STATE OF CONNECTICUT

SITING COUNCIL

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*
LIFE-CYCLE 2011 * JANUARY 17, 2012
* (1:10 p.m.)
COMPARATIVE COSTS OF OVERHEAD AND *
UNDERGROUND ELECTRIC TRANSMISSION *
LINES *
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* *

BEFORE: ROBIN STEIN, CHAIRMAN

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Edward S. Wilensky
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. . .Verbatim proceedings of a hearing before the State of Connecticut Siting Council in the matter of Life-Cycle 2011, held at the Offices of the Connecticut Siting Council, Ten Franklin Square, New Britain, Connecticut on January 17, 2012 at 1:10 p.m., at which time the parties were represented as hereinbefore set forth . . .

CHAIRMAN ROBIN STEIN: Good afternoon. I'd like to call to order this meeting of the Connecticut Siting Council today, Tuesday, January 17, 2012, at approximately 1:10 p.m. We're here on the subject of the Life-Cycle 2011 report.

My name is Robin Stein. I'm the Chairman of the Connecticut Siting Council.

This hearing is a continuation of a hearing held on November 15, 2011, pursuant to General Statute, Section 16-50r, to review the comparative costs of overhead and underground electric transmission lines, including all relevant life-cycle costs, relative reliability, constraints concerning access and construction, potential damage to the environment, and compatibility with the existing electric supply system.

As part of this investigation, the Council will update and/or recreate, as necessary, the information contained in the report entitled "Life-Cycle 2007 - Connecticut Siting Council Investigation into Life-Cycle Costs of Electrician -- Electric Transmission Lines" Report.

A verbatim transcript will be made of this hearing and deposited at the Council's office here at 10 Franklin Square in New Britain.

We will proceed in accordance with the prepared agenda. We're going to start with the appearance by the Party, The Connecticut Light and Power Company. And we'll begin this by asking a review -- Attorney Fitzgerald by verifying any new -- or Attorney Cochran, whichever one it is -- or both -- to verify any new exhibits that you have filed on this matter, and verify the appropriate -- I understand all the witnesses have been previously sworn.

MR. JEFFREY COCHRAN: That's true. Good afternoon.

First, I'd like to note that this morning CL&P filed one revised interrogatory response. And that is the response to the Council's first set of interrogatories, Question CSC-004, Revision 1. It's

listed as No. 12 on the agenda. And we have extra copies if anybody here needs a copy of that response.

And I'd -- I'd like to ask each member of the panel did each of you prepare or participate in or oversee the preparation of the interrogatory responses on which you are listed as the responsible witness or one of the responsible witnesses?

VOICES: Yes. (Witnesses answered en mass.)

MR. COCHRAN: Okay. Do any of you have any further corrections or updates to those responses at this time?

VOICES: No. (Witnesses answered en mass.)

MR. COCHRAN: Do you -- at this time referring to exhibits B-6 through B-12, do you maintain that these responses are true and accurate and adopt them as your testimony today?

VOICES: Yes. (Witnesses answered en mass.)

MR. COCHRAN: So at this point I request that the CL&P exhibits listed as B-6 through B-12 be admitted into the record for this proceeding.

CHAIRMAN STEIN: Are there any objections

by any of the other parties? Hearing none, these will be made part of the record.

(Whereupon, Connecticut Light and Power Company's Exhibit Nos. 6 through 12 were received into evidence as full exhibits.)

CHAIRMAN STEIN: Thank you. We'll then go with cross-examination. We'll start with I guess both staff and the consultant.

MR. MICHAEL PERRONE: Thank you, Mr. Chairman.

Looking at the response to OCC Question 9, dated the 21st of October, it talks about non-ceramic insulators. So is it correct to say that CL&P has no plans to use non-ceramic insulators in the future?

MR. KEITH SICKLES: At this point yes.

MR. PERRONE: And the CSC Interrogatory No. 4, Set 2, it talks about infrared inspections. Are those used to check for hotspots on a transmission line?

MR. MICHAEL MCKINNON: Yes.

MR. PERRONE: Okay. Could you explain how that process works?

MR. MCKINNON: Aerial patrols with a helicopter with an infrared camera mounted in the nose of the helicopter and an infra-tomographer reviewing the

data as he flies looking for hotspots above the ambient temperature, for splices, dead-end connectors, and other hardware along the line.

MR. PERRONE: Okay. And also in one of the other responses it talks about a LIDAR, L-I-D-A-R, survey of transmission right-of-way vegetation. Could you explain how that process works?

MR. ANTHONY JOHNSON: Yeah. The LIDAR system is essentially like a CAT scan survey of the facilities in addition to any of the ground features within the area that's being surveyed along the transmission corridor. What you can do with a LIDAR survey is you can take data points which will show structures, conductors, ground features, and vegetation and present a 3-D model which will show you distances between those conductors and any ground features that are out there, especially vegetation for our use. You can also then model the information you have. You can take the conductor, the temperature at the time the survey was done, the loading on the line, and the conductor type, and along with the span length and then model it to sag to what the maximum operating condition would be of that circuit or that line, and then taking new measurements to see if there's anything that's going to encroach in any

clearances that we must maintain within the vegetation underneath or adjacent to the lines. You can also survey or model the blowout conditions of the conductors also.

MR. PERRONE: And what would be the blowout conditions?

MR. JOHNSON: The -- the swing of the outside conductor under certain wind speeds and temperatures.

MR. PERRONE: Also in Interrogatory 2 of Set 3 it mentions that CL&P's current practice for overhead lines is to use wood or tubular steel structures. It also mentions that under certain situations a steel lattice structure would be appropriate. Under what kind of conditions would you consider a lattice structure?

MR. SICKLES: If we were looking for a high strength structure along the base, such as a river crossing and a long span, we might consider a lattice structure in that instance.

MR. PERRONE: Thank you. That's all I have.

MR. NEIL CRANDELL: Okay. I'm Neil Crandell with KEMA, consultant for the Council.

I'm -- I guess -- since this is our last

opportunity to button down some of these economic factors, I guess I'd like to do that today if we can and talk about some things like energy costs and inflation and so forth --

COURT REPORTER: I'm sorry, could you bring that microphone over --

MR. CRANDELL: Yes --

COURT REPORTER: Thank you.

MR. CRANDELL: Is that better?

A VOICE: And you have to speak up.

MR. CRANDELL: I did do a little research here recently and found that according to the Energy Information Administration, EIA, the average price of energy in the State of Connecticut was 17.39 cents per kilowatt hour in 2010. I guess I would like to throw that out there as do you think that that is a representative typical energy cost for the State of Connecticut and the basis for evaluating transmission losses as our starting point?

MR. ROBERT CARBERRY: That sounds high to me. I think I can give you a better source of information that's maintained on the ISO New England website. It's in their standard market design section of their website. And I can give you the actual web address

if you want it.

MR. CRANDELL: Thank you. I would --

MR. CARBERRY: Alright.

MR. CRANDELL: Do -- could you give me an estimate of what you think your typical energy costs are right now?

MR. CARBERRY: Well this is a New England website and they have for every hour of the year both a day ahead margin of lost cost and an actual real-time margin of lost costs for each hour of the year. So you can find a spreadsheet on-line for 2010. And very recently they added to that website and put a 2011 spreadsheet on there. And it's a different number in every hour of the year of course --

MR. CRANDELL: Sure --

MR. CARBERRY: -- but the -- the average throughout 2010 was around 10 cents a kilowatt hour. And the average in 2011 is around seven and a half cents per kilowatt hour.

MR. CRANDELL: Okay, thank you. Well that's very -- that's a wide discrepancy between what EIA is reporting and -- that almost sounds like the total cost of kilowatt hour of electricity and not just the supply side cost.

CHAIRMAN STEIN: Excuse me. We have -- we have a follow-up question from Mr. Ashton.

