

## STATE OF NEW HAMPSHIRE

## PUBLIC UTILITIES COMMISSION

May 8, 2012 - 1:06 P.M.  
Concord, New Hampshire

DAY 3

AFTERNOON SESSION ONLY

NHPUC MAY24'12 AM 9:28

RE:

DE 10-261 PUBLIC SERVICE COMPANY OF NEW  
HAMPSHIRE: Least Cost Integrated  
Resource Plan

PRESENT: Commissioner Michael D. Harrington  
Commissioner Robert R. Scott

F. Anne Ross, General Counsel

Sandy Deno, Clerk

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{DE 10-261} [AFTERNOON SESSION ONLY] {05-08-12}

 ORIGINAL

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## I N D E X

WITNESS PANEL:           TERRANCE J. LARGE  
                              WILLIAM H. SMAGULA  
                              ELIZABETH H. TILLOTSON  
                              RICHARD L. LEVITAN  
                              RICHARD L. CARLSON

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1 AFTERNOON SESSION

2 CMSR. HARRINGTON: We're back on  
3 the record in Docket DE 10-261 Public Service  
4 Company of New Hampshire Least Cost Integrated  
5 Resource Plan. Ms. Knowlton.

6 MS. KNOWLTON: I had one  
7 procedural issue that I wanted to raise before  
8 we get back to cross-examination of the panel,  
9 which is I'm trying to make my own best  
10 estimate about when this panel might finish on  
11 the stand. Not trying to rush it, but Mr.  
12 Smagula and I just wanted to remind everybody  
13 that, back when we were here back in April, we  
14 let everyone know that Mr. Smagula needs to  
15 leave tomorrow at about 11:30. He's got a  
16 flight to catch to go out of town for a  
17 professional commitment. So the Company at  
18 this point would have limited redirect for the  
19 panel. So I'm just wanting to raise that  
20 issue now, to make sure that before he leaves  
21 at 11:30 tomorrow, that we would do that. And  
22 we did talk about coming back on the 11th, on  
23 Friday, but the letter from the Commission  
24 didn't -- reserving these two days didn't

1 indicate anything about Friday.

2 CMSR. HARRINGTON: Well, our  
3 goal is to finish in two days.

4 MS. KNOWLTON: Right.

5 CMSR. HARRINGTON: So why don't  
6 you, tomorrow morning, make sure you remind  
7 us, in case we haven't gotten to that point by  
8 11:30 -- or before 11:30, so you can do your  
9 redirect.

10 MS. KNOWLTON: Okay. Thank you.

11 MR. SPEIDEL: Commissioners,  
12 thank you. There was a false start before we  
13 broke for lunch, and the Company has in fact  
14 confirmed what I initially tried to style as  
15 "Confidential Staff Exhibit 2" is a public  
16 document now because of the Commission order  
17 related to the confidentiality of the  
18 material.

19 CMSR. HARRINGTON: Okay.

20 MR. SPEIDEL: And I had, in  
21 abundance of caution, gone on the basis of my  
22 expectation that, even though it was most  
23 likely that the material was public  
24 information, there was a possibility that it

1           was still granted partial confidential  
2           treatment with regards to a specific schedule.  
3           So that doesn't seem to be the case, so I will  
4           withdraw the copies of "Confidential Staff  
5           Exhibit 2," so to speak, and distribute what I  
6           have styled as "Staff Exhibit 7" to the  
7           hearing room if it's all right.

8                       CMSR. HARRINGTON: Is this  
9           physically a different piece of paper or --

10                      MR. SPEIDEL: It is not. And it  
11           also relates to my questioning of Mr. Smagula.

12                      So, have the witnesses been  
13           sworn?

14                      MR. SCOTT: Just for clarity,  
15           you said -- don't you mean Confidential Staff  
16           Exhibit 1?

17                      MR. SPEIDEL: One, yes. That's  
18           correct.

19                      CMSR. HARRINGTON: So you're  
20           going to basically toss out the one that says  
21           "Confidential" on it and give us another one  
22           that doesn't say that.

23                      MR. SPEIDEL: That's exactly  
24           right.

1 CMSR. HARRINGTON: Which will be  
2 Exhibit 6.

3 MR. SPEIDEL: So this will be  
4 Staff Exhibit 7.

5 CMSR. HARRINGTON: Seven.

6 (The document, as described, was  
7 herewith marked as Staff 7 for  
8 identification.)

