if you could clarify this for me?  
7 You're talking about you may be able to work out a  
8 scenario where you could get the mobile  
9 transformer onto the site if you build the  
10 structure, but that's at 290, not 281. Correct?

11 THE WITNESS (Bowes): So for 290  
12 there's -- there's room outside the enclosure to  
13 locate the mobile transformer.

14 MR. HANNON: Okay. Then that gets  
15 me to what my question really is. You had just  
16 mentioned to Dr. Klemens earlier that the  
17 structure itself is secure without any kind of a  
18 fence.

19 If you're not taking and having  
20 these cables going outside of the structure, and  
21 you're establishing a mobile transformer beyond  
22 that structure, isn't that a security issue? And  
23 what would you do to address that problem?

24 THE WITNESS (Bowes): And actually  
25 it's the same thing we do today when we have those

1 situations. Some of the existing distribution  
2 substations are very compact and we tend to put a  
3 temporary fence outside the existing fence line to  
4 secure the mobile transformer. We could do that  
5 same type of installation here. We would not  
6 leave the mobile and its cables exposed to the  
7 public. We would install the proper barriers to  
8 deal with that.

9                   And like I said, we do that  
10 routinely today for distribution substations, and  
11 we could accommodate the same thing at this  
12 location.

13                   MR. HANNON: Thank you.

14                   THE WITNESS (Bowes): At 281 we  
15 might have to locate the mobile transformer,  
16 again, in an extreme case of that off our existing  
17 property and we would need to seek temporary  
18 rights to do that.

19                   MR. HANNON: Thank you.

20                   MR. MERCIER: Just one other  
21 question I had. You know, at the 281 location  
22 there was some mention of a plug-and-switch system  
23 in lieu of a traditional circuit breaker. Is that  
24 a more costly item, a significant cost?

25                   THE WITNESS (Bowes): So yeah, it's

1 approximately a half million-dollar incremental  
2 cost.

3 MR. MERCIER: And my last question  
4 has to do with the handout today. Is this a more  
5 cost-effective design or a more reliable design?  
6 Or you just re-examined it and determined that  
7 this is the way to go?

8 THE WITNESS (Case): It is a  
9 definitely more cost-effective design when you're  
10 constructing with concrete. It's made of a much  
11 heavier construction, a lot more steel, a lot more  
12 concrete. So it definitely was driven by cost --  
13 cost drivers.

14 I do believe that we could make it  
15 a reliable design. It's probably not as reliable  
16 as being encased in concrete, especially when  
17 you're facing potential storm surges, but being  
18 underhung under that bridge, we could probably  
19 secure it well enough to be comfortable with it.

20 MR. MERCIER: You may have  
21 mentioned it earlier, but I don't have my note.  
22 Did you revise the cost estimate of the bridge  
23 based on this design?

24 THE WITNESS (Case): The estimate  
25 had already included the reduced side. The



1 correction was for the -- the cross section, but  
2 the estimate we have stands as it is.

3 MR. MERCIER: Okay. Thank you. I  
4 have no other questions.

5 THE CHAIRMAN: Mr. Harder had a  
6 followup.

7 MR. HARDER: I had a couple of  
8 questions on something you said earlier concerning  
9 your description or your explanation of how the  
10 load projection changed. And because of that you  
11 see this as a reliability project, purely a  
12 reliability project.

13 What would you describe as the  
14 basis for those changes in all those projections?

15 THE WITNESS (Bowes): So which  
16 projections are you talking about? From -- from  
17 Docket 461 until now?

18 MR. HARDER: Yes, I'm sorry. Yes.

19 THE WITNESS (Bowes): Okay. So I  
20 think there have been several things that have led  
21 us to that change in how we project loads. ISO  
22 New England revised their load forecast. We have  
23 since filed our 2017 load forecast with the  
24 Connecticut Siting Council, which basically  
25 show -- depending on conservation or energy

1 efficiency or not, but in essence zero load  
2 growth. And the Council and the OCC in the last  
3 proceeding questioned our need for 1 percent  
4 annual load growth.

5                   So I think those three things  
6 combined led us to revise our thinking around how  
7 we project loads in the future.

8                   MR. HARDER: The part of that  
9 that's based on energy efficiency and alternative  
10 energy installations and that kind of thing, would  
11 you say that was a significant part, the majority,  
12 or not significant?

13                   THE WITNESS (Bowes): So there's  
14 three things that ISO uses, and those are probably  
15 in order as how I would see them as. There's  
16 energy efficiency first; distributed generation,  
17 specifically solar in Connecticut and  
18 Massachusetts; and demand response programs either  
19 from ISO New England or from third parties to try  
20 to take advantage of reducing their demand.

21                   As -- at least in Connecticut, as  
22 PURA has approved rates that focus on a portion of  
23 commercial/industrial customers on their demand  
24 usage and pushed more for demand and less for  
25 usage, there's now an economic advantage for those

1 customers to take advantage of demand response.

2 So again in summary, energy  
3 efficiency, distributed generation and demand  
4 response are probably the three leading causes of  
5 a change in both demand as well as reduction in --  
6 in usage.

7 MR. HARDER: For the Greenwich  
8 area, are you able to, I guess, quantify it all or  
9 give us some indication of how well the customers  
10 in that area have implemented energy efficiency  
11 projects, taken steps in that direction,  
12 distributed energy, solar systems and whatever?  
13 You know, are they doing a great job, a bang-up  
14 job? Or are they just kind of dipping their toes  
15 in?

16 THE WITNESS (Bowes): Yeah, I'll  
17 start with a high-level response. Then we have  
18 Mr. Araujo who can provide more details as a  
19 manager of energy efficiency programs.

20 So I would say in general the  
21 response since -- since Docket 461 by the Town of  
22 Greenwich has been very positive. We've had five  
23 separate meetings with them to talk about energy  
24 efficiency both within the town as well as, you  
25 know, at their own facilities.

1           And Mr. Araujo can go into some of  
2 that detail, but we've -- I think we've -- we  
3 still have opportunity with the Town, but I think  
4 we're -- we're going in the right direction.

5           THE WITNESS (Araujo): Good -- I  
6 think it's good afternoon now. Yes, we've been  
7 working with the Town of Greenwich on actually  
8 trying to take energy efficiency to the next  
9 level, if you will. Greenwich heretofore has not  
10 necessarily been one of the top performers.  
11 Actually it's in the bottom area as far as  
12 performance from residential participation. I  
13 think it was fifth lowest of all the towns that we  
14 serve.

15           And so what we've done since June  
16 of last year is actually work with Greenwich to  
17 identify what I will call an action plan on how to  
18 engage the various areas within Greenwich to take  
19 advantage of energy efficiency at a much greater  
20 pace.

21           The first thing we did was actually  
22 work with the Town on doing a joint letter as far  
23 as reaching out to residents to make sure that  
24 they -- that they would sign up and take advantage  
25 of home energy efficiency audits and the direct

1 installation of high-efficiency lighting and air  
2 sealing to reduce the electric consumption within  
3 the homes within the Greenwich area.

4           The second thing that we've been  
5 doing is we've been working with Greenwich on  
6 identifying the -- the facilities, the town  
7 facilities that they would be able to approach and  
8 actually strategically start to go after energy  
9 efficiency, versus conducting it the way they have  
10 in the past which is identifying various projects  
11 here and there, but looking at it more  
12 holistically in how we can address that, because  
13 that way we can actually get some meaningful  
14 savings from the various buildings.

15           And then the third component, which  
16 we're still underway working with -- with the Town  
17 and also the chamber of commerce in Greenwich is  
18 to establish a business outreach campaign, and  
19 that's something that we're anticipating starting  
20 later on this fall to try to reach out to the  
21 community there.

22           THE CHAIRMAN: This is really  
23 not -- I mean, this is an important discussion,  
24 but I don't follow. I mean, it's -- we're going  
25 to break at one o'clock, so if you still have more

1 questions then just continue.

2 MR. HARDER: Just a final question,  
3 I guess. Kind of a leading point -- it all leads  
4 me to is, with the steps you think Greenwich has  
5 taken and it can take reasonably, and they do as  
6 good a job as they can, whatever that means, does  
7 that change anything about the 461A, of the need  
8 for it?

9 THE WITNESS (Bowes): It doesn't  
10 change the -- it doesn't change the need for our  
11 project, but what it does is it extends the life  
12 of that project. So it could extend its -- extend  
13 it forever if we continue to see demand reduction,  
14 energy efficiency in the town and some distributed  
15 generation.

16 So I believe it is a natural  
17 follow-on to potentially retire additional  
18 substations in the town, and move forward with a  
19 more modern electric system in Greenwich that's  
20 from a, you know, 15-kV class system. We have  
21 several other projects that will go forward  
22 provided the demand is curtailed.

23 And you know, we're kind of  
24 counting on the Town to -- to prolong the life of  
25 this project so we don't have to come back with an

1 additional project in the future.

2 MR. HARDER: Thank you.

3 DR. KLEMENS: I've got one question  
4 just for now.

5 THE CHAIRMAN: All right, because  
6 we're going to take a break at one -- but get the  
7 follow-up questions anyway.

8 DR. KLEMENS: Well, it was part of  
9 my original, but now it's going to become a  
10 followup.

11 On Stacy, the interrogatory Stacy  
12 01 I think you quite clearly said that despite  
13 everything that's happening, that you're not going  
14 to ask for a suspension of the current proceeding  
15 to explore energy storage as an alternative to the  
16 currently proposed project. Do you stand by that?

17 THE WITNESS (Bowes): Yes, I do.

18 DR. KLEMENS: Thank you.

19 THE CHAIRMAN: Okay. We're going  
20 to take a break until 1:45 when we'll reconvene.

21

22 (Whereupon, a recess was taken from  
23 12:53 p.m. to 1:50 p.m.)

24

25 THE CHAIRMAN: Good afternoon.

1 We'd like to resume the meeting of the Connecticut  
2 Siting Council, and we're now going to  
3 cross-examination by members of the Council,  
4 starting with Dr. Klemens.

5 DR. KLEMENS: Thank you. Thank  
6 you, Mr. Chairman.

7 I have questions that really fall  
8 into several different categories. I guess I'm  
9 going to start with Mr. Bowes' prefiled testimony  
10 that is contained in the first volume of the  
11 application. And I'm going to direct your  
12 attention to page 11, and to line 315.

13 And I know we only have one project  
14 now. For the record, could you tell us what is  
15 the difference in the cost of the two projects,  
16 the one that was not built or cannot be built, and  
17 the one before us?

18 THE WITNESS (Case): The originally  
19 proposed hybrid route was \$78 million. The  
20 currently proposed underground route is a hundred  
21 million dollars.

22 DR. KLEMENS: A hundred and?

23 THE WITNESS (Case): It's  
24 \$99.7 million. 99.7 million.

25 DR. KLEMENS: So roughly we're



1 talking about \$20 million, \$22 million more?

2 THE WITNESS (Case): That is  
3 correct.

4 DR. KLEMENS: Okay. The next  
5 question, it sort of follows up on this. Are  
6 there any mechanisms that you've explored to pass  
7 on some of these increases, some of these cost  
8 differentials of the cost of this project in a  
9 more equitable manner than to all the ratepayers  
10 in Connecticut?

11 THE WITNESS (Bowes): So I'm aware  
12 that the Siting Council has in the past allocated  
13 costs locally in at least one decision. That is a  
14 mechanism to do that. The other mechanism could  
15 be through local property tax abatements.

16 DR. KLEMENS: Are you aware -- are  
17 you familiar with the concept of the gas guzzler  
18 tax that was put on motor vehicles?

19 THE WITNESS (Bowes): I would say  
20 I'm somewhat familiar with it, not specifically,  
21 though.

22 DR. KLEMENS: Would you understand  
23 what the basic premise of it was?

24 THE WITNESS (Bowes): Yes.

25 DR. KLEMENS: Could you tell us

1 that, please?

2 THE WITNESS (Bowes): If an  
3 automobile or a truck, light duty truck, it didn't  
4 meet a certain miles per gallon, then they would  
5 be assessed a penalty to be paid by the consumer  
6 that purchased the vehicle.

7 DR. KLEMENS: And let's try to put  
8 that into the situation we're faced here. You  
9 testified in the previous proceedings that a large  
10 part -- let me back up on this.

11 There was a testimony that the  
12 population actually in Greenwich had decreased,  
13 but the per capita consumption was increasing. Do  
14 you recall that?

15 THE WITNESS (Bowes): I don't -- I  
16 don't specifically. I know we talked about  
17 populations at certain periods of time in  
18 Greenwich, and I know we talked about what their  
19 average usage was.

20 DR. KLEMENS: Do you recall talking  
21 about a thousand-amp service in many of the newer  
22 houses? Do you recall that?

23 THE WITNESS (Bowes): There were  
24 certainly service upgrades that Eversource was  
25 accommodating for consumers in Greenwich.

1 DR. KLEMENS: For residential  
2 homes?

3 THE WITNESS (Bowes): Yes.

4 DR. KLEMENS: Would you consider  
5 that energy guzzling?

6 THE WITNESS (Bowes): So -- so I've  
7 never thought of it in that light.

8 DR. KLEMENS: I'm sure you haven't.  
9 That's why I'm bringing it up.

10 THE WITNESS (Bowes): So typically  
11 rate structures that deal with consumption, at  
12 least through my dealings, have been done through  
13 PURA in how they set rates for, whether it's  
14 electric users, whether it's limited income rates,  
15 or whether it's people that use above the average.  
16 That's normally accomplished through a rate  
17 mechanism set by PURA.

18 DR. KLEMENS: So you're coming in  
19 front of this Council asking for a very, very  
20 expensive project. Now admittedly, it has been  
21 made even more expensive by the actions of the  
22 Town of Greenwich.