MR. PHILIP T. ASHTON: I was going to say 17 cents sounds very much like a retail cost --

MR. CARBERRY: Yeah --

MR. ASHTON: -- which would include all the distribution costs and the other stuff that gets in there, where the 10 cents sounds to me as though it's transmission and generation and that's about it. Is that fair to say?

MR. CARBERRY: That's what I'm surmising.

MR. CRANDELL: Okay.

MR. ASHTON: Okay, thank you.

CHAIRMAN STEIN: Thank you.

MR. CRANDELL: So for transmission losses you would use the figure closer to the 10 cents per kilowatt hour as a typical --

MR. CARBERRY: I would. I believe in your 2007 report you used 10 cents per kilowatt hour --

MR. CRANDELL: That is what we used --

MR. CARBERRY: -- and when I saw the 2010 data, I was surprised that it was in the same ballpark, but -- and I'm more surprised even that it's gone down since. But I guess there have been decreases in the

supply side costs lately, so I guess that makes sense.

MR. CRANDELL: Okay, very good. And I think we already established at the last hearing that we were going to use the loss factor of .38 and the annual load growth factor of 2.03 percent based on the new report that the Siting Council came out with last year, right, and -- so as an annual energy cost escalation factor, I think in the last report we used five percent. Do you think -- do you feel that that's still a valid number or --

MR. CARBERRY: Well, I don't know about it being valid for the next five years, but I think it -- it's conservative in the sense that this is ultimately a comparison between overhead and underground lines. An underground line will often have lower resistance and therefore can have an advantage in the cost of losses. So if you were on the high side in your estimate of what the cost of losses is, you'll be favoring underground. But the gap is still so relatively large, I don't think it will close that gap very much. So I think such a choice is conservative.

MR. CRANDELL: Very good. And what would be a fair demand charge in calculating the losses? Do -- do you feel that that's a component that we should use in

the --

MR. CARBERRY: But that would assume zero in nowadays --

MR. CRANDELL: I -- I was going to ask that, but --

MR. CARBERRY: ISO has been fulfilling its capacity commitments and has more than enough capacity to go around.

MR. CRANDELL: Okay, good. In the last report I believe we used a capital recovery factor of .146, which corresponds to a 12.9 percent cost of capital over a four-year life. I believe the new number that we got from you all was 14.1 percent. Should -- should we update the number you believe using the 14.1 instead of 14.6?

MR. RAYMOND GAGNON: Yeah, 14.1 is the newest calculated number that we do have.

MR. CARBERRY: We do have -- UI provided a different number as well, so --

MR. CRANDELL: Yeah --

MR. CARBERRY: -- if you want to take the average between the two or something like that, that would be fine too, but in that range is fine.

CHAIRMAN STEIN: We have another --

MR. ASHTON: Does --

CHAIRMAN STEIN: -- another follow-up question.

MR. ASHTON: Does that figure reflect the FERC rate of return -- allowed rate of return or local state rate of return, which are quite different?

MR. GAGNON: It's based on the FERC rate of return.

MR. ASHTON: I'm sorry?

MR. GAGNON: I believe it's based on the FERC rate of return -- I'm just trying to find the answer to that --

MR. CARBERRY: Do you know which question that was?

MR. ASHTON: I think it was -- the allowed rate of return of FERC is around 14 percent --

MR. GAGNON: Based on -- based on our ROE, it's 11.64 percent --

MR. CARBERRY: It's --

MR. GAGNON: -- yeah.

MR. ASHTON: That's the allowed rate of return --

MR. GAGNON: No, that was -- that's what the ROE --

MR. CARBERRY: That's the rate of --

MR. GAGNON: You have to use the ROE in that calculation --

MR. ASHTON: Wait. I've got two people here --

MR. CARBERRY: I'm sorry.

MR. ASHTON: I understand the calculation --

MR. GAGNON: Right --

MR. ASHTON: -- but in that calculation what ROE do you use? The allowed FERC rate or --

MR. GAGNON: We use --

MR. ASHTON: -- the state rate?

MR. GAGNON: We use the 11.64 percent --

MR. ASHTON: Which is what?

MR. GAGNON: Which is the FERC rate.

MR. ASHTON: That is the allowed rate of return --

MR. GAGNON: Yes --

MR. ASHTON: -- on equity by FERC?

MR. GAGNON: Yes. For regional costs in a TL.

MR. ASHTON: Okay. Thank you.

MR. CARBERRY: You might want to refer,

Mr. Ashton, to the Late File 002 response by CL&P.

MR. ASHTON: Okay, thank you.

MR. CRANDELL: Okay. The annual O&M cost escalation factor, I think in the last report we used four percent. I think I saw some stuff in the responses that said the O&M costs were rising as the result of various factors. Do we want to perhaps make that O&M escalation factor a little higher?

MR. MCKINNON: Well our O&M costs have increased with additional plan of service, and a lot of that is tied to the underground system. I'm not sure that I'm qualified to answer should we have a different rate of return on that if I understand your question properly.

MR. CRANDELL: Well this is the escalation of capital -- or I mean O&M costs for the transmission line, so -- so the O&M costs themselves that were -- you would project those out, you know, at this escalation -- this escalation rate, so -- I think I'm seeing in the submittals that the O&M rate may be rising a little higher than four percent, but I mean -- it's kind of hard to take it as an average and do the calculations -- but it appears like -- and -- and you have some testimony in there that infers that it's gone up quite a bit.

MR. MCKINNON: Yes, our O&M rates have gone up. I'm not sure what the calculated percentage would be.

MR. CRANDELL: Okay.

MR. CARBERRY: I think it might be fair to say that, you know, if the program stayed the same and there was nothing additional done beyond what's being done today, that that might be a fair escalation rate just as it is for capital costs. The responses that have been made are showing that new things have been added to the O&M program --

MR. CRANDELL: Right --

MR. CARBERRY: -- and so probably for the last five years the escalation rate has been higher --

MR. CRANDELL: It's gone up --

MR. CARBERRY: -- but I don't think we can assume right now that it would be any different now than tomorrow --

MR. CRANDELL: Okay --

MR. CARBERRY: -- and five percent might still be a good number.

MR. CRANDELL: So -- so the increases that we've seen in O&M in the last few years, we -- since these are as a result of implementing new programs or

new requirements, and we're probably not going to see any new requirements in the next few years and we're probably not going to see this kind of escalation continue -- I mean, you know, it's hard to say what the future holds, but --

MR. CARBERRY: Right --

MR. CRANDELL: -- but assuming that there's no new ones, no new major requirements, this rate should be good. I think that's what I'm hearing.

MR. MCKINNON: Yes.

MR. CRANDELL: Okay, good. Okay -- alright, now sales tax, looking at the submittals and I calculate the percentages, what -- what does -- what -- what does sales tax apply to, because I -- when I -- when I just take the material portions of the submittal, I get weird -- I get -- for every number I get a weird different tax rate --

MR. GAGNON: Sales tax --

MR. CRANDELL: -- so --

MR. GAGNON: -- sales tax is --

MR. CRANDELL: -- it's only on material, right?

MR. GAGNON: It's on material and construction labor.

MR. CRANDELL: And construction labor --

MR. GAGNON: Yeah --

MR. CRANDELL: -- okay.

MR. GAGNON: But it's not on conductor.

MR. CRANDELL: Not on conductor.

MR. GAGNON: Right. And the average for Connecticut is 4.6 percent. It was a negotiated set -- a negotiated agreement with the State of Connecticut.

MR. CRANDELL: Okay. So the -- the numbers given are just absolute numbers and they're based on -- 4.6 percent on various things in there. I can't break those items out --

MR. GAGNON: Right --

MR. CRANDELL: -- in the categories that you've given me --

MR. GAGNON: Right --

MR. CRANDELL: -- but it is 4.6 percent based on whatever items they apply to?

MR. GAGNON: That is correct.