9 BY MR. SPEIDEL:

10 Q. So, Mr. Smagula, the document that I've  
11 distributed here, Staff Exhibit 7, is the  
12 Company's response to Staff Data Request  
13 Set 2, Question 8, and it was dated May 20  
14 of 2011. Could you please confirm the fact  
15 stated in your rebuttal testimony -- and I  
16 will make reference to the specific lines of  
17 that as well. Let's see here. I don't  
18 think that has been -- has this been marked  
19 by the Company yet or not?

20 MS. KNOWLTON: Yes, that's  
21 PSNH 4.

22 MR. SPEIDEL: PSNH 4. Thank you  
23 very much for your help, Counsel.

24 BY MR. SPEIDEL:



1 Q. All right. So your rebuttal testimony in  
2 PSNH 4, at Pages 15 and 16, there is a  
3 discussion of the fact that the capital  
4 investment projections for the line marked  
5 "2010" for Newington station were those  
6 provided by PSNH and used by Levitan for the  
7 Newington CUO study. And I will redirect  
8 everyone's attention to the third page of  
9 Staff Exhibit 7, which is a table outlining  
10 different vintages of five-year capital  
11 budget forecasts for Newington Station.

12 So you can see that there's a line marked  
13 "2010," and there are a series of capital  
14 investment figures for the years 2011 through  
15 2015, and they're all \$500,000 a year. Now --  
16 I'm sorry.

17 Could you please confirm the fact that  
18 the capital investment projections for the  
19 line marked "2010" for Newington Station were  
20 those provided by PSNH and used by Levitan for  
21 the Newington CUO study?

22 A. (By Mr. Smagula) Yes, they are.

23 Q. And that would be \$500,00 per year for each  
24 year?

1 A. (By Mr. Smagula) That's correct.

2 Q. Now, would you also agree, Mr. Smagula, that  
3 the line marked "2009" present the Company's  
4 capital projections prepared during that  
5 year for Newington Station?

6 A. (By Mr. Smagula) No, that's not correct.  
7 The budget projections that you see starting  
8 in any given year are those budgets that  
9 were projected in the preceding year for the  
10 next series of five years. So the budgets  
11 that were in 2011 with \$500,000 were  
12 projected in 2010 for those years.

13 Q. I think we agree on that point, Mr. Smagula.  
14 But what I'm asking is, there's a line on  
15 this table here in Staff Exhibit 7 that you  
16 provided as part of a discovery response --  
17 the Company did, and you were the witness  
18 marked on that discovery response -- and in  
19 2009 there was one projection for the 2010  
20 budget and then there's another for the 2011  
21 budget and then there's another for the 2012  
22 budget and then there's another for 2013 and  
23 2014 budgets.

24 A. (By Mr. Smagula) Yes.

1 Q. So my question is, that line that is marked  
2 "2009" presents the capital projections for  
3 Newington Station prepared during the year  
4 2009, or does it not?

5 A. (By Mr. Smagula) Yes, that's right.

6 Q. Okay. So --

7 A. (By Mr. Smagula) Well, which line are you  
8 talking about?

9 Q. I'm talking about the line marked -- for  
10 example, 2009, there's a column on the far  
11 left that indicates certain years --

12 A. I think that's right. The column on the  
13 left indicates the year that those numbers  
14 had been developed.

15 Q. Very good. That's my question. Thank you.

16 Now, Mr. Smagula, the projections for  
17 2011 and beyond on the line marked "2009" are  
18 significantly higher than the projections for  
19 the same years on the line marked "2010"; are  
20 they not?

21 A. (By Mr. Smagula) Yes, they're different.

22 Q. Have you any explanation for the  
23 differences?

24 A. (By Mr. Smagula) Yeah, there's a number of

1 reasons for that, and I'm glad you asked,  
2 because when you asked the question of  
3 showing what your budgets are, we've  
4 answered the questions, but there's  
5 significantly more information that's behind  
6 these numbers, and I'd be happy to explain  
7 that for you.

8 As you look at this series of numbers,  
9 starting in the budgets that were developed  
10 in 2006 and '07, you see that there are some  
11 large expenditures projected in the period  
12 2010 and 2011. That indicates that in 2010  
13 we had projected a large maintenance year.  
14 And with a large maintenance year, it  
15 usually requires a lengthy outage. And when  
16 you have a lengthy outage, that is most  
17 often the time when you would make large  
18 capital investments. As a result, our  
19 projection, as you can see here in 2010, we  
20 had expected to do some major maintenance  
21 and make some capital investments.