23 What I'm trying to understand is,  
24 and troubled by it, we pay some of the highest  
25 electrical rates in the nation and anything that

1 happens is going to be passed on to all the  
2 consumers in Connecticut. So I'm trying to  
3 understand to get my comfort level up on, firstly,  
4 the equitability of what's happening and whether  
5 it's actually needed.

6           And I'm going to get to whether  
7 it's actually needed in a bit, but I'm trying to  
8 get at the fact particularly given the response  
9 that you're not going to even slow this down based  
10 on voluntary conservation efforts that you talked  
11 about just before the break. I'm just concerned  
12 about where we're taking this.

13           THE WITNESS (Bowes): So I guess I  
14 would respond in at least two parts, maybe three.  
15 So we've deferred a bulk substation in Greenwich  
16 for more than 20 years by making incremental  
17 improvements.

18           In 2011 we realized that that was  
19 kind of at the end of what we could do, and we  
20 needed to ultimately install a new bulk substation  
21 in Greenwich. So I would say that we have gotten  
22 full use if not, you know, more than full use of  
23 the existing assets that we have had in Greenwich.  
24 So that's point one.

25           Point two is -- is in your lead up,

1 or with -- your statement to the question  
2 indicated that it was the Town's actions that  
3 changed the project. Other than what people have  
4 said publicly, including some of the state's  
5 politicians, I don't have that firsthand  
6 knowledge. I sat with the DOT lead real -- rail  
7 engineer and he articulated to me, and then put it  
8 in writing why the hybrid solution could not be  
9 permitted by the DOT. That's the facts that I  
10 know.

11 So there may be other facts that --  
12 that I don't know, but that's the firsthand  
13 knowledge I have of -- of what transpired with the  
14 PMP and then the AMP projects.

15 DR. KLEMENS: Despite the fact on  
16 page 12, line 354, you were quite brimming with  
17 confidence that it was going to happen. So what  
18 happened the time you were brimming with  
19 confidence? What transpired to change these  
20 events that we're now looking at a project that's  
21 \$22 million more?

22 THE WITNESS (Bowes): So what was  
23 explained to me on our meeting with C-DOT  
24 officials on June 14th was that, while the  
25 engineers at both Eversource and our consultants

1 C-DOT Roads and C-DOT Rails had come up with a  
2 solution that could be built, they had not cleared  
3 that with the senior leadership at C-DOT.

4 And when C-DOT leadership  
5 recognized those issues, coupled it with their own  
6 operational and maintenance issues, they could not  
7 support our hybrid project. That's how it was  
8 explained to me.

9 DR. KLEMENS: Okay. Thank you.

10 On your prefiled testimony page 12,  
11 line 367, you make a statement that the residents  
12 of Greenwich and the businesses that are located  
13 there are important contributors to the economy,  
14 political or cultural life of the state, not just  
15 to the town of Greenwich. These contributions  
16 require reliable electric service in order to  
17 flourish.

18 Couldn't you say that about any of  
19 the other 169 towns in Connecticut?

20 THE WITNESS (Bowes): Yes, I could.

21 DR. KLEMENS: Okay. Thank you.

22 We've heard a lot of talk about the  
23 need for reliability, and that's on line 367.

24 How reliable -- and I tried to get  
25 at this earlier -- how reliable is the system

1 compared to the other 169 towns in the state?

2                   Now before you answer, you just  
3 made a distinction between an outage that was  
4 caused by feeder lines, but to the average  
5 consumer I would think an outage is an outage. So  
6 what I would like to know is -- we had a two hour  
7 outage of 400-some homes in Greenwich. How does  
8 that compare with your service for the rest of the  
9 state for consumers in the other 168 towns in the  
10 state? Are they receiving better service? Less  
11 service? What makes this so unique?

12                   THE WITNESS (Bowes): So I would  
13 say that we do look at reliability by town, and we  
14 have done that recently for the town of Greenwich.  
15 And we use typically two predominant reliability  
16 metrics. One is the frequency of interruptions  
17 and the other is the duration of interruptions.

18                   We usually compare those on an  
19 aggregate basis with metrics that we sometimes  
20 call SAFE, which is a frequency on the system, and  
21 SADE which is a duration of what the average  
22 customers see.

23                   The town of Greenwich customers for  
24 several reasons experience reliability that is far  
25 below the state average. And with the obligation

1 to serve we look at trying to equalize the  
2 reliability for all of our customers whether  
3 they're in Hartford, Danielson or Greenwich. And  
4 today the town of Greenwich customers are not  
5 receiving anywhere near the average reliability of  
6 other customers in the state.

7 DR. KLEMENS: So you have a list of  
8 towns, or where you could actually show where  
9 Greenwich ranks compared to the other 168 towns?  
10 Is there such a listing who has the best  
11 reliability?

12 You say they're below the average  
13 reliability, but that's not very informative for  
14 me to understand where Greenwich really lies. And  
15 that's going to lead to the next question, is the  
16 investment that you're making here but --

17 THE WITNESS (Bowes): So we don't,  
18 as far as I know, do anything by town in the state  
19 of Connecticut. We do it by circuit. So of our  
20 1100 distribution circuits we rank each one of  
21 those, and on an annual basis we report to PURA  
22 what the worst hundred performing circuits are.  
23 So that is publicly available information. We can  
24 certainly provide that and could identify the  
25 Greenwich circuits that have -- are on the list.



1           So we did it for purposes of  
2 showing the town in a meeting last year -- we  
3 showed them where they were a year to date for  
4 2016. And the average customer in Connecticut  
5 goes about 16 months between an interruption, and  
6 they see about 80 minutes, 85 minutes per year  
7 average interruption time.

8           Greenwich at that point in time was  
9 below ten months. So they were seeing  
10 interruptions more frequently in the ten months  
11 with duration. And at midyear they were already  
12 over a hundred minutes, about 111 minutes at  
13 midyear. So their reliability was significantly  
14 worse than the rest of Connecticut.

15           DR. KLEMENS: And are you investing  
16 with the same level of commitment of resources in  
17 the other circuits that are not performing as  
18 well, because there seems to be -- this is not the  
19 bottom of the tier by any means? Correct?

20           THE WITNESS (Bowes): On a circuit  
21 level basis there would be several circuits in  
22 Greenwich that would fall onto that list of the  
23 worst performing circuits in the top 100.

24           DR. KLEMENS: What I'm trying to  
25 get at is, are there other parts of the state

1 which has worse service, worse reliability and are  
2 you investing the same amount? And I have to  
3 think about it in towns. That's the way I'm  
4 hardwired -- or regions. Are there areas where  
5 you're investing this amount of money into to  
6 improve reliability?

7 THE WITNESS (Bowes): So on the  
8 distribution side the answer would be yes. We  
9 oftentimes try to locate new substations where  
10 there's an existing transmission corridor,  
11 existing transmission line. That's one of our  
12 first criteria we look for.

13 In this case the majority of the  
14 cost is getting the transmission connection to the  
15 new substation. So for a substation basis I would  
16 say it's very similar to what we would do  
17 elsewhere in Connecticut, like the Siting Council  
18 has seen probably ten projects in the last ten  
19 years for new bulk substations on our system. And  
20 those range from Oxford to Step Stone, to Root  
21 Avenue, to name a few.

22 So we look at where the need is,  
23 and in your process of looking forward we project  
24 when we would need a bulk substation. This was  
25 projected, I believe, starting in 2011 or 2012.

1 They would ultimately need a substation in  
2 Greenwich. So we followed the same process here.

3 I do agree that the interconnection  
4 on the transmission side is more costly in this  
5 case because we need to extend the transmission  
6 line. That is somewhat unique, but again, this is  
7 the last town in the state of Connecticut, so it's  
8 logical that that would have to occur.

9 DR. KLEMENS: So do you have  
10 parallel problems in Thompson, Stonington and  
11 Salisbury? Or is it because of the configuration  
12 that Greenwich sort of sticks down southwesterly  
13 like a finger in toward New York?

14 THE WITNESS (Bowes): No. If you  
15 remember many years ago we proposed a Chinook  
16 Substation, which again is right there at the  
17 border with Rhode Island, and reconfigured that  
18 entity. We've had projects ongoing at Williams  
19 Street in New London. We've had projects at  
20 Mystic to rebuild those substations.

21 So along the edges of our -- of our  
22 service territory on the Rhode Island border we  
23 have similar service issues. I will say there are  
24 usually fewer customers in those areas especially  
25 as you get up to the northeast corner of the

1 state, but we do propose projects over there for  
2 the customers based on the needs that we see.

3 DR. KLEMENS: Okay. It was always  
4 discussed about. If you don't perform reliably,  
5 you're not reliable. You're going to get fined by  
6 this entity ISO New England. They levy fines.

7 We talk about these but we never  
8 actually understood what is the nature of the  
9 fines and how much. And I was thinking about  
10 this. How many ISO New England fines could you  
11 incorporate in a hundred million dollars?

12 I mean, I'm just thinking about,  
13 you know, about what are they going to fine you if  
14 they fine you. You've had a couple of unreliable  
15 incidents in the last few years. What would they  
16 cost versus again going through all of this  
17 construction?

18 THE WITNESS (Bowes): So I'll start  
19 again in two parts. The fines that you're talking  
20 about are -- really come from the North American  
21 Electric Reliability Corporation or NAERC, and  
22 they are for failure to meet planning or operating  
23 standards on the bulk power system.

24 In this case Cos Cob would be the  
25 only asset that would be -- or potentially

1 included in that situation. So if we fail to plan  
2 on the transmission side properly in Southwest  
3 Connecticut we would be subject to either  
4 operating the system accordingly, which would mean  
5 shedding load, or proposing projects, a long  
6 history of projects in southwest Connecticut, the  
7 Bethel/Norwalk, the Middletown/Norwalk, the  
8 Glenbrook cables, the Stamford reliability  
9 project.

10 In other projects that came to you  
11 as petitions, which have included several at Cos  
12 Cob, several at Glenbrook, several at South End  
13 Substation -- so those deal with more of the NAERC  
14 penalty issues that the company could face if we  
15 chose to operate the system inappropriately. Most  
16 of the issues you're seeing in Greenwich are  
17 occurring on the 27-kV, or 13-8 or 4.8-kV system.  
18 Those would be subject to regulatory oversight by  
19 PURA, not the NAERC in this case.

20 DR. KLEMENS: And what would they  
21 do to you if there were failures?

22 THE WITNESS (Bowes): So they could  
23 open a docket. They could require us to do  
24 certain things, and I guess in the most extreme  
25 case they could level a financial penalty against

1 us.

2 DR. KLEMENS: But that's an  
3 undisclosed amount. You can't even speculate what  
4 that would be?

5 THE WITNESS (Bowes): Usually it's  
6 led to situations like we had maybe 20 years ago  
7 in the town of Simsbury, where out of that a  
8 settlement was reached and we agreed to build a  
9 new bulk -- bulk substation in the town of  
10 Simsbury.

11 So that could be an outcome of a  
12 PURA regulatory process if we were to get into  
13 that. They could order us to -- to install a new  
14 substation.

15 DR. KLEMENS: So we could -- you're  
16 saying that they could actually in a sense  
17 override, or at least say no, let you be as you  
18 are. It could still be subject to PURA opening up  
19 a docket and forcing this to happen?

20 THE WITNESS (Bowes): Well --

21 DR. KLEMENS: I mean, I'm being  
22 very simplistic about this. I'm sorry.

23 THE WITNESS (Bowes): I'm not sure  
24 they can force the transmission portion of the  
25 project.

1 DR. KLEMENS: Of those 400 and some  
2 houses in Greenwich that lost power, do you have  
3 any data on what the nature of their amperage  
4 service was?

5 THE WITNESS (Bowes): I do not.

6 DR. KLEMENS: So we don't know if  
7 there was a bunch of McMansions with a  
8 thousand-amp service that basically are left in  
9 the dark, or working class homes in Pemberwick or  
10 Byron?

11 THE WITNESS (Bowes): Well,  
12 geographically it was in the Byron area, but  
13 obviously we could generate a list of customer  
14 names and provide it under protective order,  
15 but --

16 DR. KLEMENS: I think you're  
17 answering my query. I think you're helping me to  
18 get where I'm getting. So it's your position  
19 that --

20 Well, let's talk about your work  
21 with the Town of Greenwich. Could you specify in  
22 more detail what happened on Earth Day and what's  
23 going on? I know there was some testimony earlier  
24 of what's happening in Greenwich, to have more  
25 conservation. But I guess I understood earlier

1 that that's not going to make any difference to  
2 your plans to go forward with this. You testified  
3 to that earlier?

4 THE WITNESS (Bowes): So I would  
5 maybe frame it as it's -- it's anticipated that  
6 there will be energy efficiency, distributed  
7 generation and demand response in the town of  
8 Greenwich that mitigates any future increase in  
9 electrical consumption in the town. That's the  
10 planning basis that we're going forward with.

11 There is some additional margin  
12 built into this project, but it was not done for a  
13 capacity increase. It was done purely because  
14 that's the standard size of our equipment. So  
15 Mr. Araujo can go through the details of the  
16 activities we've had with the town.

17 DR. KLEMENS: I think you sort of  
18 did already before break. Was there more after  
19 that you told Mr. Harder?

20 THE WITNESS (Araujo): Well, the  
21 only thing is I think you were asking explicitly  
22 about the -- I think you were asking explicitly  
23 about the Earth Day event for this year.

24 DR. KLEMENS: Yes, sir.

25 THE WITNESS (Araujo): And what we



1 did is we worked with the Town on planning what we  
2 call a lightbulb swap where -- at the teen center  
3 where we allowed customers to come in and exchange  
4 their incandescent lamps for LED lamps, and we did  
5 that.