MR. CRANDELL: Okay, very good. I think my other handout question refers to -- is for UI. Are we -- are we doing --

CHAIRMAN STEIN: We're going to do that separate.

MR. CRANDELL: Okay. So that's all the questions I have.

CHAIRMAN STEIN: We'll start with Dr. Bell.

DR. BARBARA C. BELL: Thank you, Mr. Chair.

Referring to CL&P's response, the second set, Question 12, dated December 14th, it has to do with tree trimming, I didn't understand -- you have a comment there, the company doesn't normally trim Cedar trees. You're talking about a new program relative to Cedar trees. Does that mean you don't trim Cedar trees as opposed to cutting them down completely or does it mean you don't trim Cedar trees in the regular maintenance program --

MR. JOHNSON: Correct --

DR. BELL: -- do you see what I'm asking?

MR. JOHNSON: I understand what you're asking. We are -- we are not at the stage where we can trim Cedar trees. If a Cedar Tree is encroaching within the clearance distances, we will cut the tree down.

DR. BELL: Okay, so it's the --

MR. JOHNSON: Right --

DR. BELL: -- the first alternative that I

gave?

MR. JOHNSON: Yes.

DR. BELL: Thank you. Pursuing this theme of maintenance, but not with respect to any question or answer, I understand that you worked with the Yale School of Forestry and Environmental Studies to -- on a research program to identify danger trees some time ago --

MR. JOHNSON: That is correct, yes --

DR. BELL: -- and my question is did that help you at all? And more specifically, did it allow you to decrease costs at all with regard to danger trees?

MR. JOHNSON: The study was looking more at trees that would contact the line if they were to fail. And those trees in the population of trees along our rights-of-way in some selected areas that we surveyed determined what characteristics of trees would qualify (1) as being a high risk and therefore a candidate for removal or being addressed. I was hoping to see something that would give us more of a checklist of if it's this versus this, if it's this species versus this species, if it's this size versus that size. It did a very good job of giving us some characteristics which we can use, but the bottom line was that it said that the larger older trees should be removed. And unfortunately,

I don't agree with that approach because there's a lot of old mature trees which we would have to remove in a lot of areas to follow what their protocol was with their results. We're finding out that it's not necessarily taller older trees, bigger trees, as it is some other types of trees which are just weaker species which have a higher propensity for failure during storm events for the most part and falling into our lines. Trees aren't normally just falling over.

So they're correct in that yes, the older the tree is, the greater potential for it to fail or fall because it's near the end of its lifespan, but I don't think that the characteristics and the criteria they gave us for evaluating was something that we could really employ on our system because we would be removing a lot of old mature trees from some distance off our right-of-way.

DR. BELL: Thank you. On another topic, again a general one and not -- I'm not asking about any specific response, but in talking about the transmission cost allocation issue, you -- you have an example in there from Middletown/Norwalk I think, but my question relates to a more recent matter, and that is GSRP. And my question is did you submit to ISO a TCA application

for the MMP portion of GSRP that essentially the Council asked you to complete in a different way than was originally proposed?

MR. CARBERRY: We have not submitted a transmission cost allocation application yet for the GSRP or MMP projects.

DR. BELL: Are you intending to?

MR. CARBERRY: Yes.

DR. BELL: And would the MMP be part of that?

MR. CARBERRY: I assume we would do it together. I don't -- I really have not been in discussion about that yet to know or to understand any reasons why we wouldn't do it that way. But I think we'd be asking for regional cost allocation for the entire project costs, MMP.

DR. BELL: Thank you. Now turning to the responses that are dated 12/15/11, in response to Question 4, you mention additional vaults placed in service. My question is how does it happen that additional vaults get placed in service?

MR. MCKINNON: With the installation of the -- since the last life-cycle hearing, the addition of the MMP cables or the BN cables, there's additional

vaults that went in service with those cables.

DR. BELL: Oh, I see. I didn't understand that. I --

MR. MCKINNON: Okay --

DR. BELL: -- I didn't understand what the reference point was. Now I get it. Okay, sorry.

In response to OCC Question No. 2, you mentioned the so-called significant event of '09 when the cables from Norwalk to Northport happened. My question is -- and it's -- you mentioned this matter a couple of other times in other responses, but my -- and perhaps you answered my question, but it's a little hard to see -- the question is when was that fault in the cable -- on one of the cables finally fixed? And what did it finally cost? In the -- in response to OCC Question No. 2, you simply say the cost in '09 was X --

MR. MCKINNON: Yes --

DR. BELL: -- and my question is the -- the event happened in '09 and it didn't get fixed until I think a year or two later --

MR. MCKINNON: Yes --

DR. BELL: -- and so therefore my question.

MR. CARBERRY: I need the dates so I can

answer the question about cost, but it failed -- it failed in May of 2009 and was returned to service April 28, 2011, so more than -- about two years basically.

MR. MCKINNON: Yeah, and the -- the total cost of that cable replacement would be -- we're still awaiting the conclusion of the resolution process, so --

DR. BELL: Resolution with New York?

MR. MCKINNON: With the manufacturer of the cable.

DR. BELL: I see. Okay. Okay, thank you. Now OCC asked a question, No. 7, what was -- well, they asked about various problems that caused a response related to the Norwalk to Singer underground cable. And my question is what was the time to repair the cable --

MR. MCKINNON: Thirty-four days -- oh, I'm --

DR. BELL: -- the cost, but I wanted to know the time and what caused that particular problem?

MR. MCKINNON: The time to repair the cable was 34 days. And that was a manufacturer issue. We're still in resolution on that process.

DR. BELL: So you don't know the final cost completely?

MR. MCKINNON: Not the final cost to CL&P.

DR. BELL: Okay. And finally, a general question. Do you have any program -- system program for upgrading the facilities to protect them from first of all sea level rise that might be predicted; No. 2, storm surges that would be connected with storms and sea level rise; or No. 3, increased flooding in floodplain substations and the like from increased rainfall and runoff due to development?

MR. SICKLES: Our substations, we do design them for the hundred-year flood level, so that all critical equipment is above flood elevation --

DR. BELL: But that's the flood level as determined by FEMA in determinations of mapping that we know is out of date depending on whether the given community has been updated. And FEMA has gone through some updating --

MR. SICKLES: Mmm-hmm --

DR. BELL: -- in the last few years, but not all areas are updated. So my question is that would be the last FEMA -- the most recent FEMA determination that you have available?

MR. SICKLES: Correct.

DR. BELL: Okay.

MR. SICKLES: If we're doing a new

substation today, we'd look at the FEMA map -- the latest FEMA maps available.

DR. BELL: Okay, but for other -- for other installations that were done under the old FEMA mapping, you don't -- you're not systematically as a company going back -- assign somebody to go back and look at the updated maps for that community and seeing if you need to make adjustments, would that be a correct characterization?

MR. SICKLES: It would be a correct characterization. However, I would say if we see an issue where we experience flooding, we institute design modifications to eliminate that problem on a case-by-case basis.

DR. BELL: I see. Okay, thank you. Those are my questions, Mr. Chair.

CHAIRMAN STEIN: Thank you. Mr. Levesque.

MR. LARRY LEVESQUE: Mr. Johnson, on the --

COURT REPORTER: You need to bring the microphone up -- thank you.

MR. LEVESQUE: In your report for tree trimming, you treat the Red Cedars differently because they're just a higher growing species?

MR. JOHNSON: Actually, it dates back to when Cedars were a species that was retained within rights-of-way. All tall growing tree species, mostly hardwoods, pine trees, and softwoods of that nature would be removed as a matter of course when the line is initially constructed and during maintenance. Cedar trees were allowed to remain from previous specifications. But as time has gone on, these now approach 30 feet plus. So they're getting within the distances that we need to keep vegetation out according to the federal standards. So our efforts since 2006 have been to focus on removing Cedars within the wire zones or conductor zones on our rights-of-way.

MR. LEVESQUE: How come there was a distinction made for the Red Cedars? Is that one of the larger species or just more common?