22 And as we proceeded from 2006, when we  
23 started seeing reduced capacity factors, and  
24 we still held -- in 2007, we still held that

1 large maintenance year in 2010. However, in  
2 2008, with the reduced capacity factors, as  
3 you're familiar with, you can see that the  
4 large capital investment was pushed into  
5 2012. 4.4 million was shifted. Our big  
6 year was shifted out two years, and that's  
7 because we were running less.

8 And then you see in 2009 that number  
9 was pushed out even further. So, by the --  
10 and the reason I explain this is, as things  
11 were changing over time, our actual  
12 projections, which is what this is a table  
13 of, were shifted out because we didn't see  
14 the operations which drives our budgets, we  
15 didn't see the operations increasing. In  
16 fact, the capacity factors were moderated.

17 And in line with that, what is also not  
18 portrayed in this table is that the actual  
19 expenditures for capital in 2008 were  
20 2.51 million; in 2009 it was 1.1 million; in  
21 2007 -- excuse me -- 2010, rather, it was  
22 418,000; and in 2011 it was 750,000; and  
23 this year we've spent, at this point, just  
24 over \$200,000.

1           So you have to put it in context, that  
2           as things were changing, as the projections  
3           were pushed out, then accepting the fact  
4           that the capacity factors would be in the  
5           single digits, we determined that, based on  
6           actuals of 2010 and '11, and projected for  
7           2012, that \$500,000 was a very reasonable  
8           number. Our O & M budgets similarly were  
9           reduced over that period.

10    Q.    So, Mr. Smagula, you seem to be indicating  
11           that, on the basis of the Company's  
12           expectations of lower capacity factors and  
13           lower use rates for the Newington plant,  
14           that it has downshifted its expected capital  
15           expenditures for the plant on an ongoing  
16           basis, starting in 2006 going forward.

17    A.    (By Mr. Smagula) Not just capacity factors.  
18           We have a planning process where we look at  
19           equipment needs and other needs of the  
20           facility over a moderate and long-term  
21           horizon. And we look at a five-year horizon  
22           most commonly, and that assists us in  
23           driving these numbers out five years. And  
24           we do also look at times beyond that.

1 Q. So on the basis of what you're saying there,  
2 the Company decided to make a significant  
3 downshift between its 2009 projection for  
4 the year of 2011, which had been \$1,210,000  
5 for Newington, to a 2010 vintage projection  
6 for that very same year of 2011 of \$500,000?

7 A. (By Mr. Smagula) Yes, and that's consistent  
8 to the actuals that we had in 2010 and 2011,  
9 yes.

10 Q. Is that necessarily true, Mr. Smagula?  
11 Because I believe that the Company's  
12 projection for 2011, made in 2010 -- that  
13 is, the \$500,000 projection -- has already  
14 been shown to be too conservative. For  
15 instance: Do you recall that the Company's  
16 response to an OCA data request mentioned  
17 the fact that actual capital expenditures  
18 for Newington in 2011 totalled approximately  
19 \$1 million?

20 A. (By Mr. Smagula) I think, actually, there  
21 was some money that was expended that was  
22 actually improperly booked to the station,  
23 which was rebooked to a transmission account  
24 for work in our high yard. That accounted

1           for, I believe, \$300,000 or so being  
2           transferred out of the station costs. And  
3           the energy costs for the Company, the actual  
4           was, as I indicated, about \$450 -- \$750  
5           million -- excuse me -- \$750,000.

6   Q.   Seven hundred and fifty thousand.

7   A.   (By Mr. Smagula) Right.

8   Q.   And Mr. Smagula, has that data response been  
9           updated by the Company in some fashion?

10  A.   (By Mr. Smagula) I don't recall.

11  Q.   Moving on. Isn't it true, Mr. Smagula, that  
12           some consideration is being given by the  
13           Company to replacing one of the two  
14           auxiliary boilers at Newington Station  
15           possibly in 2012 with a boiler that uses  
16           natural gas?

17  A.   (By Mr. Smagula) Yeah, there is a study  
18           underway to look at one of our two auxiliary  
19           boilers to determine whether it is more  
20           economic to modify that or change that  
21           boiler to one that burns natural gas. That  
22           takes into account the economics of such an  
23           investment, the value to customers and, you  
24           know, air permitting requirements and so on.