6           And while we were there we also had  
7 a couple of our home energy solutions vendors.  
8 These are the vendors that provide energy  
9 efficiency services within the homes. We have  
10 them present as well so that way we could sign  
11 them up for home weatherization services to help  
12 try to go out and replace their lighting as well  
13 as make their homes more efficient.

14           So that was part of the Earth Day  
15 event, and we worked jointly with the Town on  
16 making sure that that was advertised to all the  
17 residents.

18           DR. KLEMENS: Thank you.

19           On the interrogatory response this  
20 is, I guess, a response to the Town of Greenwich  
21 interrogatory, and outlining the interruptions in  
22 service. There were three of them, August 2012,  
23 July 2015, and April of 2016.

24           As I read it -- and just please  
25 just tell me if I'm wrong, the two of these would

1 not have been affected in any way or helped by  
2 what you're proposing?

3 THE WITNESS (Bowes): Do you have a  
4 reference number on the interrogatory?

5 DR. KLEMENS: Sure. It's Town  
6 01-76-27. It's the question of the Town, number  
7 17. It's your response to the witness panel from  
8 the Town of Greenwich, page 1 of 2. It was sent  
9 on the 18th of July.

10 THE WITNESS (Bowes): So I believe  
11 the answer to your question is -- is that is  
12 correct. Two -- two would not have been mitigated  
13 by our project.

14 DR. KLEMENS: Okay. Thank you.  
15 Then on the same interrogatory,  
16 Town of Greenwich, question number 22. There is a  
17 table, 2014 Greenwich usage by class.

18 Is that breakdown -- is there  
19 something? Is that typical? I have nothing to  
20 judge it by, but is that a typical residential  
21 versus commercial/industrial usage in a town  
22 that's built like Greenwich, a suburban town in  
23 Fairfield County?

24 What I'm getting at, is the  
25 residential usage unusually large? Does this jump

1 out as being larger than most in comparison to the  
2 population?

3 THE WITNESS (Bowes): So I would  
4 say that it's -- it's clearly above the average  
5 for the state. I think we've previously said the  
6 average is around 700 kWh per month, and Greenwich  
7 is somewhere around 1700 kWh per month. I  
8 remember that from -- from Docket 461.

9 So I would say it's certainly  
10 higher for the residential per customer usage.  
11 The other interesting thing, obviously the  
12 railroad is a significant user.

13 DR. KLEMENS: Right. Correct.

14 THE WITNESS (Bowes): That would  
15 also occur in other towns where there's a C-DOT or  
16 Metro-North interconnection. So that would be  
17 somewhat unique in the state as well.

18 DR. KLEMENS: Right, but compare it  
19 to, let's say, Norwalk or Westport or any of those  
20 towns. It seems high at least in my  
21 understanding. And again, that points to my whole  
22 question of the way that you can see that we can  
23 recover some of the cost to the ratepayers from  
24 those people that are benefiting.

25 And that's why I came with this

1 idea of a gas guzzler concept, that maybe there is  
2 a way for those that are using so much above the  
3 average norm in the state to have some of this  
4 cost passed onto them, as opposed to being  
5 amortized over all the ratepayers of the state.

6 That's a question.

7 THE WITNESS (Bowes): So -- yeah,  
8 so I would say that when Eversource looks at  
9 proposing projects we do look at how much of the  
10 solution is contained within the regional network  
11 service rate, which would be spread across all the  
12 customers in New England.

13 We look at how much of the solution  
14 would be spread across the local network service  
15 customers, which are spread across all the legacy  
16 Northeast Utilities companies as well as other  
17 users. And then we look at how many -- how much  
18 of the project is in our distribution rates.

19 So I think we've discussed before  
20 the CL&P footprint has an LNS -- or an RS rate of  
21 approximately 20 percent. So every dollar we  
22 spend for RNS we pay 20 percent of in the state of  
23 Connecticut. For LNS it's approximately  
24 60 percent, and then of course for distribution  
25 it's a hundred percent. So when we do look at

1 solutions we look at the rate impacts of those  
2 solutions.

3           Now if PURA were to decide a  
4 different allocation within the State of  
5 Connecticut for how distribution rates are  
6 managed, that would be under their purview.  
7 History has shown that when we have localized  
8 costs for the RNS rate, that PURA chose to spread  
9 those costs across all customers in the state and  
10 not localized them to, for example, in  
11 Bethel/Norwalk or Middletown/Norwalk, what towns  
12 receive the under-grounding portion of those  
13 transmission projects.

14           So there is a precedent out there  
15 that those costs are spread and I'm not suggesting  
16 that that necessarily has to go forward. All I'm  
17 suggesting is that they have ruled on it. The  
18 Siting Council has ruled at least once in the past  
19 on to how localize costs for a project. So  
20 there's some precedent there, but in general you  
21 have not done that with under-grounding  
22 transmission costs.

23           DR. KLEMENS: Okay. Thank you.  
24 That's very helpful. It gives me food for  
25 thought -- maybe that's not good. Okay.

1           Let's get onto something maybe a  
2 little bit less political and grating, and let's  
3 talk about the alternative that I suggested  
4 because there's many ways to try to reduce costs  
5 from the project. One of them is to try to have  
6 those that benefit carry more of the cost, and we  
7 just had a discussion on that, but then there are  
8 other ways to save money.

9           And I earlier suggested as a  
10 follow-up question this concept of running the  
11 line from Sound Shore Drive south of interstate 95  
12 to meet up with Indian Harbor -- and that's Indian  
13 Harbor -- make sure I say it right -- Indian Field  
14 Road, excuse me. And one of the first things  
15 right out of the barn was -- I think it was  
16 Mr. Cabral who said we are going to have to get an  
17 easement across the parking lot.

18           And then Mr. Mercier said, are  
19 those easy to get? But I don't see why you would  
20 need one at all. If you look at map one of eight,  
21 it seems to me that the Sound Shore Drive land  
22 intersects right at the end of it before it goes  
23 onto Interstate 95. It intersects with the DOT  
24 property, so I don't see why you would need an  
25 easement to achieve what I suggested.

1                   THE WITNESS (Bowes): So I will  
2 start and then turn it over to -- to other  
3 witnesses. We did evaluate this general route for  
4 the overhead portion of the line as originally  
5 proposed in -- in the past docket and also looked  
6 at it again as part of this analysis.

7                   And then we've also now looked at  
8 an underground route along this same general area,  
9 and I know we do have some additional details from  
10 what we've testified to this morning.

11                   THE WITNESS (Soderman): So one of  
12 the things that we looked at in the original  
13 docket when we -- we were looking at possible  
14 overhead options through Bruce Park, which is one  
15 of the things that we were trying to consider, is  
16 we did try to look to come on the south side of  
17 I-95 to avoid those long spans of crossings.  
18 Okay?

19                   Because when you're taking a look  
20 at the aerial photograph it seems like such a  
21 natural place to follow, but one of the problems  
22 that we have -- so there's -- there's basically  
23 three things that we have to think about that are  
24 kind of a concern for being on the south of I-95  
25 there.

1           Number one, because I-95 is built  
2 up so much for the overpass and it's sloping down  
3 to Cos Cob Harbor there's a tremendous side slope  
4 that would make construction that much more  
5 expensive. Because you have to also set up, not  
6 just your trenching area and the trench boxes  
7 there, but you still have to have those access  
8 roads to get your concrete trucks in.

9           The next thing that we took a look  
10 at, and maybe you'll see it a little bit more when  
11 you take a look at map sheets two and three of  
12 eight. Okay? And you'll notice between the exit  
13 ramp and the residence and the property on Cos  
14 Cob -- on Cobb Island Drive it gets to be very,  
15 very narrow. So that was one of the things that  
16 we were trying not to completely eliminate, the  
17 vegetation between I-95 and those homes on the --  
18 homes and facilities on Cobb Island Drive.

19           And you know, obviously the last  
20 thing was -- is the additional controls that we  
21 would have to put in place to try and make sure  
22 that we don't have any sort of construction  
23 activities disturbing the harbor.

24           DR. KLEMENS: Well, okay.

25           Well firstly, I personally wouldn't



1 have an objection to having overhead wires in that  
2 segment, but that doesn't all have to be  
3 underground. I think that might be a good place  
4 to put overhead wires in that segment to avoid a  
5 lot of the digging on the hillside.

6 I see it's a steep hill. It's  
7 also, I believe, that edge of the Cos Cob  
8 Harbor -- maybe Mr. Libertine could talk to that.  
9 That's certainly not a natural edge there that I'm  
10 looking at. It looks to me that that slope is  
11 largely filled?

12 THE WITNESS (Libertine): I -- I  
13 think you're right, Dr. Klemens. I think the idea  
14 of an overhead run there pretty much creates the  
15 same limitations or constraints that Mr. Soderman  
16 raised, in that we have to build an access road  
17 through there. So we're still talking about a  
18 major disturbance.

19 And we did look at this and bedded  
20 this out in the original docket, and it just  
21 became problematic from -- well, really for the  
22 reasons that Mr. Soderman had outlined already.  
23 But regardless if we go underground or aboveground  
24 the level of disturbance is almost the same, just  
25 at both construction and then to maintain that

1 clearance beneath the lines if they were to be  
2 overhead.

3 DR. KLEMENS: Do you have a cost  
4 estimate for that, because we're looking at a very  
5 expensive routing potentially under Interstate 95  
6 at exit -- the Cos Cob exit there? We're talking,  
7 I think, almost \$3 million to do the bore. If DOT  
8 doesn't allow you to use the bridge, is this  
9 greater than \$3 million?

10 THE WITNESS (Case): Are you -- are  
11 you looking at an overhead on the south, or an  
12 underground along the south of I-95?

13 DR. KLEMENS: Either. I mean, give  
14 us one or the other?

15 THE WITNESS (Case): I would say as  
16 far as underground it's probably not going to be  
17 any cheaper than going underground north of 95.  
18 The -- with the complications that you've got  
19 there, it may be similar to the complications that  
20 you've gotten north. Overhead could be -- could  
21 be less expensive if it is feasible and  
22 constructable, but we don't know that as of right  
23 now.

24 DR. KLEMENS: Okay. Just a  
25 thought, because I keep hearing of all the

1 potential problems associated with getting under  
2 95. I think that was my last questions on this.  
3 I'll have questions when the Town comes for them,  
4 but I don't really have anything more. I think  
5 you've answered my questions, and I thank you.

6 THE WITNESS (Bowes): So I would  
7 like to add a comment on -- on crossing I-95.

8 We just were involved in a bridge  
9 project in Stamford with C-DOT and because they  
10 were implementing this, well, actually lowering of  
11 the road underneath the bridge -- it impacted  
12 several of our duct banks as well as some  
13 communication facilities.

14 As part of their project they  
15 actually installed the jack and bore pipes for, I  
16 believe, for both utilities. They certainly did  
17 for Eversource utilities. So I -- I don't view it  
18 as a technical issue to go underneath I-95.

19 And in some cases, you know, we've  
20 worked very cooperatively with C-DOT to find a  
21 cost-effective solution like we did in downtown  
22 Stamford. So those cost savings were passed  
23 onto -- to our electric ratepayers.

24 DR. KLEMENS: I certainly believe  
25 it's technically feasible, but given the situation

1 where we had a project that we thought would save  
2 a lot of money, hybrid, good conversations with  
3 many people. And at the last minute, for whatever  
4 reasons we could speculate, the approval was  
5 pulled away, the nascent approval.

6 I'm reluctant to bank on anything,  
7 other projects that we may have to get other  
8 approvals. So I'm looking for things with fewer  
9 approvals, fewer places where people for whatever  
10 reason, be it real or political, can exercise  
11 their control over this project. So this is why  
12 I'm looking to make it simpler and not more  
13 difficult.

14 THE WITNESS (Bowes): I understand.

15 DR. KLEMENS: And looking to save  
16 money.

17 And I guess the very last  
18 question -- there is one more last question.  
19 You're dealing with the two different endpoints,  
20 290 and 281, your preference is for 290 Railroad  
21 Street?

22 THE WITNESS (Bowes): Yes.

23 DR. KLEMENS: And just very  
24 quickly, the preference is why?

25 THE WITNESS (Bowes): It's really

1 based upon the neighbors around the substation.  
2 They're all commercial in nature and there's a  
3 slightly less cost to distribution ratepayers for  
4 that project.

5 DR. KLEMENS: And is the land also  
6 configured in a way that's more usable for you?

7 THE WITNESS (Bowes): Yeah. I  
8 would say yes because of the position for a mobile  
9 transformer. So there's a little bit more  
10 flexibility, but again 281 is a property that we  
11 own. So that's another viable option to consider.

12 DR. KLEMENS: And you could create  
13 something on 281 with a brick wall or shield like  
14 you're proposing on 290. We don't have to build  
15 that strange looking pseudo-apartment house?

16 THE WITNESS (Bowes): Well again, I  
17 would say that that -- that's accurate. We've  
18 proposed that. We would have to take a look at  
19 the sound levels for that, for that design and we  
20 might have to provide other mitigation for sound  
21 level.

22 DR. KLEMENS: You're not so  
23 concerned about the sound at the other site.  
24 That's one of the reasons, because it's  
25 commercial?

1 THE WITNESS (Bowes): That is  
2 correct, yes.

3 DR. KLEMENS: So there's  
4 actually -- that's another important point of  
5 using 290, is you don't have to do the same level  
6 of sound mitigation?

7 THE WITNESS (Bowes): Yes.

8 DR. KLEMENS: So basically if we're  
9 using 281 we're ultimately going to be forced to  
10 spend more money, not even for the aesthetics, so  
11 to speak, but for sound control. It's going to be  
12 a more expensive structure any way we cut it?