MR. JOHNSON: That's the most common that we have. White Cedar isn't something that grows naturally within our rights-of-way on a frequent basis --

MR. LEVESQUE: Okay --

MR. JOHNSON: -- the Red Cedar is the predominant species.

MR. LEVESQUE: And could you give a little

clarification for us about your prior comment on the guidelines you got from your study about age of -- just using age for trees, like if you saw a leaning softwood tree, for example would that be more dangerous than a leaning Oak that has stronger wood?

MR. JOHNSON: Yes. Again, the characteristics would start with the size of the tree to begin with as a determining factor. It's almost like keying out what can stay and what is a problem. And as you go down the list, you get increasingly more risky trees, those that would present a greater hazard or risk to the lines. You will get down to a location where the gross structure or the gross condition would matter, and species does fit in there somewhere, but not as predominantly as size and some other factors. I thought species based upon what I've seen due to the conditions of the trees or the species that actually do fail and fall on our lines, I thought that would be a higher criteria than just size. But that's what they used, was size first. And I -- I thought that it should look at something else as a determining factor. I think species would be a better way to start.

MR. LEVESQUE: Like you'd be looking out for like American Chestnuts or some that might have a

disease?

MR. JOHNSON: I don't think we'd find too many large American Chestnuts. Believe it or not, they have caused outages in other states forests, but not in Connecticut. Yeah, I would say that the species I would consider most problematic to our system would be things like Poplar Trees, White Pines. Those are the ones that tend to be the weaker species and more prone to failure under extreme weather conditions.

MR. LEVESQUE: Okay.

MR. JOHNSON: Trees aren't normally just falling over into our lines without being forced somehow. So to -- if you're going to be doing a program such as this, it's really in an effort to storm proof your system.

MR. LEVESQUE: And how about any recent improvements in having staff that are responsible for a certain area to keep -- to regularly inspect --

MR. JOHNSON: Right. We do have adequate staff levels, field people, qualified arborists that go out and do inspections. But we don't look at all danger trees as a problem. We look at danger trees as a population of which we'll inspect for risky trees within that population of danger trees. Those we will classify

as hazards. They present a greater risk. So if we have a series of trees of a certain size that would constitute danger trees, if we see a White Pine or a growth problem or a disease or damage on a certain species or a certain tree, that might raise the risk and make it a hazard tree, and those are what we're addressing when we do our inspections.

MR. LEVESQUE: Okay, thank you.

CHAIRMAN STEIN: Thank you. Mr. Lynch.

MR. DANIEL P. LYNCH, JR.: Mr. Chairman, Mr. Johnson just answered the follow-up question I had, so no questions.

CHAIRMAN STEIN: Senator Murphy.

MR. JAMES J. MURPHY, JR.: Thank you, Mr. Chairman.

Just to follow up to Dr. Bell's couple of questions on the outages, one of 34 days the other of two years, you indicated you don't know the net cost to CL&P because the resolution process is not over. What's the gross costs or the cost of each when you started the resolution? What does it cost CL&P from which you are trying to resolve and obtain -- so what was the gross cost --

MR. MCKINNON: May I ask --

(pause)

MR. MCKINNON: In response to your question, Mr. Murphy, the Long Island Cable repair is approximately 16 million dollars in total costs, and the M/N cable data is not available at this time.

MR. MURPHY: Any ballpark figure for us?

MR. MCKINNON: We didn't --

A VOICE: We just don't know --

MR. MCKINNON: We didn't pull that data for this set of interrogatories.

MR. MURPHY: Okay. Is it because you didn't pull it or it's not available at this time?

MR. COCHRAN: I'm sorry, Mr. Murphy?

MR. MURPHY: Is it -- is the response not available because you didn't put it together or it's just not able to be put together at this time?

MR. MCKINNON: The total cost is not available because we didn't pull it together for this hearing.

MR. MURPHY: Okay. Alright --

MR. MCKINNON: And the -- the cost of the Long Island Cable repair, the 16 million, there's a percentage of that which will be paid by CL&P and a percentage by LIPA depending on the outcome of the

dispute resolution.

MR. MURPHY: Without prejudicing your resolution process, can you give us a percentage or is that something that your counsel is telling you you shouldn't answer?

MR. COCHRAN: Yeah, given its pending --

MR. MURPHY: Fine. I --

MR. COCHRAN: -- resolution process --

MR. MURPHY: -- I understand.

MR. COCHRAN: Yeah.

MR. MURPHY: I understand, so I won't --I won't pursue it any more. I have no further questions, Mr. Chairman.

CHAIRMAN STEIN: Professor Tait.

MR. COLIN C. TAIT: No questions.

CHAIRMAN STEIN: Mr. Wilensky.

MR. EDWARD S. WILENSKY: Yes. Knowing what we know or what you know about the most recent storms in the past year, would -- for the construction of the various lines that we've had, 272, 217, and the new Springfield line, would you have proposed more underground than aboveground? I don't know who can give me some kind of an answer there. Because I think most of your -- and were any transmission lines affected in

this?

MR. CARBERRY: Mr. McKinnon can answer the question about transmission lines being affected, but I think you asked a question like that Mr. Wilensky at the previous hearing, and I think the cost gap is still so wide that it favors building overhead lines where you have the available right-of-way and trying to make them more reliable with improved vegetation management practices. So we would still have proposed the same amount of overhead on both of those projects you mentioned.

MR. WILENSKY: In other words, you would not have done -- would you have done anything different in the past proposals before us or the coming up proposals -- I think you have one coming up in Killingly or so forth and so on -- would you consider more underground lines; in other words, to reduce the problems that might have been created?

MR. CARBERRY: Now you've just referred to the project that we recently filed an application with the Connecticut Siting Council, to be known as Docket 424, the Interstate Reliability Project, and it's proposed all overhead for 37 miles. We have in that application provided some route alternatives, including

overhead and underground route alternatives. The project enjoys an advantage that other projects commonly do not in that there's ample right-of-way available. So the clearing that's needed within the right-of-way doesn't need to even extend all the way to the right-of-way boundary to make room for the overhead line.

MR. WILENSKY: One last question. On the construction of most of your jobs or all of your jobs, do you use union or non-union labor, or do you use a combination of both? Are you allowed to --

MR. MCKINNON: Predominantly union --

MR. WILENSKY: Union --

MR. MCKINNON: -- but we do use non-union labor also.

MR. WILENSKY: Do you know if there is -- the Supreme Court is debating whether they -- whether non-union labor can be used on some of these jobs. In other words, can it be -- just be restricted to union labor or can non-labor bid on some of these supposedly restricted jobs -- if it was non-union labor, would that reduce the costs?

MR. GAGNON: Yeah, there -- there is a slight difference. It's a little bit less. But we don't restrict -- typically, we restrict mostly because we have

union forces in the area and it's just easier for the groups to work side-by-side if they're both union. If one's non-union and union, sometimes we have difficulty.

MR. WILENSKY: Okay. Thank you, Mr. Chairman.

CHAIRMAN STEIN: Thank you. Mr. Ashton.

MR. ASHTON: Thank you. In that same vein, does CL&P still have a construction unit for transmission lines?

MR. MCKINNON: Yes. We have a transmission line mechanics group, formally you may be familiar with, Mr. Ashton, the GO --

MR. ASHTON: Yeah --

MR. MCKINNON: -- group is now the transmission line department. They do construction and maintenance. They're -- so they're a group of 28 linemen. So for the large scale construction projects that we have undertaken, they're not capable of supporting all of that work --

MR. ASHTON: They do 345-kV work?

MR. MCKINNON: They do 345-kV work.

MR. ASHTON: The question that Dr. Bell asked about sea rise and so forth, are there many CL&P substations exposed to flooding? I can think of Norwalk,

which I know has been raised on Freight Street -- and I'm not sure what the status of that is -- but there's not -- are there many that are exposed?