1           And that has not been finalized as yet. And  
2           I believe there was a data request which did  
3           mention this.

4       Q.   Now, so, Mr. Smagula, if the replacement  
5           were to take place in either the year 2012  
6           or the year 2013, is it likely that capital  
7           expenditures in that given year in which the  
8           boiler upgrade would take place would exceed  
9           the half-million-dollar projection?

10      A.   (By Mr. Smagula) That is likely. But the  
11           basis upon which any such decision would be  
12           made is one that would be economically  
13           beneficial to customers. And I think if  
14           this project is successfully justified, it  
15           would in fact reduce costs to customers,  
16           from what I am hearing, generally one- or  
17           two- or two- or three-year payback. So the  
18           economic analysis of Newington's continued  
19           operation would in fact improve if that  
20           investment were made.

21      Q.   But as a general working principle, would it  
22           be fair to say that the 2010 vintage capital  
23           expenditure forecast that had been  
24           integrated by Levitan in its analysis for

1 the CUO study would probably -- there would  
2 be justification for updating or perhaps  
3 revisiting such a projection?

4 A. (By Mr. Smagula) If a future decision were  
5 made, that may be an analysis. But as I  
6 indicated, I think that would illustrate  
7 that the analysis would be improved, as far  
8 as customer value over that period with a  
9 short payback.

10 Q. Thank you very much, Mr. Smagula.

11 MR. SPEIDEL: Staff has no  
12 further questions of the Company's witnesses.

13 CMSR. HARRINGTON: Okay. As  
14 previously agreed, TransCanada has questions  
15 for this panel?

16 MR. PATCH: Thank you.

17 CROSS-EXAMINATION

18 BY MR. PATCH:

19 Q. Good afternoon. Mr. Large, I think I'd like  
20 to start with you. Is the microphone  
21 working?

22 A. (By Mr. Large) Yes, indeed it is.

23 Q. Mr. Smagula [sic], you're familiar with a  
24 Commission Order in 2009, Order No. 24,945,

1           in which it accepted the 2007 Least Cost  
2           Integrated Resource Plan? Are you generally  
3           familiar with that?

4    A.    (Mr. Large) I am in general, yes.

5    Q.    Do you recall that the Commission said in  
6           that order, "Early retirement of existing  
7           power plants for economic reasons is a  
8           practical option for utility planners if  
9           continued operation entails the expenditure  
10          of significant investment dollars"? Does  
11          that sound familiar? I can give you a copy  
12          of the order if it would be helpful.

13   A.    (Mr. Large) It would be helpful.

14   Q.    What I read from was on Page 16 of that  
15          order.

16   A.    (By Mr. Large) Yes, it's under the heading  
17          of "Merrimack Continued Unit Operations  
18          Study." There was considerable dialogue, I  
19          believe, in that docket about whether a CUO  
20          should be conducted for Merrimack Station.

21   Q.    Isn't it true that -- and I think the  
22          Commission later modified that heading. I  
23          think it recognized that that heading had  
24          been improperly placed in that order. Do

1           you recall that?

2       A.   (Mr. Large) I don't recall that. But I'd be  
3           happy to take it, subject to check.

4       Q.   Okay. And in the same order, did the  
5           Commission require PSNH to include in future  
6           Least Cost Integrated Resource Plans an  
7           economic analysis of retirement for any unit  
8           in which the alternative is the investment  
9           of significant sums to meet new emission  
10          standards and/or enhance or maintain plant  
11          performance?

12      A.   (Mr. Large) The section on Page 16 goes on  
13          to say that, yes.

14      Q.   I'm going to show you a copy of a response  
15          to a data request from TransCanada in this  
16          docket.

17                               MR. PATCH: I'm going ask that  
18          this be marked. It's TransCanada Set 4,  
19          No. 5. And the responses are dated 12/16/11,  
20          and it has your name as the witness at the  
21          top.

22                               CMSR. HARRINGTON: TransCanada  
23          No. 3.

24                               (The document, as described, was

1                   herewith marked as TransCanada 3 for  
2                   identification.)

3                   MR. PATCH: Thank you.

4       A.       (By Mr. Large) Could we have an additional  
5               copy for the remainder of my friends on the  
6               panel?

7                   (Document handed to Mr. Large.)