13 THE WITNESS (Bowes): So again, the  
14 structure itself would be more expensive. We  
15 could provide a breakdown of the costs. The  
16 transmission costs are a little bit lower at that  
17 site. The distribution costs are a little bit  
18 higher at that site, and it's a site that we  
19 already own. So there's a -- there's a cost there  
20 as well.

21 DR. KLEMENS: I'm trying to  
22 understand if it's a wash, or if by creating the  
23 building, the shielded building you have proposed  
24 at 290, whether there's a significant savings. I  
25 believe there is.

1 THE WITNESS (Bowes): So apples to  
2 apples, they're approximately the same cost. If  
3 you start to compare variations of each, either  
4 one of those, you can find a lower cost solution  
5 at 290 than you can at 281, but that would include  
6 differences in the enclosure itself.

7 DR. KLEMENS: Correct.

8 THE WITNESS (Bowes): There's been  
9 a concern expressed around the safety of the  
10 adjacent neighbor at that location.

11 DR. KLEMENS: Because of the  
12 Airgas?

13 THE WITNESS (Bowes): Correct. So  
14 we tried to be responsive to that and provide kind  
15 of a list of options that could be used at either  
16 location.

17 DR. KLEMENS: But you believe that  
18 you can build this safely in proximity to Airgas,  
19 and as you did in the previous docket?

20 THE WITNESS (Bowes): Yes.

21 DR. KLEMENS: Okay. I now have no  
22 further questions, Mr. Chairman. Thank you.

23 THE CHAIRMAN: Mr. Silvestri?

24 MR. SILVESTRI: Thank you,  
25 Mr. Chairman.

1 I'd like to start with just kind of  
2 dovetailing on a couple of questions that  
3 Dr. Klemens had asked. And going back to the  
4 Earth Day events that were held in April, what was  
5 the approximate attendance at those events?

6 THE WITNESS (Araujo): The  
7 attendance, the event -- at the events, I do not  
8 have that information. So I couldn't give you  
9 that today.

10 MR. SILVESTRI: All right. Let me  
11 continue with the prefiled testimony, this time on  
12 line 695. It mentions that energy conservation  
13 measures and energy alternatives including  
14 micro-grids were reviewed. Could you describe the  
15 results of those discussions on micro-grids?

16 THE WITNESS (Araujo): That was a  
17 meeting that I attended with David Ferrante from  
18 Eversource and we both discussed each of our areas  
19 of responsibility. The -- I reviewed the energy  
20 efficiency components that I'm responsible for on  
21 what we could do with regard to making sure that  
22 businesses and residences within the community  
23 were more efficient.

24 Mr. Ferrante went over and reviewed  
25 what transpired as far as how residents could take



1 advantage of distributed generation including  
2 renewables as well as combined heat and power.

3 MR. SILVESTRI: So is it just a  
4 discussion, if you will, of these are some things  
5 that are available but didn't go any further?

6 THE WITNESS (Araujo): They really  
7 did not get into specific detail on the -- on any  
8 particular example other than, you know, these are  
9 areas that -- that some things could be done in  
10 that particular, you know, in Greenwich or  
11 anywhere else.

12 THE CHAIRMAN: Just a followup, and  
13 I certainly like the progress so far. I think  
14 that's what we asked in our opinion on the last  
15 docket.

16 But is it not true that Eversource  
17 cannot do these improvements, whether it's  
18 conservation, adding renewables or micro-grids  
19 without really the active participation of the  
20 Town? That's not something you can literally do,  
21 or maybe you can?

22 THE WITNESS (Araujo): No. No,  
23 that is a very accurate statement. It involves  
24 the participation of the host site, if you will,  
25 and -- and/or the town.

1           From the energy efficiency  
2 perspective, whether it's a town facility or a  
3 business or a home, it requires the resident or  
4 the business to contribute funding to make the  
5 efficiency improvements and then Eversource  
6 provides some rebates or incentives to help defray  
7 the costs.

8           On the micro-grid side, though,  
9 that is one area where I believe the Town would be  
10 more involved in allowing that infrastructure to  
11 take place.

12           MR. SILVESTRI: Staying with the  
13 topic on, you know, on conservation measures and  
14 energy alternatives, in any of the discussions  
15 were battery systems brought up?

16           THE WITNESS (Araujo): I do not  
17 recall battery systems being brought up.

18           THE WITNESS (Bowes): Yes, we did.  
19 In the December 12, 2016 meeting we looked at  
20 several different types of technology including  
21 energy storage.

22           And part of that discussion was  
23 around some more industrial sized solar  
24 installations, either using town facilities or  
25 town property in order to firm that solar up, and

1 also to extend when the peak load occurs to the  
2 more appropriate time of day. And into the  
3 afternoon hours where solar tends to decline, we  
4 proposed coupling solar with energy storage to  
5 both provide firmness of that, and also extend for  
6 several hours into the early evening.

7           So it was something we talked  
8 about. We did some scoping around. In fact, it's  
9 in the Stacy interrogatory response, but it was  
10 really more of a discussion and a high-level  
11 roadmap of what you would need to do in the  
12 future.

13           We really didn't get into the  
14 specifics of locations, or of sizing other than  
15 some very general, general guidelines or general  
16 discussion around that.

17           MR. SILVESTRI: You mentioned the  
18 solar, slash, battery. I was looking at the one  
19 in Vermont which I believe follows that pattern.  
20 In your experience is that generally the rule,  
21 that for storage type batteries they are being  
22 supplied by solar?

23           THE WITNESS (Bowes): No, I would  
24 say it's not necessarily the rule. I would say  
25 there's an application to try to smooth out the

1 output of solar based on its variability of the  
2 sun's -- of the sun and clouds.

3 But I would say, in general, energy  
4 storage on the industrial side is now more focused  
5 on demand reduction and shifting demand for  
6 dealing with those late afternoon hours where the  
7 energy peaks and the sun the sun output or solar  
8 output declines.

9 MR. SILVESTRI: How have fuel cells  
10 factored into the greater Greenwich area for a lot  
11 of industrial/commercial type facilities? Are  
12 there many within the Eversource territory?

13 THE WITNESS (Bowes): Well, as you  
14 know, the larger fuel cells -- in fact, I think  
15 all fuel cells in the state come before the Siting  
16 Council for approval. So there was one in 2015.  
17 And it's a matter of public record, so I can speak  
18 about it.

19 There's a hotel in Greenwich that  
20 put in a 525-kW fuel cell. It is now operational  
21 and serves as a baseload unit. So unlike solar,  
22 which has a very low capacity factor, especially  
23 in -- in the Northeast, this has a very high  
24 capacity factor and can look much more like a  
25 utility capacity upgrade. So we are clearly in

1 favor of that.

2 We have advocated for the  
3 Governor's bill on allowing utilities to own and  
4 operate fuel cells in the State of Connecticut and  
5 that could be a viable solution to Greenwich's  
6 future needs, and we may have some properties that  
7 would be ideal for installations of fuel cells in  
8 the future.

9 THE CHAIRMAN: Mr. Lynch has a  
10 followup.

11 MR. LYNCH: Excuse me. Just a  
12 followup. The larger fuel cells that you're  
13 reviewing, you mentioned baseload, but aren't they  
14 baseload for internal use? They're not going out  
15 to the grid. Are they?

16 THE WITNESS (Bowes): So we had one  
17 of the manufacturers -- that actually was the same  
18 manufacturer that did the project in Greenwich for  
19 the hotel -- approached us and we also approached  
20 the Town. We identified the type of customer that  
21 would benefit from their small sized  
22 commercial/industrial fuel cell in the 200-kW  
23 range, the characteristics they would need for  
24 baseload. So we've provided that to the Town.

25 Several of the Town facilities

1 could use that type of technology to mitigate  
2 future increases in demand and certainly energy  
3 usage. So -- I'm sorry. I'm sorry, did I --

4 MR. FITZGERALD: He asked whether  
5 fuel cells could be used to feed the grid?

6 THE WITNESS (Bowes): Yes. Yes,  
7 they could obviously offset usage on the customer  
8 side of the meter or, as you know, there's several  
9 in the state that feed directly into the grid. We  
10 did approach the Town of Greenwich with an  
11 industrial sized fuel-cell similar to what's in  
12 Bridgeport and they were not interested at this  
13 point in time to put a, you know, 10 or  
14 15-megawatt fuel-cell in town.

15 MR. LYNCH: Okay. Thank you.

16 MR. SILVESTRI: Going back to one  
17 of the other questions that Dr. Klemens had asked  
18 you and that was the discussions with the railroad  
19 folks and the overhead design.

20 Did anything come up in those  
21 discussions to kind of say, other activities are  
22 occurring within the Amtrak corridor going towards  
23 the east, that the railroad isn't allowing poles  
24 in its corridor? Why wouldn't they allow poles in  
25 this area, in the Greenwich area? Did anything

1 like that come up?

2 THE WITNESS (Bowes): So the  
3 discussion that I was privy to was really around  
4 that Stamford to -- to New York border and the  
5 activity that's taking place there, the difficulty  
6 of getting their own outages to do work, the  
7 increased scrutiny that they're under for  
8 reliability of service, the increased usage by  
9 residents of the state of Connecticut and state of  
10 New York on that, on that interconnection between  
11 Grand Central and Stamford.

12 So it was really more focused on  
13 that particular area and the fact that they said  
14 that that's one of the few areas in the state  
15 where they have access today to expand and put  
16 another rail line in. So they didn't want to lose  
17 that ability.

18 MR. SILVESTRI: Thank you.

19 Getting away from Dr. Klemens'  
20 questions, both the 1740 line and the 1750 feet,  
21 Cos Cob. That's correct?

22 THE WITNESS (Bowes): Yes.

23 MR. SILVESTRI: The 1750 also feeds  
24 the Tomac Station, but not the 1740?

25 THE WITNESS (Bowes): Yes.

1 MR. SILVESTRI: Okay. Looking then  
2 further I guess west, if the project goes through,  
3 my understanding is that the transformers and the  
4 switchgear at Prospect would be removed.

5 Is that correct?

6 THE WITNESS (Bowes): Yes.

7 MR. SILVESTRI: Does than then kind  
8 of leave Prospect as -- I don't have a better word  
9 for it, but I'll call it a junction box.  
10 Essentially your feeders are there, but they're  
11 just going off in different directions?

12 THE WITNESS (Bowes): I would say  
13 that's an accurate description, yes.

14 MR. SILVESTRI: Would there then be  
15 some type of move down the line to not have that  
16 junction box and kind of refigure things from  
17 other substations at some point so that Prospect  
18 would go away?

19 THE WITNESS (Bowes): So in effect  
20 it goes away except for a few poles and some pole  
21 altering equipment. But yes, as we continue to  
22 have customers move off the 27-kV system, again  
23 I'm talking about that there's about a dozen, 11  
24 customers that are served from the 27-kV system  
25 directly.



1           As we convert those, or those  
2 customers are no longer served by the 27-kV  
3 system, ultimately that could be moved to the  
4 street itself, or potentially to another location  
5 that Eversource already owns like -- like the  
6 Byron Substation.

7           MR. SILVESTRI: Okay. The 13.2-kV  
8 system, is that unique to Greenwich or do you have  
9 other 13.2 systems within the Eversource  
10 territory?

11          THE WITNESS (Bowes): So we have  
12 several other areas. It is, I would say, a lesser  
13 used voltage than the 13-8 kV, but it's certainly  
14 in Southwest Connecticut and the Middletown area.

15          MR. SILVESTRI: Is it an impediment  
16 to the electric distribution system being 13-2  
17 instead of 13-8?

18          THE WITNESS (Bowes): So I would  
19 say the issues that we have with that, I mean,  
20 they're both multi-grounded coated Y systems, so  
21 modern electric systems. They carry the neutral  
22 out. You get an affirmative fault condition.

23          The class of equipment is 15 kV, so  
24 in most cases it's the same conductor, the same  
25 hardware, the same apparatus. The unique thing

1 would be the transformation itself. So we have to  
2 purchase transformation at 13-2 as well as 13-8.  
3 So that would be the one area where there's some  
4 lack of synergy for using those two systems.

5 MR. SILVESTRI: Great. Thank you.  
6 Going back to the load curve for Greenwich, what  
7 time of day is peak load in the summertime,  
8 generally?

9 THE WITNESS (Bowes): It's around  
10 1700.

11 MR. SILVESTRI: Okay.

12 THE WITNESS (Bowes): Between 1600  
13 and 1700.

14 MR. SILVESTRI: And before that?

15 THE WITNESS (Bowes): So I would  
16 characterize it very similar to the ISO curve. So  
17 you're seeing a full range -- and in fact, I  
18 mentioned that before, is it really kind of  
19 mirrors the days where we see an ISO load of  
20 89 percent or 90 percent. We see the same in --  
21 in Greenwich.

22 MR. SILVESTRI: Okay. Would that  
23 be also true in the wintertime?

24 THE WITNESS (Bowes): Yeah, very  
25 similar to ISO in the winter as well.

1 MR. SILVESTRI: Okay. Thank you.

2 Going into underground trenching,  
3 am I correct that generally trench depths are on  
4 the order of about five feet, and that splice  
5 boxes would be about seven?

6 THE WITNESS (Case): The trench  
7 would be generally five feet. The splice boxes  
8 are about nine feet.

9 MR. SILVESTRI: Nine feet. Thank  
10 you.

11 In the roads in and around the  
12 Bruce Park area what are the underlying soils  
13 beneath the roadways that they have?

14 THE WITNESS (Bowes): So I know  
15 that we performed geotechnical surveys for a  
16 portion of the route, and we can speak to that.

17 MR. SILVESTRI: Let me go a little  
18 bit further on my question before an answer. What  
19 I'm looking at is if there's any type of ledge  
20 deposits that will require blasting?