MR. MCKINNON: The -- the one substation that we've experienced flooding at in the last few years was the Norwalk Junction Substation. And we went in and we raised --

MR. ASHTON: Oh, up in -- yeah --

MR. MCKINNON: -- we raised everything on Route 7 --

MR. ASHTON: Okay --

MR. MCKINNON: -- so we raised all the control cabinets --

MR. ASHTON: Okay --

MR. MCKINNON: -- after the flooding --

MR. ASHTON: So that's about it, isn't it?

MR. MCKINNON: Yes.

MR. ASHTON: Okay. So if we get a sea rise that puts those stations out of service, we consider that -- we can consider that a suggestion from the All Mighty that we ought to revise our way of life -- (laughter).

MR. MCKINNON: Yes, sir.

MR. ASHTON: There were two cable -- two cable failures were mentioned. What was the cause and the failure of the Long Island Cable?

MR. MCKINNON: Again in dispute resolution, but we believe it was a manufacturing defect with the cable.

MR. ASHTON: Okay. And the Singer cable?

MR. MCKINNON: The same issue, a manufacturing defect. We're waiting for their report to come back to us.

MR. ASHTON: So with the Singer cable, this required, what, removing a section of cable and putting in a new section or putting -- opening it up and putting in a splice?

MR. MCKINNON: It required us to remove the faulted section. So manhole to manhole --

MR. ASHTON: Okay --

MR. MCKINNON: -- we ran a new section of cable.

MR. ASHTON: Okay. Now in -- in Question OCC No. 6, it mentions that there are no transition stations for 115, which I -- to my recollection certainly is correct -- but insofar as there is a drive to underground all transmission, would that not -- would the

presence of 115-kV cables, aka Con.Ed, require a lot more compensation, require compensation where there is none now?

MR. CARBERRY: Sure. Yes.

MR. ASHTON: So would it be reasonable in answering that question to factor in some for an expansion of the 115-kV underground system?

MR. CARBERRY: I guess it -- it -- one has to figure out first if you required compensation, whether you could put it at the ends of a circuit in an existing substation. Only when lengths of lines that needs compensation are relatively long for that voltage are you more interested in putting compensation at a midpoint for example --

MR. ASHTON: Right --

MR. CARBERRY: -- and a midpoint location would be a place where you'd build a transition station for that purpose --

MR. ASHTON: But --

MR. CARBERRY: -- so -- I don't know what the length of that line would be. And a lot of CL&P's 115-kV lines are not that long.

MR. ASHTON: Well, I'm just -- what I'm trying to get at is -- the answer is correct insofar as

it goes. But insofar as there is a push to expand 115-kV transmission undergrounding, then you're either going to be faced with compensation at line terminals or -- I can't think of any particular lines that are really that long -- but possibly a transition station in certain long lines. Is that fair to say?

MR. CARBERRY: It's fair to say that's a possibility, yes.

MR. ASHTON: And can you come up with some kind of a guessimate as to what that cost might be? You have it -- if you have it for 345 --

MR. CARBERRY: Yeah, the -- the principal difference now though is that at the 356-kV, the use of a transition station is not so much for providing a place to put in shunt reactors -- and certainty it can be used for that -- but the main reason we use transition stations at 345-kV is that a single overhead line that is suddenly to become an underground line needs more than one set of underground cables in order to have a comparable capacity. And so as soon as you have two or three sets of underground cables connecting to one overhead line, you develop an interest in being able to switch those cables in and out of service. If a failure happened to one cable, such as recently happened on the

Middletown/Norwalk Cable, you want to switch that cable out of service and return the circuit to service with the remaining cables. And that's what a transition station enables you to do --

MR. ASHTON: Yeah --

MR. CARBERRY: -- it's fundamentally a switchyard. And if you need a shunt compensation, it would be a good place to add it. Typically a 115-kV, we haven't had instances where an overhead line that went underground needed two sets of cables. But if you did, you'd be thinking the same way, that maybe you should build in a transition station so you can switch the cable in and out of service.

MR. ASHTON: Have you ever thought of series capacitors as a way of avoiding that problem or considered it --

MR. CARBERRY: Well, it's --

MR. ASHTON: -- or studied it?

MR. CARBERRY: It's -- I don't recall us studying it in New England. Series capacitors is something that's used in long line transmission systems that's elsewhere in the country. And then there's also flexible AC power system equipment nowadays that can perform a similar function. And so in a territory where

there's very long 765,000 volt power lines, that might be more common than it is in New England planning.

MR. ASHTON: So it would -- it might be the case that series compensation would be desirable if there was an AC line that went from Central Mass. up to the Canadian hydro resources or something like that?

MR. CARBERRY: It could be, yes.

MR. ASHTON: Okay. Just for the record, my understanding is that the cable -- in the Norwalk and Plumtree line there are two cables in parallel, but only one is in operation at any given time. Is that correct?

MR. CARBERRY: In -- I missed the beginning of your question --

MR. ASHTON: I'm just asking --

MR. CARBERRY: You're asking --

MR. ASHTON: -- and the others can chime in --

MR. CARBERRY: You're referring to the Bethel -- the Plumtree to Norwalk 345-kV circuit, which has parallel high-pressure fluid-filled cables from the Norwalk Junction Transition Station to the Orchard Lane Transition Station, and the normal practice has been for the majority of the year to operate one of those cables out of service and one cable in service and to switch

that around periodically so that each one is in service and gets some -- and gets some use during part of the year.

MR. ASHTON: Is that cable switched automatically or manually, or can it be both?

MR. CARBERRY: It can -- it's -- there are circuit breakers at both transition stations. And so those breakers are capable of being operated at the stations, but also remotely from CONVEX.

MR. ASHTON: In the event we had a major power swing, such as has been experienced in the past with the Midwest outage -- what was it, 2003 or thereabouts -- the great Northeast blackout, which I can remember vividly -- when you get those massive swings, what happens to loading or to the cable that's just a single cable in series with an overhead line? Could that be facing an overload situation or is it too short term?

MR. CARBERRY: Well, I'm not -- I'm not sure. The -- in the 2003 blackout event, you know, where a lot was happening in Ohio and there was suddenly a big draw, you know, coming from New England, there was instantaneously a rather high load on some transmission lines. That was before we had a Bethel/Norwalk

transmission circuit in place. With that circuit in place, in that same event would there be a significant draw again? I don't know.

MR. ASHTON: Well the answer to that is yes --

MR. CARBERRY: But --

MR. ASHTON: -- it certainly would be a major draw, but the question is how much would show up on the cable.

MR. CARBERRY: Right. And I don't know how much would show up on the cable. But additionally, a lot of these -- transmission circuits have a short term overload capability that's fairly significant compared to their normal current carrying capability. So as long as that event was very short, it might be survivable without any damage occurring.

MR. ASHTON: Does the relaying that's operative on the cable reflect the fact that the cable can take a very high load for a very short time?

MR. MCKINNON: Yes.

MR. ASHTON: Okay. I'm not going to flog it to death -- (laughter).

There was a question about sales tax and it was applicable to, quote, "construction labor." Is

that labor in-house included? If you do a job in-house, is there sales tax applicable or is it only contracted labor?

MR. GAGNON: I know it on contract -- I don't --

MR. ASHTON: I'm sorry?

MR. GAGNON: I know it's on contractor. I do not know the answer if it is internal labor or not. I would not think so, but I don't know.

MR. ASHTON: Okay. Have we experienced in Connecticut to your knowledge any contact outages on transmission lines contacting vegetation, excluding the two storms we had in 2010, in the last six or ten years?

MR. MCKINNON: Tony.

MR. ASHTON: FERC gets very upset I know if that happens. Has it ever --

MR. JOHNSON: You want to go six or ten, which one?

MR. ASHTON: Well, six.