8       A.       Thank you.

9       BY MR. PATCH:

10      Q.      I would ask you, Mr. Large, to look at Roman  
11              VI. And this asked that you provide the  
12              actual net energy benefits realized by  
13              Newington in the first 11 months of 2011 and  
14              compare the results to the analysis used to  
15              determine the ES rate in the Levitan real  
16              option value approach. Could you read the  
17              response that you provided.

18      A.      (Mr. Large) Yes. In small Roman VI, we  
19              objected to the request, identified that the  
20              plan we submitted was complete and that the  
21              net energy benefits were not reasonably  
22              calculated to lead to discovery of  
23              information that would be admissible. But  
24              not withstanding that objection, we

1 identified that, excluding real-time  
2 dispatch that appears to have been mainly  
3 for operating reserves, PSNH estimates  
4 Newington's energy margin using offer prices  
5 for all of 2011 to be \$4 million. Using  
6 accounting record fuel expense, including  
7 days where the dispatch appears to have been  
8 mainly for operating reserves would produce  
9 a different value. Fuel accounting is done  
10 on a monthly, not daily or hourly basis, and  
11 includes No. 2 fuel oil not directly used  
12 for dispatch. While it might be possible to  
13 refine the accounting record using daily gas  
14 billing information, and possibly daily fuel  
15 use information, that information is not  
16 readily available, whereas the offer prices  
17 are. Offer prices on gas do not necessarily  
18 reflect actual gas costs because the gas is  
19 purchased only after Newington is provided  
20 dispatch instructions, which is subsequent  
21 to the Newington offers being submitted.

22 The final ES rate filing model  
23 submitted on December 2010 for 2011  
24 estimated Newington's energy margin to be

1 approximately \$0.7 million.

2 Q. So we had asked for the first 11 months of  
3 2011, and it doesn't look as though you  
4 provided that. Is that correct?

5 A. (Mr. Large) We objected to the question and  
6 provided the information we felt provided a  
7 reasonable response.

8 Q. Do you have actual numbers for 2011 now?

9 A. (Mr. Large) Not with me, as I sit here  
10 today.

11 Q. Would you take a record request?

12 MS. KNOWLTON: I'm going to  
13 object to that. Certainly, TransCanada could  
14 have moved to compel if they felt that this  
15 response was not sufficient, and they chose  
16 not to do so. The time for filing a motion to  
17 compel in response to this response is  
18 certainly long overdue.

19 MR. PATCH: Well, if we filed a  
20 motion to compel, I don't think the 2011  
21 numbers would have been ready. I think it's a  
22 reasonable record request at this point in  
23 time, given where we are. I mean, we just  
24 talked about CapEx numbers where they updated

1 with actual numbers for those years. And  
2 that's all I'm asking for in this situation is  
3 actual numbers for 2011.

4 MS. KNOWLTON: I have a  
5 further -- may I state a further objection on  
6 the basis of relevance?

7 CMSR. HARRINGTON: Sure.

8 MS. KNOWLTON: This CUO was  
9 conducted and filed -- well, was filed with  
10 the Commission in September 2010. The work  
11 was done in the summer of 2010. And so,  
12 certainly information on that was -- Mr. Patch  
13 is seeking information from a time period  
14 subsequent to that I don't believe is  
15 relevant.

16 MR. PATCH: Well, if I could  
17 just point out to the Commission, one of the  
18 remedies that is requested in this docket is  
19 that an independent consultant be hired to  
20 complete a CUO study of Newington. So I think  
21 it would be very useful for the Commission to  
22 know whether actual numbers from 2011  
23 correspond in any way to the numbers on which  
24 Mr. Levitan relied and the numbers which PSNH



1           has provided.

2       (Off-the-record discussion among Commissioners.)

3                       CMSR. HARRINGTON: We'll let you  
4       make the request, Mr. Patch.

5                       MR. PATCH: Okay. So, just to  
6       be clear, that record request would be for the  
7       actual numbers for 2011.

8    A.   (Mr. Large) And clear as to what actual  
9       numbers, just so we're all understanding?

10                      CMSR. HARRINGTON: Is this as  
11       stated in your Roman VI there, provide the  
12       actual net energy benefits realized by  
13       Newington in the first 11 months of 2011?

14                      MR. PATCH: Yeah, that's  
15       correct.

16                      CMSR. HARRINGTON: So you're  
17       basically asking for what's stated in  
18       TransCanada Exhibit 3, Roman VI, on the first  
19       page, but for the entire year and not just the  
20       first 11 months.