21 THE WITNESS (Case): We do expect  
22 that we would hit rock in a certain area, but  
23 mostly mechanical means for that. I don't think  
24 we have a need for blasting.

25 MR. SILVESTRI: No blasting. Okay.

1 Thank you.

2 Let me stay in that area. For  
3 roads such as, say, Davis Avenue, Woods Road, the  
4 excavation proposed for the underground line would  
5 essentially close the road. Did I hear that  
6 correctly before?

7 THE WITNESS (Case): In order to  
8 stay within the paved roadway, yes.

9 MR. SILVESTRI: And would that be  
10 for a long period of time? Would you only have  
11 that closed during the daytime and cover it over  
12 with steel plates?

13 THE WITNESS (Case): We would be  
14 closing that up at nighttime with steel plates to  
15 cover that.

16 MR. SILVESTRI: To then afford  
17 access to whoever might need it?

18 THE WITNESS (Case): Yes.

19 MR. SILVESTRI: Were there any  
20 discussions with the Town about trying to maintain  
21 as much access to the park as possible such that  
22 you might look at continuing down Indian Field  
23 Road over to Davis Avenue and avoiding Bruce Park  
24 Drive and Wood Road?

25 THE WITNESS (Cabral): We did not

1 discuss that route with the Town. It is  
2 approximately -- about 700 feet longer, so it  
3 would be -- it would be more, a more costly route  
4 just because of the length. So that's not one of  
5 the routes we discussed with the Town.

6 MR. SILVESTRI: But it's possible  
7 to stay with the route that you proposed and  
8 people might still be able to get down Indian  
9 River, cut over to Davis and then still access the  
10 park around the construction area that you're  
11 doing?

12 THE WITNESS (Cabral): That's  
13 correct.

14 MR. SILVESTRI: Okay. I think I  
15 have one more for you.

16 Oh, again staying in that area,  
17 where would staging lay down excavation soil,  
18 stockpiling, all that take place around the roads  
19 around the park?

20 THE WITNESS (Cabral): So one of  
21 the things that's been discussed with the Town is  
22 if we sequence our work in such a way that we are  
23 constructing through the park in the winter, we  
24 could potentially close down Woods Road for a  
25 duration of three to four months that would allow

1 us to still stay within the paved roads to stage a  
2 lot of the work there through the park.

3 So we know as we're looking at the  
4 sequence of our construction the best time of year  
5 to do that in the park would be in the winter  
6 where we can shut down that road.

7 MR. SILVESTRI: So if I understand  
8 correctly, you could use the blacktop on Woods  
9 Road as your staging/storage area in the winter?

10 THE WITNESS (Cabral): And the, you  
11 know, we'd have to work through some details. And  
12 we've had several meetings with the Town where if  
13 we were to stage all of the work within Bruce Park  
14 we might need to be outside the paved roadways,  
15 but we could stage it somewhere outside of the  
16 storage site, or something like that.

17 One of the things that we're  
18 proposing is whether we use 281 or 290 for the new  
19 substation site. The other site can be used to  
20 stage material, so we can stage some material  
21 there, and some closer to the worksite with -- on  
22 Woods Road.

23 MR. SILVESTRI: No, I was just  
24 looking at this area. You're doing your  
25 trenching. You're going to excavate it up. Where

1 is the soil going to go from there?

2 THE WITNESS (Cabral): So we'll  
3 be -- as we're excavating we're going to be live  
4 loading our triaxial. So we're not going to  
5 be staging a lot of, you know, soil in the area.

6 MR. SILVESTRI: And to exit the  
7 area with your triaxials, I want to think that you  
8 would be going north up through Indian Field.  
9 Would that be correct? In other words, I don't  
10 think you'd be crossing the bridge?

11 THE WITNESS (Cabral): That's a  
12 true statement, yeah.

13 MR. SILVESTRI: Okay. We mentioned  
14 the Stacy interrogatory before, and my last  
15 question is based on that. And it's interrogatory  
16 001. That's dated July 14, 2017. There's  
17 discussion on page 18 of 19 of the slide  
18 presentation that comments about the New York PSC  
19 approved 20 -- \$200 million from the program to  
20 defer the need for the new substation.

21 The two questions I have related to  
22 that is, do you know what the cost estimate was  
23 for their new substation project?

24 THE WITNESS (Bowes): I believe the  
25 estimate was 1.2 billion.

1 MR. SILVESTRI: Billion?

2 THE WITNESS (Bowes): Yes.

3 MR. SILVESTRI: Thank you.

4 And the related question is what  
5 would be the estimate, if you know, as to how long  
6 the demand management program would defer  
7 construction of that new substation?

8 THE WITNESS (Bowes): This is,  
9 again the Brooklyn/Queens line?

10 MR. SILVESTRI: Yes.

11 THE WITNESS (Bowes): So originally  
12 I think they had said five years was the deferral  
13 time. I think as I've gotten into it I'm not sure  
14 that the load increases have materialized. So  
15 they may actually get a longer deferment from  
16 that.

17 MR. SILVESTRI: Okay. Thank you.

18 Mr. Chairman, that's all I have.

19 THE CHAIRMAN: Thank you.

20 Mr. Harder?

21 MR. HARDER: No questions. Thank  
22 you.

23 THE CHAIRMAN: Mr. Hannon?

24 MR. HANNON: Thank you,

25 Mr. Chairman.



1           The first batch of questions I have  
2 relates with Prospect. The documentation says  
3 that Prospect Substation is a non-bulk substation  
4 that's only served by Cos Cob and only has a  
5 1 percent backup from other sources in the event  
6 of an outage of the entire substation.

7           Would the proposed Greenwich  
8 facility eliminate that 1 percent? Would it be a  
9 much higher backup percentage that it would cover?

10           THE WITNESS (Bowes): It would be a  
11 hundred percent backup.

12           MR. HANNON: Thank you.

13           Talk about the substation  
14 switchgear. It's degraded at the end of its  
15 useful life. What's the normal life expectancy of  
16 this type of equipment?

17           THE WITNESS (Bowes): So the  
18 financial life is 40 years. The practical life is  
19 probably much beyond that, as with many  
20 transmission assets. We look at replacement  
21 programs not just upon age, but also in condition.  
22 And we have several switchgear sets that are about  
23 60 years in age, including this one.

24           It really is a condition assessment  
25 that we do and we prioritize and -- and replace.

1 And in fact, we have ongoing projects at Glenbrook  
2 and South End right now. We're replacing that  
3 switchgear.

4 MR. HANNON: And there's a  
5 statement that requirements of the PURA and the  
6 Siting Council talk about with these types of  
7 substations needing to be rebuilt. You have to  
8 have critical elements located at least one foot  
9 above the 500-year flood elevation. I know that  
10 Prospect says that it's within the 500-year flood  
11 elevation. Do you know what the 500-year flood  
12 elevation is, the hundred year at the level of  
13 Prospect?

14 And the reason I'm asking is  
15 because there's a comment in there about how  
16 expensive it would be if you had to rebuild the  
17 substation at the Prospect location. So I'm just  
18 trying to get an idea.

19 THE WITNESS (Libertine): We did go  
20 through an extensive evaluation of that during the  
21 initial docket. In -- and I'm going by  
22 recollection, and I'm trying to pull up a graphic  
23 that may actually give me a little bit of sense.

24 I know that we do have hundred-year  
25 flood concerns there just because the brook itself

1 is culvert-ed beneath the property. So that was  
2 one of the major concerns from an environmental  
3 perspective.

4 There's also a portion of the  
5 floodway that's just upstream of there, but it is  
6 contained beneath the road, and then again  
7 culvert-ed beneath the -- the site itself. That  
8 was one of the primary concerns.

9 That's also -- the infrastructure  
10 itself is also very, very old. So we had some  
11 concerns about structural integrity and whether or  
12 not that could actually be physically rebuilt  
13 without getting into some significant cost  
14 concerns.

15 And again, I apologize because I'm  
16 going more by recollection now than anything  
17 that's right in front of me. I know there were  
18 some other constraints as well on that site.

19 THE WITNESS (Bowes): I will say  
20 that I'm not aware -- I believe it was installed  
21 in the 1950s, maybe 1954. I'm not aware of  
22 flooding that's occurred at the site, not to say  
23 that the future might -- in the last, last docket,  
24 in 461 we talked about we were just in the midst  
25 of a thousand-year flood in the Carolinas. So it

1 could happen, but has not happened to date.

2 MR. HANNON: But part of the reason  
3 I'm wondering is because you're talking about  
4 removing the four 27.6 units out of there, but  
5 you're leaving the seven 13.2. So why wouldn't  
6 you move them at the same time that leaves with  
7 the feeders? Why wouldn't you move them above the  
8 floodplain and level also?

9 THE WITNESS (Bowes): Yeah, so that  
10 there were minimal pieces of equipment that will  
11 be left there and they are all things that could  
12 be underwater. They're not -- not prone to  
13 flooding.

14 MR. HANNON: Okay. Thank you.  
15 Just some general comments.  
16 Talking about projects that are designed to  
17 address existing electric service needs in  
18 Greenwich based on the 2013 peak load. I just  
19 want to make sure this is the general statement  
20 that's correct, and you're not looking at any  
21 future growth in electrical consumption. Correct?

22 THE WITNESS (Bowes): That is  
23 correct.

24 MR. HANNON: You've answered a  
25 number of questions that I have had -- because in

1 terms of the need where you're basing it sort of,  
2 the redundancy of the system. Whereas if I  
3 remember correctly a lot of the comments that were  
4 made at the public hearing seemed to be based on  
5 additional electrons going out to people, rather  
6 than redundancy in the system.

7           So I just want to make sure that  
8 when you're talking about the, need it really is  
9 based on redundancy of the system and your  
10 reliability.

11           THE WITNESS (Bowes): Yes, and when  
12 we say, redundancy, it's really how we operate the  
13 system and the flexibility we have. We would be  
14 able to backup the loads fed from Cos Cob by  
15 Greenwich, and vice versa in this case.

16           It ultimately could lead to  
17 retirements of Prospect Substation which is part  
18 of this application, but also Byron Substation.  
19 And with other changes that we, you know, look for  
20 in the future, retirements of other substation in  
21 Greenwich.

22           So the ultimate goal is to serve  
23 the majority of load in Greenwich at 13.2 kV with  
24 a modern multi-grounded Y system, and remove the  
25 other voltages. That may take us, you know, quite

1 a period of time to do, but this project sets the  
2 foundation for us to operate the system and  
3 provide flexibility to do those changes that will  
4 occur in the future.

5 MR. HANNON: Okay. Thank you.

6 On some other issues that came up  
7 you talked about vault locations, and specifically  
8 around Arch Street. And some of the issues that  
9 may come up where you may not be able to keep  
10 everything in the road, which is what the Town is  
11 sort of hoping that you can do and eliminate any  
12 tree trimming and things of that nature.

13 How much of a problem is it if you  
14 are required to stay within the roadway on the  
15 entire project?

16 MR. FITZGERALD: Excuse me. You  
17 mean stay within -- for the entire project through  
18 Bruce Park?

19 MR. HANNON: Where you are  
20 currently going underground. So I believe that's  
21 for Cos Cob to Greenwich.

22 MR. FITZGERALD: Okay, sir.

23 THE WITNESS (Bowes): So we were  
24 clearly off the roadway in several locations. We  
25 talked a little bit this morning about Shore

1 Drive. And also at Arch Street we've talked with  
2 the Town about locating the vaults off the roadway  
3 as well into that parking lot.

4 Their real concern seemed to be  
5 around Bruce Park, being the entrance and exit to  
6 that, not necessarily outside that, that area. So  
7 we would look for opportunities to site the vault,  
8 especially off the roadway where we could with the  
9 exception of Bruce Park.

10 MR. HANNON: Okay. That makes it  
11 depend really upon geographical -- or sort of  
12 geological constraints, or utility lines, things  
13 of that nature. So depending upon what you find  
14 below ground, it may dictate whether you can or  
15 you can't?

16 THE WITNESS (Bowes): That --  
17 that's correct.

18 MR. HANNON: Okay. I know it was  
19 discussed a while ago and we talked a little bit  
20 earlier about the mobile transformer, but can you  
21 please explain what the importance is of the  
22 ability to have that come on site?

23 THE WITNESS (Bowes): So in this  
24 case in either location the use of a mobile  
25 transformer would be if one of the existing

1 transformers is out of service and we were to lose  
2 that second transformer, we would have to take  
3 some emergency actions at that point and serve the  
4 load that was normally fed from the Greenwich  
5 Substation by some other means.

6 One of those means is by using a  
7 mobile transformer. In this case, we would have  
8 to connect either to the 115 system and feed the  
9 13-2, or back feed the 13-2 system through the  
10 existing switchgear. So it's really -- we've  
11 already planned for the loss of one of the  
12 transformers in the substation. This is actually  
13 losing the second transformer within that  
14 substation. That's typically when we use mobile  
15 transformers.

16 MR. HANNON: So it's just to  
17 enhance the reliability of the system. Is that  
18 what it is?

19 THE WITNESS (Bowes): Yeah,  
20 under -- yes, it is, under a fairly --

21 MR. HANNON: Under fairly stressful  
22 conditions. Is that right?

23 THE WITNESS (Bowes): Stressful,  
24 but also fairly unlikely conditions as well.

25 MR. HANNON: A question on the



1 splice vaults. Are any of them situated within  
2 that greater flood zone?

3 THE WITNESS (Bowes): I believe the  
4 answer is yes.

5 And in the coastal boundary area as  
6 well much of the -- much of the park area is in  
7 that as well.

8 MR. HANNON: Well, the reason I'm  
9 asking is because I've heard in the past that if  
10 you get saltwater mixing with electrical units  
11 they tend not to work too well together.