MR. JOHNSON: Six. That takes us back to 2006 when the NERC standards started. We have had some contact with vegetation within our maintained corridors, predominantly it's been from outside, but we've had two occasions in the past year both on the 115-kV system --

we have been lucky -- well I shouldn't say lucky -- we've been prudent in doing our maintenance correctly, so that we've had no 345-kV contact. But the two contacts on the 115-kV system was we had a vine that grew up on a lattice structure along the railroad tracks down in Stamford and contacted I believe the 1750 line, and I believe we lost the 1410 line between Montville and Buddington due to a Cedar tree.

MR. ASHTON: Is that -- does the flashover constitute very effective trimming, did it reclose?

MR. JOHNSON: I'm sorry, I didn't understand --

MR. ASHTON: Does the line reclose after wiping out the vine?

MR. JOHNSON: Yes, it does on the vine. It did not on the Cedar.

MR. ASHTON: Okay. In the last two storms, especially the October storm, I'm well aware that there were a number of transmission line outages. Those were caused primarily, were they not, by trees well outside the right-of-way or well outside the cleared area coming on to the conductors or structures --

MR. JOHNSON: Exclusively --

MR. ASHTON: -- is that fair --

MR. JOHNSON: -- yes.

MR. ASHTON: And would those -- from what you've been able to learn, would those trees have been picked up as danger trees?

MR. JOHNSON: If you use the term danger tree, yes, they would have been a danger tree --

MR. ASHTON: I --

MR. JOHNSON: -- because they were tall enough to contact the line --

MR. ASHTON: Notice I used the term picked up --

MR. JOHNSON: Right. Would they have been considered hazard trees --

MR. ASHTON: Yeah --

MR. JOHNSON: -- I believe only one of the trees that fell within Connecticut that we investigated had any internal decay that would have raised the level, but we would not have been able to see that under visual inspection --

MR. ASHTON: Mmm-hmm --

MR. JOHNSON: -- of the tree prior to it failing. Our history has shown, Mr. Ashton, that -- we investigate every tree contact with our line if we can find the tree that does cause the interruption. Greater

than 80 percent of these are healthy trees --

MR. ASHTON: Yeah --

MR. JOHNSON: -- so even an aggressive hazard tree program would only address 17 percent or so of our potential outages.

MR. ASHTON: Okay. That was -- you've answered the question already.

Excluding the two storms, in the last five years can you provide information as to the number of customer hours of outages caused by transmission line interruption? Excluding the two storms.

MR. JOHNSON: I believe we can, but I don't have that information here --

MR. ASHTON: Is it zero --

MR. JOHNSON: And we're only talking about trees?

MR. ASHTON: Yeah -- well transmission line outages due to -- due to anything? Anything --

(multiple voices overlapping - indiscernible)

MR. ASHTON: Lightning or what have you.

MR. JOHNSON: We have the information. We just don't have it here.

MR. ASHTON: Is it zero, do you know?

MR. JOHNSON: No. It's -- there are probably some customers that have been interrupted --

MR. ASHTON: I'm sorry?

MR. JOHNSON: I believe there have been some customers interrupted due to some transmission line outages, yes.

MR. ASHTON: Okay.

MR. MCKINNON: For the most part, Mr. Ashton, that would require multiple lines out --

MR. ASHTON: Yeah --

MR. MCKINNON: -- within the radial substations, such as Brooklyn --

MR. ASHTON: Right and I'm well aware of them. It was a pretty scarce event. It might have come close on occasion, I'm aware of that, but in my -- to my awareness, that's -- transmission line outages causing customer outages is pretty darn rare --

MR. MCKINNON: Yes, sir --

MR. ASHTON: -- barring the Northeast blackout and barring a few other instances.

That's it I think, Mr. Chairman. Thank you.

CHAIRMAN STEIN: Thank you. I had a question. The costs that you provided underground

relative to overhead, that's average for the state? Is that correct?

MR. GAGNON: That is correct.

CHAIRMAN STEIN: I noticed you characterized the state as an urban/suburban state. But obviously within the state, even a relatively small state, it varies from probably rural to urban. I guess my question is, is there a significant variance in the cost depending on what part of the state you may be building these? I was thinking specifically -- and I was not on the Council at the time, I was in a different area of work -- but that line from Norwalk to Stamford, which was underground -- I don't know, was that 292 -- I don't know the docket number -- but part of it went along Route 1, which if not the oldest, is probably one of the oldest streets. And you mentioned the difficulty in going under the street. I don't quite know how you did it, but wouldn't that cost have been considerably more than doing this in a more rural part of the state?

MR. GAGNON: Yes -- yes, it would.

MR. CARBERRY: I think that's fair to say. That -- that route had a lot of obstacles in it. And because it was a project designing -- well a duct bank for three sets of cables, it was a larger duct bank than

other types of installations, which just made it harder to get by some of those obstacles. And if you were in another part of the state but also in a road and it didn't have that many obstacles in the road, that would be a difference. It would, you know, certainly make it less costly to do it in a more rural area. There's a lot of rock content to worry about as well. If there's a great deal of rock to excavate -- and I'm not sure rural versus urban whether that makes a lot of difference -- but if I run into a lot of rock beneath a rural road, that's going to make it pretty slow as well.

CHAIRMAN STEIN: Dr. Bell.

DR. BELL: Just one follow-up on that point. Mr. Carberry, aren't there some problems with terrain too? I mean roadbeds are level per usual construction grades for roads, whereas in just heading cross country with a transmission line, isn't it true that sometimes you can encounter a grade where you have to go to unusual expense to stabilize it as it's going up or down?

MR. CARBERRY: Yes. In general you'd rather these cables not have to traverse steep slopes. If they're going to be on a steep slope, there is the possibility in normal expansion and contraction that they

undergo their life that they gradually stretch, further slide downhill. And there are some design practices you can use to try to compensate for that, but you'd rather avoid that risk, and so you want to minimize the grade. And roads because they're also designed to minimize grades as well, to some degree are better places to put underground cables in general than these off right-of-way areas. But on the other hand now you have the cost of excavating the pavement and returning the pavement and dealing with the traffic, and so there's some additional costs of putting it in the roads as well. But we will consider off right-of-way undergrounding as well if the terrain is able.

DR. BELL: Thank you. Thank you, Mr. Chair.

CHAIRMAN STEIN: I guess my question -- maybe this ultimately is more for the staff and consultant -- is the average cost sufficient or do we have to put average cost and then a whole bunch of caveats because of all of these different conditions? I don't -- I don't know the answer, but I don't know --

MR. CARBERRY: I think --

CHAIRMAN STEIN: -- if you want to reflect on that.

MR. CARBERRY: I think the responses we've given you are based on our most recent experience. And while that's significant, it isn't building underground lines everywhere in the state for example. So I don't know that anyone can really characterize it as it would be the average for any place in the state, but it is the best information that we have. And there's a lot of notes associated with that data indicating the possible causes of variance. No -- no two projects are alike. And two things that look otherwise alike but are in different places can have significantly different costs because of those things you'll see in those notes.

CHAIRMAN STEIN: Okay, thank you. We'll now go to cross-examination by ULI. Do you have --

MR. BRUCE MCDERMOTT: No questions. Thank you, Mr. Chairman --

COURT REPORTER: One moment. Could you restate your answer near a mic. Thank you.

MR. MCDERMOTT: Bruce McDermott on behalf of UI. No questions, thank you.

CHAIRMAN STEIN: Thank you. And then the Office of Consumer Counsel.

MR. JOSEPH ROSENTHAL: Thank you, Mr. Chairman. I don't know if I have a nameplate with me,

but Joe Rosenthal from OCC. Good afternoon to the panel.

VOICES: Good afternoon.

MR. ROSENTHAL: Just a few questions. If you'll look at your response to the very first Siting Council interrogatory from the first set -- the first set of interrogatories --

MR. MCKINNON: What's the date on that --

MR. ROSENTHAL: I have -- the letter is September 29th. There's a chart there, do you see that? So on that chart for the overhead lines first, there's -- there seems to be a jump in cost per circuit mile from 2007 to 2008, but then it levels off for '08, '09, and '10. Do you see that?