21                      MR. PATCH: Yeah, that's right.  
22       For all of 2011.

23                      CMSR. HARRINGTON: That would be  
24       Record Request 1?

1 THE CLERK: No. 4.

2 CMSR. HARRINGTON: Four. Okay.

3 (The document, as described, was  
4 herewith marked as TransCanada  
5 Request Request 4 for  
6 identification.)

7 BY MR. PATCH:

8 Q. Now, the estimates that you provided,  
9 Mr. Large, in that response, one of them was  
10 an estimate, in that second full paragraph  
11 on the second page of TransCanada Exhibit 3,  
12 under Roman VI. "PSNH estimates Newington's  
13 energy margin using offer prices for all of  
14 2011 to be \$4 million"; is that correct?

15 A. (Mr. Large) That's what I read, yes.

16 Q. And yet, in December of 2010, the estimate  
17 had been .7 million, or \$700,000?

18 A. (Mr. Large) Yes, for the energy service  
19 rate.

20 Q. Can you explain why there was such a  
21 significant difference?

22 A. (Mr. Large) I think, simply put, the unit  
23 operated at a lower capacity factor than had  
24 been originally considered, and that energy

1 prices, therefore energy margin, was lower  
2 than had been previously considered.

3 Q. Why would that explain going from 700,000 to  
4 4.0 million?

5 A. (Mr. Large) Well, if the market price for  
6 power was lower, the unit would likely  
7 operate less, and therefore, the marginis  
8 associated with the benefits to be derived  
9 would be smaller.

10 Q. And the number that Mr. Levitan used that  
11 would correspond with this number, are you  
12 familiar with that number? I believe it's  
13 on Page 232 of the total IRP pages. So I  
14 guess that's a Bates number. I think it was  
15 4.486 million.

16 CMSR. HARRINGTON: Which  
17 document are you referring to, Mr. Patch?  
18 Exhibit 1?

19 MR. PATCH: Well, it's the  
20 actual IRP. So is that PSNH No. 1?

21 CMSR. HARRINGTON: Yeah, PSNH  
22 Exhibit 1.

23 MR. SPEIDEL: And I think for  
24 the benefit of the hearing room, Mr. Patch,

1           you're referring to Bates Page 232, or Page 49  
2           of the Newington study?

3                       MR. PATCH: That's correct.

4                       MR. SPEIDEL: Thank you.

5    A.   (Mr. Large) What I see on Exhibit G.17,  
6           which is the reference page on net revenue,  
7           the bottom number in the "2011" column in  
8           the "Expected Value" section is \$4.48  
9           million.

10   Q.   And that's actually the corrected page; is  
11          that right?

12   A.   (Mr. Large) It's the study that was filed on  
13          4/26/11.

14   Q.   Okay. The original net revenue was 2.1;  
15          correct? That was corrected to -- actually,  
16          I guess the original net revenue was  
17          9 million, and it was corrected to --

18                       (Court Reporter interrupts.)

19   Q.   Let me withdraw that question. I want to  
20          make sure I get the numbers right.

21                       CMSR. HARRINGTON: The corrected  
22          numbers are on which exhibit, Mr. Patch?

23                       MR. PATCH: Well, is it PSNH 3  
24          with the corrected numbers? There's the

1 original IRP, which I think is No. 2, and then  
2 the corrected pages, the CUO study --  
3 actually, those are PSNH 2, as I understand  
4 it. PSNH 1 is the original IRP with the  
5 original CUO study, and PSNH 2 is the  
6 corrected pages.

7 BY MR. PATCH:

8 Q. So, Mr. Large, I don't know if you can  
9 provide to the Commission a comparable  
10 number to the one that you provided in  
11 response to that data request that Mr.  
12 Levitan uses. Is there a comparable number  
13 or not?

14 A. (Mr. Large) A comparable number to what, Mr.  
15 Patch? I'm sorry.

16 Q. Well, TransCanada No. 3, Roman VI, we had  
17 asked you to please provide the actual net  
18 energy benefits realized by Newington. And  
19 I guess what I'm asking for is whether Mr.  
20 Levitan had a number that would correspond  
21 to that. Obviously, it would not be actual,  
22 but it would be net energy benefits assumed  
23 by Mr. Levitan.

24 And Mr. Levitan, if you want to answer

1           this question, that's fine.