12 So I'm curious, looking at the  
13 diagram for the splice vaults it looks as though  
14 there's, like, a couple of manhole covers. But  
15 are those watertight units? Or will water still  
16 be able to seep into the vaults, and what would be  
17 the ramifications of that?

18 THE WITNESS (Bowes): So we would  
19 expect for and design for that water would enter  
20 both the ducts and the vaults. And the uniqueness  
21 about saltwater would mean that our inspection  
22 cycle would have to be sufficient to deal with any  
23 corrosion that might occur with any bonding within  
24 those vaults.

25 So it's really exposed metal

1 bonding and grounding of the -- of the sheet that  
2 would be of the concern here, but again we would  
3 install cathodic protection systems or use  
4 encapsulated cables for those ground wires. So  
5 that I don't really see it as a -- as a  
6 limitation.

7           You probably remember the Long  
8 Island replacement cable. That project is, you  
9 know, in service and operating and entirely  
10 submerged in Long Island Sound in saltwater.

11           MR. HANNON: Then I was going back  
12 and actually looking at 461, and I'm just curious  
13 if you can give me a rough estimate from,  
14 mileage-wise from, I guess, it's Woods Road where  
15 you come in, and going up to where the proposed  
16 facility would be.

17           I'm just roughly trying to get an  
18 idea of what the mileage is on that. I know the  
19 total is, like, 2.3?

20           THE WITNESS (Cabral): So from the  
21 start of the eastern end or the western end?

22           MR. HANNON: The eastern.

23           THE WITNESS (Cabral): Just give us  
24 a moment while we get the distance.

25           Approximately 1.4 miles.

1           MR. HANNON: The reason I'm asking  
2 is because in going back and looking at 461 it  
3 looks as though, except for that section of where  
4 they're going under the harbor, it almost looks  
5 like this is -- I don't know if the exact route of  
6 P6, P7, P8 and P9 of the open trench option.

7           So I find it kind of interesting at  
8 this point in time you've got more than 50 percent  
9 of this project, which was identical to the  
10 original proposal, but that was rejected. And I'm  
11 just kind of surprised in a way that that's coming  
12 back.

13           THE WITNESS (Bowes): So I guess I  
14 can comment on that. It's that it is  
15 fundamentally a different project because of the  
16 cable design. In this case, it's a solid  
17 dielectric cable because that was one of the  
18 concerns, obviously, in the first docket.

19           The other is, is the rest of the  
20 project, you know, the other mile of the project  
21 is -- especially through -- through Bruce Park is  
22 entirely in the disturbed soil areas of the  
23 existing roadway. So in that case there's, like  
24 again, less environmental impact around disturbing  
25 the aspects within the park itself.

1           MR. HANNON: I guess what I'm just  
2 kind of surprised at is something like this might  
3 not have been mentioned early when this was part  
4 of an open trench proposal that came in with the  
5 original application. That's all.

6           I have no other questions.

7           THE CHAIRMAN: Thank you.

8           Mr. Lynch?

9           MR. LYNCH: No questions.

10          THE CHAIRMAN: Okay. I will have a  
11 couple, some for clarification. How does ISO New  
12 England fit into all this? Or is this just with  
13 FERC?

14          THE WITNESS (Bowes): So in a  
15 couple of ways ISO will approve whatever our final  
16 design is through a PPA, or sometimes called the  
17 I-point -- I3.9 process. And that will be a  
18 fairly low-level approval because we're really not  
19 impacting the bulk power system with the exception  
20 of the work that we're doing at Cos Cob. So that  
21 will be one thing that they will ultimately  
22 approve, is our final design.

23          They approved the previous 461  
24 design, so we don't see any issues with rerunning  
25 the calculations for load flows based on the

1 different cable. And if there's any substation  
2 configuration changes, in this case we're having  
3 two transformers rather than the original three.  
4 So it's going to be actually less of a system  
5 impact on the transmission system than the  
6 original project. So I don't anticipate any --  
7 any problems with, say, the technical approval for  
8 ISO New England.

9           The second phase of that would be  
10 the transmission cost allocation. We will apply  
11 to ISO New England for cost allocation for the  
12 upgrades at Cos Cob Substation to be incorporated  
13 in the regional network service tariff. So those  
14 costs would be regionalized for all customers in  
15 New England and we would seek that, that approval  
16 from them for that.

17           THE CHAIRMAN: But that would only  
18 be for the upgrades of the substation, not for the  
19 transmission in the new substation?

20           THE WITNESS (Bowes): That is  
21 correct, for the -- the cost allocation.

22           THE CHAIRMAN: The other would have  
23 to be borne entirely by the Connecticut  
24 ratepayers?

25           THE WITNESS (Bowes): Well, the LNS

1 portion, all of the other transmission with the  
2 exception of Cos Cob would be borne by the  
3 customers that pay the local network service  
4 tariff, which includes approximately 60 percent  
5 weighting for Connecticut customers. But there's  
6 40 percent that would be paid for by other  
7 customers in New England.

8 THE CHAIRMAN: And also to clarify,  
9 and maybe there's not a real defined distinction  
10 between distribution and transmission. The reason  
11 I raise this is because I believe your opening  
12 comment was something that this is a reliability  
13 project for distribution issues?

14 THE WITNESS (Bowes): That is  
15 correct. So in this case the distribution  
16 components of the project would be the bulk power  
17 transformers at the new Greenwich Substation, the  
18 switchgear is the new Greenwich Substation and any  
19 interconnection at 13.2 kV to the existing  
20 distribution system.

21 The retirement of Prospect Sub --  
22 Prospect Substation would also be a  
23 distribution borne cost. So all of the  
24 transmission lines, the work at Cos Cob and the  
25 115 work at the new Greenwich Substation would

1 be transmission.

2 THE CHAIRMAN: The approximate  
3 hundred million dollars, does that cover both? Or  
4 just the transmission?

5 THE WITNESS (Bowes): It covers the  
6 entire project costs, of which about distribution  
7 is approximately -- distribution is approximately  
8 22 million of that.

9 THE CHAIRMAN: Since we are going  
10 to have to continue this, if you could just, you  
11 know, just roughly document that so we know the  
12 distinction?

13 THE WITNESS (Case): I believe we  
14 summarized --

15 THE CHAIRMAN: Did you do it  
16 already?

17 THE WITNESS (Case): On IR-57, I  
18 believe it was -- from the Council, on 57 we  
19 identified the different cost components.

20 THE CHAIRMAN: Okay. Well, as long  
21 as it's in there, you don't obviously have to.

22 MR. FITZGERALD: Mr. Bowes, that  
23 exhibit has the cost of each element in the  
24 category, but it doesn't have the percentage that  
25 would be borne by the Connecticut ratepayers.

1                   THE CHAIRMAN: Well, I'm informed  
2 we'll get the subject. Okay.

3                   One question related to the bridge,  
4 the eight-foot wide bridge. Have you ever had an  
5 agreement with, I guess it would be a municipality  
6 where that the delta -- you worked out some  
7 agreement on the delta, which in this case is  
8 1.8 million, was provided by, in this case, the  
9 Town if they want it badly enough.

10                   Obviously, if they can get the  
11 ratepayers to pay for it, that may be better. But  
12 have you ever worked out something?

13                   THE WITNESS (Bowes): As I sit here  
14 today I'm not aware of another -- another town  
15 where we worked out an agreement like that.

16                   THE CHAIRMAN: Okay. Yes?

17                   MR. FITZGERALD: I believe that in  
18 all the times that I've been doing this the  
19 closest thing was in the Farmington to North  
20 Bloomfield transmission rebuild docket. I don't  
21 remember the number offhand, but in that case it  
22 was not the Town.

23                   There were a number of abutters who  
24 wanted the line built in a different position on  
25 the right-of-way than was proposed. And in order



1 to do that they would have had to rebuild an  
2 existing line on the right-of-way for that segment  
3 along the abutters' land. And the Siting Council  
4 ended up issuing an order that said that the line  
5 would be built as proposed in the normal position  
6 unless the abutters agreed to pay for the  
7 difference, in which case the company would be  
8 obliged to rebuild it in the other position.

9           And the abutters did agree to do  
10 that and we ended up dividing up the cost among  
11 several properties. And taking notes on second  
12 mortgages and getting releases from banks -- it  
13 was a nightmare. But it happened, and so I don't  
14 think there's been any other such event.

15           THE CHAIRMAN: So it is feasible --  
16 and may not have happened before because there's  
17 probably only one municipality in the state of  
18 Connecticut that could actually afford to do that.  
19 I will not name it, but if they really want it  
20 enough, we'll see.

21           Do you know if -- getting back, and  
22 I really appreciate that, that whole section on, I  
23 guess, based on your conversations with the Town  
24 and the Earth Day event with discussions about  
25 everything from renewables and energy efficiency

1 were discussed. And that I think certainly was  
2 something that the Council was trying to get  
3 through to everybody, in our opinion, on the last  
4 one. And so there's, you know, a lot of potential  
5 in the various information you've provided -- but  
6 a couple questions.

7                   One, do you know does Greenwich  
8 have an Energy district that's permitted under  
9 state statute?

10                   THE WITNESS (Araujo): I don't  
11 believe they do, but I'm not a hundred percent  
12 certain on that.

13                   THE CHAIRMAN: I believe I'm  
14 correct in saying that a number of these  
15 particularly micro-grids and some of the other  
16 things would be greatly facilitated, and that  
17 takes, you know, town action.

18                   THE WITNESS (Araujo): It does.

19                   THE CHAIRMAN: I guess my question  
20 is, given the not so stellar, you know, the record  
21 of the Town up until last year as far as getting  
22 their residents and businesses to really step up  
23 to the plate and really become leaders in these  
24 various initiatives. And I was taken by one of  
25 the speakers at the public hearing who said, well,

1 if only -- and I'm paraphrasing obviously -- we  
2 knew about the various programs to incentivize  
3 solar we would have done it.

4 Well, these programs have existed,  
5 and actually Greenwich at one time even probably  
6 participated. They probably didn't get the word  
7 out sufficiently.

8 But I'm just -- so now somewhat,  
9 although as you say it doesn't directly affect  
10 this project, it affects the future. But it's a  
11 little bit of a leap of faith to say -- and maybe  
12 we should, we should take that leap.

13 That now after, sort of, we've  
14 raised the flag a year ago that, you know, things  
15 are going to happen in a much more proactive way,  
16 and I guess other than putting this off for  
17 another three or four years to see if it actually  
18 happens.

19 I mean, unless you have something  
20 you can add that gives us a better sense of the  
21 Town, since it really takes partnership, it's not  
22 something you can do unilaterally. It's really  
23 going to move forward and put more than just words  
24 into the effort?

25 THE WITNESS (Araujo): I mean, I

1 think that the Town has been making a concerted  
2 effort to try to see what they can do to help  
3 improve the situation. As I mentioned previously,  
4 they have helped in -- in reaching out to the  
5 residential customer base to increase the number  
6 of homes that are going through energy audits and  
7 getting the savings there, but they're also taking  
8 action on their own.

9           They have done five projects this  
10 past year. They were relatively small projects  
11 saving about 2.3 percent on the load that they  
12 were serving, but they were projects nonetheless.  
13 But as I had also stated those were projects that  
14 they were doing on their own, and what we're --  
15 we're doing now is working with them to try to put  
16 together a plan on attacking some of this, some of  
17 the key buildings within the town.

18           One of those buildings is the town  
19 hall building, and we had a very good meeting with  
20 the Town on that particular site where we've done  
21 a walk-through audit to identify opportunity. And  
22 there is -- does appear like there is opportunity  
23 there to pursue, and the Town has been interested  
24 in trying to see where we can go with that.  
25 Because it is visited by members of the public as

1 well as it is one of the key buildings in town  
2 from an energy usage perspective. So we're  
3 looking forward at working with the Town and that  
4 is in its early stages, but we are working there.

5           The Town has also expressed  
6 interest in working with us on coming to --  
7 together on a memorandum of understanding to  
8 pursue energy efficiency goals in the town. So to  
9 your point, you know, from an energy efficiency  
10 perspective we have seen, you know, them step up  
11 there, but we do need to continue working ahead.

12           THE CHAIRMAN: I certainly  
13 appreciate that, and we may be asking the same  
14 question to the Town and presumably we'll also get  
15 a proactive statement, because certainly there are  
16 other communities -- and I don't think any of us  
17 are from there, but the green plan that actually  
18 the City of Bridgeport came up with a few years  
19 ago was really a great model.

20           I'm not sure what they're doing  
21 now. They have a new administration, but you  
22 know, what one community could do. And of course  
23 Bridgeport does not have the resources that some  
24 of the rest of the towns do.

25           Well first, Mr. Harder and then

1 we'll go back to staff.

2 MR. HARDER: Just following up on  
3 that discussion. I'm not sure we got to this  
4 earlier, but can you quantify how far the  
5 Town has -- not the Town in terms of type of  
6 government and their actions, but the customers,  
7 how far they've gone in actually implementing  
8 energy conservation or alternative energy  
9 projects?

10 And if it's really difficult to do  
11 that can you at least, maybe on a scale of zero to  
12 a hundred, you know, give us an indication of how  
13 far along that path they have come recently since  
14 you've -- and you've been putting it in terms of  
15 they stepped up to the plate, but you know, it's  
16 kind of general.

17 Can you give us a little more  
18 quantified idea of how far they've come and how  
19 much farther they can reasonably go?

20 THE WITNESS (Araujo): Well, I  
21 think there's a lot of room left for them to go  
22 both with town facilities, businesses, and the  
23 residences. But I can say that -- that we have  
24 been very successful in serving customers within  
25 Greenwich over the years.