MR. MCKINNON: Yes, sir.

MR. ROSENTHAL: Okay. So is there a basic narrative reason why we had that jump from '07 to '08 and then now it's leveled off?

MR. MCKINNON: Yes. In 2008 we instituted -- we added some staff, we instituted some subterranean tower inspection programs, we -- which added -- an added expense for excavations, to do inspections, PE certifications. Also we moved to an inplo -- an implosion splice program, to do repairs on overhead

lines, which we have completed. At the end of -- during '07 and '08 that was completed. Increased O&M due to the vehicles we purchased, high reach vehicles, 150 and 170-foot contour vehicles. We added culvert inspections to our right-of-way inspection programs. And we also increased our vegetation management specs.

MR. ROSENTHAL: Okay, thank you. There was -- in that response you mentioned excavations. But those are -- there's still aboveground type --

MR. MCKINNON: These are for the subterranean foundation inspections --

MR. ROSENTHAL: Okay --

MR. MCKINNON: -- for lattice work structures. So we had to excavate the foundations --

MR. ROSENTHAL: Right --

MR. MCKINNON: -- to do the inspections.

MR. ROSENTHAL: Okay, thank you. And then as to the cost per circuit mile, in that same response for underground line expenses, you have the two larger charges for 2007 and 2010, do you see that?

MR. MCKINNON: Yes.

MR. ROSENTHAL: Are those increases primarily due to the Long Island Cable events that are referenced on the next page and that have been discussed

earlier today?

MR. MCKINNON: Yes. And the cost would be similar if we removed those expenses. But we also re-base lined vault inspection programs, which required us to bring in additional contractors to do those inspections. The cost of the inspections included police escorts, pumping out the vaults, disposing of the fluids that we take out of the vaults.

MR. ROSENTHAL: Alright. And I believe you said somewhere that one of those events -- I think the second of the two events on the Long Island Cable actually occurred in an on-shore --

MR. MCKINNON: The -- the first event --

MR. ROSENTHAL: Oh, the first event.

MR. MCKINNON: Yes. Was a leak at Northport, Long Island.

MR. ROSENTHAL: I see.

COURT REPORTER: One moment please.

(pause - tape change)

MR. ROSENTHAL: So is that event the type of thing that could occur in an ordinary on-shore underground line, you know, as compared to an under water --

MR. MCKINNON: Yes. For an HPFF cable

installation, it could have a leak in a vault or between vaults in a conduit.

MR. ROSENTHAL: And you -- there's a reference on the last paragraph of that same response, on the second page it says please note that a significant and increasingly occurring maintenance event can distort maintenance costs and so on. Do you see that?

MR. MCKINNON: Yes, sir.

MR. ROSENTHAL: Alright. But although infrequent are events involving underground lines frequent enough that in your opinion there ought to be some sort of factor associated with the life-cycle cost of an underground line for infrequently occurring maintenance events?

MR. MCKINNON: The two recent events on some of our older installed cable systems in Hartford, we have not experienced these types of failures. So, I'm -- I'm not sure that we need to escalate the cost on these two isolated -- due to these two isolated events. Our underground cable system for transmission has been very reliable since installation.

MR. ROSENTHAL: Okay. Alright. And then in that same set of responses, the very next response of Siting Council 2, underneath the table there's a sentence

that follows that says in part there may be situations in which a steel lattice structure is appropriate. Do you see that?

MR. SICKLES: Yeah.

MR. ROSENTHAL: So -- and can you just say, you know, basically when is a steel lattice structure appropriate?

MR. SICKLES: Sure. In an instance where we would have high loading on a structure, where we have say room in a right-of-way to put a lattice structure, we would consider it. An example would be a river crossing where we have a large span. Another example would be a hard angle where there's a large load due to the hard angle.

MR. ROSENTHAL: Okay, so the -- the -- the weight?

MR. SICKLES: The result in conductor load, yes.

MR. ROSENTHAL: Yeah, alright. And in your experience is that the type of cost that can be regionalized by ISO?

MR. SICKLES: It's part of the capital project, yes.

MR. ROSENTHAL: Okay. Do you have

experience that ISO has accepted your building of steel lattice structures and so has regionalized the cost?

MR. SICKLES: I do not. Bob?

MR. CARBERRY: I'm trying to recall a project that made use of a lattice steel tower recently that went through an ISO process for transmission cost allocation, and I can't recall one --

MR. ROSENTHAL: Okay --

MR. CARBERRY: -- but you know, that standard is a good utility practice. And if that's the best design for that situation, that would satisfy them.

MR. ROSENTHAL: Okay. And there are references to the transmission cost allocation process in that same set of interrogatory responses, No. 13. Just using that response as a jumping off point, can you foresee -- or in your experience have you seen that an underground line or an underground portion of a line could be viewed by ISO as a reliability enhancement or do they just tend to view those as aesthetic or to minimize the impacts on the community?

MR. CARBERRY: In our -- in our experience where they have looked at cost allocation for a project that had some amount of undergrounding, they have fundamentally looked to see if there was a reasonable and

practical overhead transmission line alternative that could have been built for lower costs. And if they determine that there was, then they have localized any extra costs that was incurred for the alternative that included the underground. I think if they also looked at one of those alternatives as unreliable, they wouldn't consider it at all.

MR. ROSENTHAL: I see. So in your experience have they ever regionalized an underground portion of a line that they were asked to consider?

MR. CARBERRY: Yes.

MR. ROSENTHAL: They have? Okay --

MR. CARBERRY: Yes --

MR. ROSENTHAL: -- can you give us an example?

MR. CARBERRY: The Glenbrook Cable Project was an all underground project and they regionalized most of its costs --

MR. ROSENTHAL: Okay --

MR. CARBERRY: -- and the Middletown/Norwalk Project included 24 miles of double-circuit 345-kV underground line, and most of that was -- I'm not -- I want to say all, but I think it's most of that was regionalized.

MR. ROSENTHAL: Okay. Thank you. I think that's all I have, Mr. Chairman.

CHAIRMAN STEIN: Thank you. We'll now go to the cross-examination of the ULI Company. So I guess -- we'll take a five-minute break while --

(Whereupon, a short recess was taken.)

CHAIRMAN STEIN: We'd like to reconvene this meeting. Mr. McDermott --

MR. MCDERMOTT: Yeah --

CHAIRMAN STEIN: -- I understand you have a couple of late filed exhibits you'd like to present?

MR. MCDERMOTT: Yes, thank you, Mr. Chairman. UI has three late filed exhibits and we have a response to the Siting Council's third set of interrogatories. And then I have one change to a previously submitted response, but -- so through Mr. Eves, I'll ask you did you prepare or oversee the preparation of UI's response -- late filed exhibits 1 through 3, dated December 20, 2011?

MR. CHARLES EVES: Yes.

MR. MCDERMOTT: And are those -- is the information in those exhibits true and accurate to the best of your knowledge?

MR. EVES: Yes.

MR. MCDERMOTT: Do you have any changes to those exhibits?

MR. EVES: Not to those exhibits.

MR. MCDERMOTT: And do you adopt them here today?

MR. EVES: Yes.

MR. MCDERMOTT: And as to UI's response to the Siting Council Prehearing Interrogatories, Set 3, dated January 4, 2012, did you oversee or prepare those responses -- that response?

MR. EVES: Yes.

MR. MCDERMOTT: And do you have any changes to that response?

MR. EVES: No, I don't.

MR. MCDERMOTT: And you adopt it here today?

MR. EVES: Yes, I do.