1           In 2016 we did over 36 commercial  
2 establishments within the town serving them with  
3 energy, you know, who participated in our energy  
4 efficiency programs and implementing them. Year  
5 to date we've seen around -- it looks like, well,  
6 30 -- yeah, 33 year to date for 2017.

7           So -- so we are seeing good  
8 participation from the town -- well from  
9 commercial businesses. We also have seen a pickup  
10 in the number of residential customers. Prior to  
11 2014 the -- the average number of homes that were  
12 participating in our -- our residential  
13 weatherization program was around 150 customers in  
14 a year.

15           In 2014 the Town entered what we  
16 call our Clean Energy Communities Pledge. In that  
17 we saw about 225 customers. Last year, 2016, we  
18 saw 255. So we've actually been able to build off  
19 of that. And to date, year to date for 2017 we've  
20 done about 164. And we just recently this week  
21 are launching another outreach campaign with the  
22 Town to go after more residential customers.

23           So we are seeing the numbers  
24 improve. And those -- those -- that isn't just  
25 customers who -- who show up at an event. Those

1 are customers who are actually taking action.

2 MR. HARDER: So it's not just  
3 somebody you're necessarily giving information to,  
4 but someone that's actually implemented  
5 improvements?

6 THE WITNESS (Araujo): That is  
7 indeed correct. The -- the homeowners typically  
8 are having work done such as having their lighting  
9 changed out in their home, having the home  
10 insulated and weatherized so that way it keeps the  
11 air-conditioning in longer so the air-conditioner  
12 doesn't work as hard. And it also helps on the  
13 heating side.

14 Businesses, it's largely been  
15 lighting work that's been done. The LED lighting  
16 has really dropped in price and we've seen a lot  
17 of customers adopt that technology. And so we're  
18 seeing many, many customers go in there.

19 I know we have -- I think it's --  
20 we have six projects underway right now with  
21 commercial and industrial customers representing  
22 around a hundred -- 108 kW worth of demand savings  
23 associated with the town buildings -- not town  
24 buildings, but commercial/industrial buildings in  
25 the town.



1 MR. HARDER: Thank you.

2 THE CHAIRMAN: Mr. Mercier?

3 MR. MERCIER: Mr. Chairman, I  
4 actually have questions on other topics, so I  
5 don't know if anybody wants to follow up on that?

6 THE CHAIRMAN: No, I think the  
7 council members are all -- so we're about to go to  
8 the other parties.

9 MR. MERCIER: Just to clarify,  
10 earlier I asked about the bridge redesign, the  
11 pedestrian bridge redesign and you said it was, I  
12 think you said a significant savings, or savings  
13 in general. But the cost does not decrease, and  
14 just why is that?

15 THE WITNESS (Case): The -- the  
16 reduced cost, the reduced design bridge, the  
17 estimate for that was what was filed in the -- in  
18 the application for reconsideration. We just  
19 didn't update the cross-section into Indian Field.

20 MR. MERCIER: Thank you.

21 And my last question has to do with  
22 Exhibit B, alternate modified project route, the  
23 general sheet you have here. You know, just  
24 looking at this, everybody is talking and since  
25 every foot counts in trenching here, why wasn't

1 the route chosen to go west from the bridge area  
2 and up Davis Drive north to Bruce Park Drive and  
3 straight across Railroad to the substation, rather  
4 than kind of a curvy route that might add a couple  
5 hundred feet?

6 THE WITNESS (Soderman): Yeah. One  
7 of the difficult problems is actually the railroad  
8 bridge that crosses over Davis. So to get up to  
9 Bruce Park Avenue, is that what you're thinking?

10 MR. MERCIER: Yes.

11 THE WITNESS (Case): So that  
12 railroad bridge actually doesn't offer you that 14  
13 feet of clearance. So you can't actually drive a  
14 lot of the vehicles that you would use to do that  
15 excavation. It's a very low clearance bridge  
16 there.

17 MR. MERCIER: Okay. I think I do  
18 remember driving under it, actually. Okay. Thank  
19 you very much.

20 MR. FITZGERALD: Mr. Chairman,  
21 before the baton passes, could Mr. Bowes be given  
22 an opportunity to correct something he said this  
23 morning?

24 THE CHAIRMAN: Sure. And we have a  
25 couple of more questions.

1 MR. FITZGERALD: Oh, I'm sorry.

2 THE CHAIRMAN: Yeah, we're getting  
3 there.

4 So, Mr. Silvestri?

5 MR. SILVESTRI: Thank you,  
6 Mr. Chairman.

7 Have you folks reviewed the  
8 testimony from the Town that was filed on July 18,  
9 2017?

10 THE WITNESS (Bowes): Yes, I have.

11 MR. SILVESTRI: The thing that I'm  
12 struggling with -- and I'll also ask the Town when  
13 the time comes on this, is the writeup that begins  
14 on page 29 regarding the costs that they estimate  
15 for the underground project, as they put, are  
16 overstated. And on page 35 there's a table that  
17 they put in as to what the reductions that they  
18 see in pricing could possibly be.

19 I'm looking for your thoughts on  
20 what they have for the dollars that are listed  
21 there, because it seems pretty substantial in how  
22 they're calculating it based on what we've seen  
23 for estimates for Eversource.

24 THE WITNESS (Case): So they -- we  
25 have estimated these projects from the bottoms up.

1 The Town has taken a different approach where  
2 they're looking at the original project and  
3 finding certain items to deduct. It is not a  
4 comprehensive estimate.

5 I would say some of the numbers are  
6 correct. When they point out the reduction of HDD  
7 costs, and jack and bore costs, the 21 million  
8 that they reference, that is -- that is correct.  
9 But they do not add in the replacement components  
10 that are required, like the bridge at -- at Indian  
11 Harbor, like the bridge attachment at I-95.

12 They take in a straight assumption  
13 that it's open trench, and these HDDs could not be  
14 replaced by an open trench. They have to be  
15 replaced by a more complex process. So the  
16 reduction is not as significant as they point out  
17 there.

18 I would say labor costs saved by  
19 not using HPFF cables, I'm not sure on the basis  
20 for that. With HPFF you can pull R-2 circuits and  
21 you can put a full three cables in one pole. With  
22 an XLPE you have to pull up each phase  
23 individually, so you have three times as many  
24 poles. So I'm not sure, with the labor costs you  
25 have.

1           The cost savings by using  
2 appropriately sized covered conductors, I'm not  
3 sure of the basis for that. We do see a -- if you  
4 were to go to a slightly smaller cable you would  
5 have a slight reduction in costs, but not -- not  
6 to the extent that they have.

7           So looking at a -- at a very high  
8 level we have completed the Stamford cables  
9 project just -- just recently. That was completed  
10 for about \$34 million. That's a 1.4  
11 million-dollar -- or a 1.4 mile line. So just at  
12 a high-level, you know, your costs per mile for  
13 that installation were 24 million per mile.

14           The Town is proposing a cost per  
15 circuit mile of \$8.4 million. It's significantly  
16 less than what we just recently completed a  
17 project for. So I do think that some of their  
18 numbers in there are accurate, but they don't  
19 create a bottoms-up that gives you the full  
20 picture.

21           MR. SILVESTRI: Thank you.

22           Thank you, Mr. Chairman.

23           DR. KLEMENS: I have one question  
24 following up on the Chairman's question about  
25 costs. I mean, there are other costs that are

1 alluded to here such as -- and I knew there was  
2 another one. I'm looking for it, but I can't find  
3 it.

4           It's the Town's interrogatory 27,  
5 and the response that planning to upgrade -- will  
6 have to upgrade the Byron Substation transformers,  
7 but are not falling within the Siting Council's  
8 jurisdiction. And I saw somewhere else another  
9 reference similar to that.

10           So again, I think the Chairman  
11 asked about the total costs of the project. I  
12 think there are going to be additional costs for  
13 the system that we may not even look at that are  
14 going to be part of this. And I just wanted to  
15 put that out there.

16           And there was something else I saw  
17 where it was outside the jurisdiction of the  
18 Council, but they anticipate spending more money  
19 on this. That was the question you asked about.  
20 I don't know if they can respond what the actual  
21 anticipated costs are going to be of the whole --  
22 when everything is said and done in Greenwich with  
23 transformers and things that are considered to be  
24 distribution, non-transmission that is beyond our  
25 purview.

1                   What is the real cost of the  
2 project?

3                   THE WITNESS (Bowes): So the costs  
4 that we've included with this application or  
5 petition for reconsideration include exactly what  
6 we've discussed in here, which includes the work  
7 at Cos Cob, the two lines from Cos Cob to the new  
8 Greenwich Substation, and the cost of the new  
9 Greenwich Substation and the direct costs. For  
10 direct, I mean, the applicable costs for  
11 connecting the distribution feeders to that  
12 substation.

13                   We have a variety of other projects  
14 ongoing, not only in Greenwich, but in every town  
15 in the state of Connecticut. We have a system  
16 resiliency program that we've done many projects  
17 within the town of Greenwich. In fact, the Tomac  
18 Substation, the reduction of the 4.8 kV at Tomac  
19 is one of those projects we've discussed with the  
20 Town for a future project.

21                   So there's always ongoing system  
22 resiliency, reliability projects, service upgrades  
23 within each town we have. Those are all contained  
24 within the programs approved by PURA and within  
25 our distribution rate program. They ask us for a

1 five-year look ahead of the projects that we are  
2 going to do, and we give them that by program. We  
3 give them that by project. They have the right to  
4 audit each one of those projects.

5           So there's a lot of controls in  
6 place around the capital expenditures we make. We  
7 typically, as I said, break those down by circuit  
8 rather than by town. So we look at what -- what  
9 reliability needs are and what's the best solution  
10 for that? It might be enhanced tree trimming. It  
11 might be reconductor-ing a circuit. It might be  
12 removing a substation because it no longer is  
13 needed.

14           So those projects will continue on  
15 as long, I mean, as long as there's a need for  
16 those projects. So clearly beyond the scope and  
17 scale of this project there will be other projects  
18 that come in Greenwich.

19           DR. KLEMENS: So this project that  
20 we're looking at stands alone with the cost of  
21 this project. This is it?

22           THE WITNESS (Bowes): This is it.  
23 For this project it includes all the transmission  
24 and all the distribution costs associated with  
25 that.



1 DR. KLEMENS: Thank you for  
2 clarifying that.

3 THE CHAIRMAN: Okay. An  
4 opportunity, you wanted to correct something?

5 MR. FITZGERALD: Yes, Mr. Chairman.  
6 Mr. Bowes has the correction, and Mr. Soderman has  
7 an answer to the question about saltwater in  
8 concrete that was left hanging.

9 THE WITNESS (Bowes): So we had a  
10 discussion this morning about a figure in the  
11 prefiled testimony. It was figure number 1 on  
12 page 4. And I incorrectly said that there were  
13 three circuits that feed the secondary network in  
14 Greenwich. There's actually five circuits.

15 It's all four of the circuits that  
16 come from Cos Cob to Prospect plus the 11-R56  
17 circuit. So there are five circuits that feed the  
18 underground network today, and there will be five  
19 in the future.

20 We also talked about what circuits  
21 feed Byron, and today the 11-R56 feed Byron --  
22 feeds Byron. The 22-E35 from the existing  
23 Prospect to Byron, and the 22-E36 which feeds from  
24 the existing Prospect, taps in at Byron and can --  
25 continues onto North Greenwich.

1           So there's a couple of cleanups  
2 with the figure -- which the figure is correct.  
3 One of the circuits is not labeled. I just  
4 misspoke when I -- when I indicated that there  
5 were three circuits.

6           MR. FITZGERALD: And could  
7 Mr. Soderman answer the saltwater question?

8           THE CHAIRMAN: Yeah, sure.

9           THE WITNESS (Soderman): The  
10 question by Mr. Mercier this morning about the  
11 concern I think of the concrete duct bank and the  
12 anchoring in the presence of saltwater.

13           So there's three mechanisms that we  
14 would typically engage in corrosive environments.  
15 The first is to use an inhibitor, something like  
16 calcium nitrate or SpectraGuard, which is the  
17 brand name. And that's kind of -- that's  
18 specified in the American Concrete Institution  
19 Code 3-18.

20           The second would be the use of  
21 epoxy coated rebar for anchoring, as opposed to  
22 just bare deformed rebar using an epoxy coating.  
23 And last, to increase the cleared space coverage  
24 to four inches from three inches to provide that  
25 extra protection.

1 THE CHAIRMAN: Okay. Thank you.

2 MR. MERCIER: I have one more  
3 question, Mr. Chairman. It just has to do with  
4 the cost estimate on the response to number 57.  
5 Earlier I asked about why there was a  
6 1.7 million-dollar extra feeder cost for the 281  
7 pole yard location versus the 290 location. And I  
8 think later during some other discussion there was  
9 mention that it would be cheaper to run the  
10 transmission line to 281 rather than 290.

11 So would the transmission line be  
12 less expensive to extend to the 281 pole yard  
13 location than to the 290 Pet Pantry site? And if  
14 so, by how much? I didn't see that quantity in  
15 this chart, but I heard it mentioned earlier.

16 THE WITNESS (Case): Yeah, that  
17 is -- as part of that AMP we've estimated the  
18 cable going into 281 Railroad Avenue. So the  
19 deduction, the shorter length for the cable is  
20 already incorporated into that estimate.

21 So when we're looking at just the  
22 delta for the distribution feeders to get from one  
23 to the next, that's just a straight footage for  
24 the -- for the distribution feeders.

25 MR. MERCIER: Okay. So you don't

1 have it broken out. Just the transmission line  
2 component only because it was built into the cost  
3 of the overall substation?

4 THE WITNESS (Case): Correct.

5 MR. MERCIER: For the transmission  
6 connection?

7 THE WITNESS (Case): Correct.

8 MR. MERCIER: Okay. I'll just ask  
9 about that maybe in a further interrogatory.

10 Thank you.

11 THE WITNESS (Case): If I can just  
12 clarify. So you're looking at what would be the  
13 additional transmission cost on our AMP to run  
14 from 281 to 290?

15 MR. MERCIER: Yeah. So I'm just  
16 trying to determine if it's a wash between the  
17 two?

18 THE WITNESS (Case): I could take a  
19 rough swing at it. Now it is a few hundred feet.  
20 You know, it's probably going to be -- if we're --

21 I would say, somewhere in the range  
22 would be an additional 2 million dollars, 2 and  
23 half million dollars.

24 MR. MERCIER: Okay. Thank you.

25 THE CHAIRMAN: Okay. We're going

1 to go until four o'clock. We're going to have to  
2 continue the hearing another day which I will  
3 announce subsequently. I just want to go through  
4 and see who of the various parties and interveners  
5 are here just so I get a sense.

6 MS. BACHMAN: For the record, we'd  
7 like to go through the entire list of parties and  
8 interveners. So please?

9 THE CHAIRMAN: And in the five  
10 minutes left you can present your -- no.

11 Listen. We're also sitting here in  
12 very uncomfortable chairs, so -- and for some  
13 reason the Chair doesn't even get a 30-second  
14 break, so you're going to have to bear with me.  
15 So is there anybody from the Office of Consumer  
16 Counsel?

17 (No response.)

18 THE CHAIRMAN: Parker Stacy? And I  
19 believe you've agreed to let the Town go before  
20 you. Is that still correct or not?

21 PARKER STACY: Yes. I heard a date  
22 for the next hearing which would not be a date I  
23 could attend. So --

24 THE CHAIRMAN: That's being  
25 changed. I guess I shouldn't keep you all in

1 suspense. So it's going to be changed to  
2 August 29th. Which may upset some others, but  
3 we're going to hopefully have as closer a  
4 consensus.

5 Okay. Anybody at Field Point  
6 Estate Townhouses?

7 (No response.)

8 THE CHAIRMAN: Christine Edwards.

9 A VOICE: She left.

10 THE CHAIRMAN: She left. Okay.

11 Richard Granoff?

12 A VOICE: Not here.

13 THE CHAIRMAN: The grouped  
14 interveners from the restaurant -- the pizzeria,  
15 the chiropractor, Nutrition -- Joe Paul Berger,  
16 and Meg Glass. Are any of them here?

17 A VOICE: They're not here.

18 THE CHAIRMAN: Not here.

19 Cecilia Morgan?

20 CECELIA MORGAN: I'm here.

21 THE CHAIRMAN: The Town of  
22 Greenwich, I believe is here.

23 MR. BALL: Yes.

24 THE CHAIRMAN: And Morningside  
25 Circle Association?

1                   A VOICE: They're not here.

2                   THE CHAIRMAN: I mean, I'm not  
3                   disqualifying anybody for not being here, but it  
4                   does leave one to suspect their interest.

5                   We're going to allow Ms. Morgan to  
6                   come now.

7                   And you're here to ask questions.  
8                   Sure.

9                   CECELIA MORGAN: I'll be very  
10                  brief. I promise. I know the day is late.

11                  I have a two-part question for  
12                  Eversource. It also involves Bruce Park, should  
13                  this project be approved.

14                  Given that Sarah Bruce's deeded  
15                  gift of historic Bruce Park to the Town of  
16                  Greenwich and the immediate surrounding  
17                  residential areas is a vital sanctuary for  
18                  wildlife, it is an extreme importance that we keep  
19                  from harm the continued existence of our  
20                  neighborhood animals and birds. I speak for those  
21                  who cannot speak for themselves.

22                  In recognizing the significant  
23                  ecological balance of these living creatures that  
24                  have been here forever to represent the moral  
25                  necessity to maintain the integrity of the land

1 and water they inhabit at any given time, I  
2 propose the following two questions to Eversource.

3           One, in the event that Eversource  
4 has cause to use any parts of the greater Bruce  
5 Park area for the project, can you describe what  
6 plans Eversource will put in place during all  
7 phases of construction to protect from  
8 endangerment these denizens of field, forest and  
9 water to ensure that nothing is done that would  
10 negatively impact their future quality of life?

11           And two in addition, what kind of  
12 binding guarantees would be provided by Eversource  
13 to enforce the caveat surrounding such protective  
14 measures during all phases of the work before,  
15 during and after the construction is completed?

16           Thank you for allowing me the  
17 question.

18           THE WITNESS (Bowes): So I will  
19 start and I'll ask Mike to also provide more  
20 details on the environmental impacts.

21           So as part of the process if we  
22 were to receive our certificate for this project  
23 the next phase would be a development and  
24 management plan, which would describe the means  
25 and methods we would use for construction



1 activities and that includes how we would do  
2 certain things within the park. This project is  
3 different than the previous project in the fact it  
4 will be within the roadway.

5 We have agreed with the Town, in  
6 principal at least. We've talked about a  
7 memorandum of understanding that we would also  
8 work with the Town onto further describe the exact  
9 things that we would do within Bruce Park as well  
10 as the rest of the project. Those could include  
11 the workhours, the types of equipment we would  
12 use, as I said, the means and methods, and how we  
13 would approach both the schedule of work that we  
14 would do in the park and also the locations.

15 We talked a little bit about --  
16 about Woods Road being a possible location where  
17 we were close that road for a period of time in  
18 the winter and use that for staging, for example,  
19 a conduit possibly within the roadway. So we've  
20 made it clear we want to stay within the roadway  
21 wherever we can. That was a condition the Town  
22 asked us to look at.

23 They also asked us to look at  
24 around the trees in the park. And we have  
25 identified where we would have to trim some trees.

1 We did that with the Town and with the town tree  
2 warden. Trimming, as in causing no permanent  
3 damage to the trees, but rather than having  
4 construction vehicles hit the trees as you can see  
5 where some have been hit today. We would actually  
6 go in and trim properly before that with a  
7 certified arborist.

8                   So we do that with the town tree  
9 warden, and do it prior to construction. So our  
10 construction vehicles wouldn't cause more  
11 damage than -- or wouldn't cause damage that would  
12 happen if they struck those, those tree branches.  
13 We are not talking about any tree removals in the  
14 park. We're trying to stay within the boundaries  
15 of the roadway in the disturbed soils that are  
16 already there.

17                   I can have Mike go into more  
18 details about the environmental aspects that we  
19 plan to use for working within Bruce Park.

20                   THE WITNESS (Libertine): Thanks,  
21 Ken. The -- the primary areas that we would have  
22 to deviate from the roads would be right around  
23 the harbor crossing north of the Davis Avenue  
24 Bridge. So we would obviously need access to both  
25 shorelines.

1           We've talked about, if the schedule  
2 works, ideally we would prefer to be working in  
3 the winter to minimize damage. There has been  
4 some discussions and we'll flesh this out if we  
5 get our approval.

6           And during the D and M phase to  
7 further minimize disruption to that lawn area we  
8 have contemplated use of timber matting or some  
9 other protective measures for heavy equipment,  
10 just again so that we're not tearing that area up  
11 and it can be restored in a much quicker pace once  
12 the spring comes.

13           As Ken had indicated, in terms of  
14 the tree cutting we'll work with the Town. They  
15 do have some established protocols in terms of  
16 heights, or minimum heights for the trees to be  
17 trimmed. We're looking at specialized equipment  
18 if we can feasibly get those to the job site. And  
19 to maintain conformance with the town specs, we  
20 certainly want to do that.

21           In terms of overall impact, because  
22 we are staying within the roadways we've really  
23 eliminated the concern, or the primary concern  
24 over displacement of animals. Most of the animals  
25 utilizing the park are familiar with some levels

1 of human disturbance, or at least interaction. So  
2 I think that this particular option, using the  
3 roadways has really mitigated most of those  
4 concerns.

5           We don't have any major pits or  
6 excavations that we have to do within the park  
7 proper. Again, whether we go with the pedestrian  
8 bridge or going with the trenching through the  
9 harbor, both will require a very similar  
10 methodology in terms of working immediately along  
11 the banks, or then either above the water or  
12 within the water itself within the coffer dams.

13           If we don't -- if we go with the  
14 pedestrian bridge coffer dams it will be much more  
15 limited as we won't have to span the entire body.  
16 We'll span it overhead, or over the surface of the  
17 water, but we won't physically be in the water.  
18 That would really be the only change. So we do  
19 need to do some more investigation.

20           In terms of where we're going to  
21 take off from the east side and land on the west  
22 side, I think that Mr. Case had indicated that  
23 there are some bedrock outcrops. If we can avoid  
24 them we'd love to do that. That may be  
25 unavoidable, so there may have to be some work to

1 chip away to get the depths that we need, but  
2 that's something we'll have to take a closer look  
3 at.

4 But overall, I think the idea is to  
5 make sure that we work in concert with the Town so  
6 that everyone is aware. Do it transparent.

7 One of the things we're willing to  
8 do in terms of coming down the roadway for any of  
9 the excavations is to videotape that so that we  
10 have a very good understanding, and again it's  
11 documented in terms of where we may encounter some  
12 roots of trees.

13 My sense is because that road has  
14 been worked several times and there are utilities  
15 beneath it today, we're probably not going to have  
16 too much of a concern in terms of disturbing major  
17 systems, but obviously you don't know until you  
18 get in there. So that's something that we've also  
19 started to discuss as part of our potential D and  
20 M phase.

21 THE WITNESS (Bowes): I think the  
22 last part of your question was around what  
23 financial assurances?

24 CECELIA MORGAN: Yes, the last part  
25 of my question was what sort of binding guarantees

1 will be provided by Eversource to enforce these  
2 caveats? Because you're talking about not just  
3 what's along the roadway. And yes, the foxes and  
4 squirrels are used to this sort of thing, but when  
5 you talk about the possibility of replacing rock  
6 outcroppings, yet they're not animals?

7                   But I mean, these are very old,  
8 thousands of years old granite rock outcroppings.  
9 And that's part of this too. I didn't even  
10 mention them. So I think for something, that this  
11 is going to be as temporary as this is, in the  
12 grand scope of humanity it would be a good idea to  
13 keep in mind that we're talking about the future  
14 of this land, and it is deeded land.

15                   And it was given, as you know, by  
16 Sarah Bruce to the Town of Greenwich as a park.  
17 And the caveat in the deed is that it not be  
18 disturbed in an unreasonable manner. I mentioned  
19 that the last time I was here.

20                   THE WITNESS (Bowes): So I think I  
21 would like to respond to the enforcement part of  
22 that.

23                   CECELIA MORGAN: Okay.

24                   MR. FITZGERALD: The development  
25 and management plan gets filed and approved by the

1 Siting Council. So they will have enforcement  
2 action, or the ability to -- to enforce those  
3 requirements. They oftentimes appoint an  
4 independent environmental inspector as well, and  
5 obviously Eversource is used to dealing with that  
6 stipulation.

7 I had mentioned before that we have  
8 talked about having a memorandum of understanding  
9 with the Town of Greenwich. That could also  
10 include a posted bond.

11 CECELIA MORGAN: Okay. That  
12 answers my question. Thank you.

13 THE CHAIRMAN: I'm going to close  
14 it at four. Does the Town want to spend ten  
15 minutes, or should we just --

16 MR. BALL: Thank you, Chairman  
17 Stein. I think for our cross to be coherent we  
18 should probably hold off until the next. I hope  
19 it will be coherent then, but we should probably  
20 hold off until then.

21 THE CHAIRMAN: I just wanted to  
22 give you the opportunity.

23 MR. BALL: Thank you so much.

24 THE CHAIRMAN: So the Council  
25 announces that it will continue the evidentiary

1 session of this hearing at these offices here at  
2 10 Franklin Square in New Britain, on Tuesday  
3 August 29, 2017, again starting at 11 a.m. in this  
4 hearing room one. So for those who had August 8th  
5 on their agenda, it's now going to be August 29th.

6 Please note that anyone who has not  
7 become a party or intervener, but desires to make  
8 his or her views known to the Council may file a  
9 written statement with the Council until the  
10 record closes. Copies of the transcript of this  
11 hearing will be filed at the Greenwich town  
12 clerk's office.

13 I hereby declare this portion of  
14 the hearing adjourned. Thank you all for your  
15 participation and drive home safely.

16  
17 (Whereupon, the above proceedings  
18 were concluded at 3:49 p.m.)

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CERTIFICATE

I hereby certify that the foregoing 191 pages are a complete and accurate computer-aided transcription of my original verbatim notes taken of the Public Hearing in Re: 461A, APPLICATION FROM EVERSOURCE ENERGY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A 115-KILOVOLT BULK SUBSTATION LOCATED AT 290 RAILROAD AVENUE, GREENWICH, CONNECTICUT, AND TWO 115-KILOVOLT TRANSMISSION CIRCUITS EXTENDING APPROXIMATELY 2.3 MILES BETWEEN THE PROPOSED SUBSTATION AND THE EXISTING COS COB SUBSTATION, GREENWICH, CONNECTICUT, AND RELATED SUBSTATION IMPROVEMENTS, which was held before ROBIN STEIN, Chairman, at the Connecticut Siting Council, 10 Franklin Square, New Britain, Connecticut, July 25, 2017.



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Robert G. Dixon, CVR-M 857  
Notary Public  
BCT Reporting, LLC  
PO Box 1774  
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My Commission Expires: 6/30/2020

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WITNESSES

Michael Libertine Page 6  
Farah S. Omokaro  
Jason Cabral  
Christopher P. Soderman  
Ronald J. Araujo  
John C. Case  
Kenneth B. Bowes

EXAMINERS:

Mr. Fitzgerald Page 6  
Mr. Mercier Page 11