MR. MCDERMOTT: Mr. Chairman, in preparing the response to the third set of questions from the Council, which dealt with vegetative management costs from I think 2004 through 2006, we identified an error in a previously submitted interrogatory, which was Interrogatory No. 11 to the Siting Council's Set No. 2, and the only thing we need to do is revise the numbers

that were provided in the vegetation management cost chart at the bottom of that response. And I think Mr. Eves can simply do a read-in for that.

CHAIRMAN STEIN: Okay.

MR. MCDERMOTT: Mr. Eves.

MR. EVES: Okay. The actual cost for 2007 should read $390,000.00. For 2008, $383,000.00 For 2009, $644,000.00. And for 2010, $967,000.00.

MR. MCDERMOTT: And with that, Mr. Chair, the -- I think all the witnesses have been previously sworn, so they are ready for cross-examination.

CHAIRMAN STEIN: Is there any objection to --

MR. COCHRAN: No, thank you --

CHAIRMAN STEIN: -- to admitting these exhibits? Hearing and seeing none, they're admitted as -- will become part of the record.

(Whereupon, United Illuminating Exhibit No. 5 and No. 6 were received into evidence as full exhibits.)

CHAIRMAN STEIN: Cross-examination. We'll start with the -- with staff and the consultant.

MR. PERRONE: I have no questions for UI, Mr. Chairman.

MR. CRANDELL: Hi. Neil Crandell with KEMA.

With the handout, I touched on this subject for vegetation management and I reiterated the costs that you provided in two different submittals, one was in the Round 3 for the 2004 through '06 I believe years, and then this one here that you just went over and revised the numbers for. So my question was basically -- you -- you went through a lot of descriptions and several questions -- answers to questions where you said that the things that were driving transmission line O&M costs was the transmission vegetation management program, and I've got some quotes on here from your replies. But basically my question is why didn't -- if you implemented the program in 2007, I would have expected to see an increase. And I didn't until 2009. Was there a delay in implementing the program and that's why it's --

MR. EVES: I wouldn't characterize it as a delay in implementing the program. It was more an evolution of our ability to identify additional trimming requirements.

MR. CRANDELL: I see. So the -- the big increase seems to have occurred in 2009. That is when I would -- it appears that the program really took full

effect, your new standards?

MR. EVES: Beginning to yes. And then in 2010 we implemented LIDAR --

MR. CRANDELL: Well --

MR. EVES: -- to further supplement our ability, you know, at max sag to determine where the vegetation could encroach upon our clearance thresholds.

MR. CRANDELL: Okay, very good. That's good information to know.

Okay. And in several places in several answers you said that this is the driving factor -- I mean driving O&M transmission life-cycle costs. Would stand by that statement, that this is the thing that's impacting O&M -- transmission O&M costs for life-cycle?

MR. EVES: Increases in them, yes.

MR. CRANDELL: Okay. And -- I guess just as a side note, I was curious -- this is more of a curiosity related thing -- to what extent does the NERC reporting of the vegetation related outages affect your vegetation management costs? How much -- how much of an impact does that have your costs, the actual NERC reporting of the vegetation related outages? That's probably not --

MR. EVES: The reporting itself?

MR. CRANDELL: Yeah, the NERC requirements for reporting.

MR. EVES: I wouldn't say it's significant. I mean it is -- it has, you know, increased the administrative tasks, but not significant in terms of the other costs involved.

MR. CRANDELL: Okay. That's what I thought. Thank you. I have no further questions.

CHAIRMAN STEIN: Okay. We'll start now with the Council. Dr. Bell.

DR. BELL: Thank you, Mr. Chair. Following up on the NERC -- the earlier NERC question, has NERC ever -- except for the August 14, '03 blackout event when I know that NERC came down on First Energy -- or -- I believe it's First Energy -- anyway, except for that, has NERC ever seriously fined utilities for not adhering to their vegetation management standards, that would be in recent years when they really seriously started to demand enforcement? My question is really enforced -- my question is simply have they given really significant fines?

MR. JOHN MITCHELL: Yes, they have.

DR. BELL: Can you give me an example of that?

MR. MITCHELL: I don't have an exact example. There are published fines out on the NERC website. And that -- that would be recent, from 2007 until the present based on their new --(indiscernible) --

DR. BELL: Thank you. And -- I just have one more question, which is the same as I asked CL&P, about whether you have a program to deal with sea level rise, storm surges, and increased flooding from rainfall and runoff?

MR. EVES: As CL&P stated, our -- our substations are designed to the hundred-year floodplain as well. You know, the events of the past year have given us cause to begin to study for our coastal substations and what the impact of a storm surge could be at those locations. I think they were designed to the practical hundred-year floodplain. We are concerned with, you know, what could happen given a full stage category 3 that occurred at, you know, full moon at high tide, and -- and we are looking into what the implications of what that would be and -- and what the alternatives might be for remedial action.

DR. BELL: And --

CHAIRMAN STEIN: Excuse me. A follow-up;

when will you have finished your evaluation? Will you be making that public?

MR. EVES: That -- that evaluation should be complete by the end of the year. We're in the process now of actually scoping out all the details of what we'd be looking for. So I think that that estimate would apply.

DR. BELL: And would it be fair to say that UI, unlike CL&P, does have significant facilities in floodplain areas or areas close to the coast?

MR. EVES: UI does have coastal substations; the East Shore on New Haven Harbor, Pequonnock in Bridgeport Harbor, the Congress Street Substation is only -- you know, slightly up the river from -- so yes, we -- we do have substations that could be impacted by coastal events.

DR. BELL: Thank you. Thank you, Mr. Chair.

CHAIRMAN STEIN: Thank you. Mr. Levesque.

MR. LEVESQUE: No questions, Mr. Chair.

CHAIRMAN STEIN: Mr. Lynch.

MR. LYNCH: No questions, Mr. Chairman.

CHAIRMAN STEIN: Senator --

MR. MURPHY: I have no questions, Mr. Chairman.

MR. TAIT: No questions, Mr. Chairman.

CHAIRMAN STEIN: Mr. Wilensky.

MR. WILENSKY: No questions, Mr. Chairman.

CHAIRMAN STEIN: Mr. Ashton.

MR. ASHTON: No questions. Pequonnock and East Shore were the subject of storm surge particularly, but he's answered it and I'll pass. Thank you. I hope you will make that public. I think it would be useful to know what it is -- well one question -- the difference in a hundred-year flood and a 500-year flood is not too great, is that fair to say? We're operating on the knee of a curve sort of. The hundred-year flood is about at the knee and you go up a much flatter slope from that point, is that fair?

MR. EVES: In looking --

CHAIRMAN STEIN: Is that a scientific way of looking at it --

A VOICE: A knee jerk --

MR. EVES: Yes, I would agree with that.

MR. ASHTON: Okay, thank you. Nothing further.

CHAIRMAN STEIN: Okay. Do we have cross-examination by CL&P?

MR. COCHRAN: No questions --

CHAIRMAN STEIN: I think you have to get some exercise to make that statement.

MR. COCHRAN: CL&P has no questions.

CHAIRMAN STEIN: And I've already received word from the Office of Consumer Counsel that they also have no questions. So thank you.

MR. MCDERMOTT: Thank you.

CHAIRMAN STEIN: So before closing this hearing, the Connecticut Siting Council announces that there will be a 30-day comment period for parties and intervenors and the general public after the draft report becomes available, which will happen in approximately 30 days.

And state agencies desiring to submit additional comments on the draft report, pursuant to General Statute 16-50j, are to submit their comments to the Council no later than two weeks after the draft report is available.

Again, copies of the transcript of this hearing will be filed at the Council's office here at 10 Franklin Square.

And I hereby declare this hearing adjourned and thank you all for your participation and drive home safely, and conserve energy in the process.

(Whereupon, the hearing adjourned at 2:41 p.m.)

HEARING RE: LIFE-CYCLE 2011
JANUARY 17, 2012

INDEX OF WITNESSES

INDEX OF CL&P EXHIBITS

INDEX OF UNITED ILLUMINATING EXHIBITS