2       A.    (By Mr. Levitan) Sure, I'd be happy to.  I'm  
3           sure in our model we do have data that would  
4           correspond on a probabilistic basis using a  
5           stochastic approach employed for real option  
6           valuation for a net revenue for 2011.  Of  
7           course, it was conducted on an annual basis.

8                     Your Question VI references the first  
9           11 months.  I'm not sure we can sort that  
10          out, but we do have on annual basis the  
11          results.

12       Q.   And is that the 4.486 million number in the  
13           Expected Value box in Exhibit G.17?

14       A.    (By Mr. Levitan) Yes.

15       Q.   And the original number that you provided --  
16           that was the corrected number I just read.  
17           The original number you provided was  
18           15.7 million.

19       A.    (By Mr. Levitan) Yes.  And that was based on  
20           an erroneous specification that Dr. Carlton  
21           addressed in terms of model flaws that were  
22           corrected in April of 2011.

23       Q.   And that's -- and we're talking about  
24           basically the same number that PSNH

1           estimated as being \$700,000 when it did the  
2           estimate for the ES study in 2010.

3    A.    (By Mr. Levitan) One is a simulated  
4           risk-adjusted result, and the other is an  
5           expected -- is an actual number. So, with  
6           distinction in mind, and that is a very  
7           important distinction, they represent an  
8           estimation of performance versus the actual  
9           net margin realized in the market. And of  
10          course, it's important to note that the fuel  
11          price forecast in the summer of 2010 was  
12          remarkably higher across the board than  
13          actual fuel prices that materialized in  
14          2011 -- in particular, the second half of  
15          2011, when natural gas prices across North  
16          America weakened, and in particular key  
17          pricing points across New England.

18   Q.    But I think you referenced, you said, an  
19          actual number. That's not -- the 700,000  
20          figure was not an actual number. That was  
21          an estimate by PSNH for the purposes of the  
22          ES docket. So that's not an actual number;  
23          is that correct?

24   A.    (By Mr. Levitan) I did not derive the

1           number, so I can't comment.

2       Q.    Okay.  Mr. Large, back to you.  You're  
3           familiar with the Charles River Associates  
4           studies on the impacts of Northern Pass  
5           that's been the subject of a motion to  
6           compel in this docket and a Commission  
7           order?

8       A.    (Mr. Large) I have familiarity with it, yes,  
9           and did address questions with respect to it  
10          in my rebuttal testimony.

11                       MR. PATCH:  I have a copy of  
12           this report.  I would request this be marked  
13           as the next exhibit.

14                       CMSR. HARRINGTON:  This will be  
15           TransCanada --

16                       THE CLERK:  Five.

17                       CMSR. HARRINGTON:  TransCanada  
18           5, LMP and Congestion Impacts of Northern Pass  
19           Transmission Project Final Report.

20                       (The document, as described, was  
21           herewith marked as TransCanada 5 for  
22           identification.)

23       Q.    Is this a copy of that study?

24       A.    (Mr. Large) I believe it to be so, yes.



1 Q. This study says that Northern Pass  
2 transmission would provide -- I'm looking  
3 here at Page 1, and I'm looking about five  
4 or six lines down. It says that Northern  
5 Pass would provide 1200 megawatts of  
6 capacity, "allowing a significant amount of  
7 power generated by plants burning fossil  
8 fuels to be replaced with imported power  
9 generated predominantly by hydroelectric  
10 facilities in Quebec." Is that what it  
11 says?

12 A. (Mr. Large) Other than your characterization  
13 of 1200 megawatts of "capacity." The report  
14 says "power."

15 Q. Okay. And one of the conclusions of this  
16 study -- and this is on Page 34 -- one of  
17 the conclusions is that the addition of the  
18 Northern Pass Transmission Project has a  
19 pronounced and continuing effect on the New  
20 England power market. Is that correct?

21 A. (By Mr. Large) The conclusion at Section 5  
22 identifies those words as you said, yes.

23 Q. And you, Mr. Large, I think have indicated  
24 in your testimony, both on the stand and

1           your written testimony, that you were  
2           basically in charge of putting the IRP  
3           together and also in charge of directing the  
4           CUO study; is that correct?

5    A.    (Mr. Large) Yes, I have overall  
6           responsibilities for both of those filings.  
7           That's correct.

8    Q.    So was it your decision that Mr. Levitan --  
9           or Levitan Associates, be directed not to  
10          take this project into account?

11   A.    (Mr. Large) Yes.

12   Q.    In your rebuttal testimony at Page 19, Lines  
13          27 to 29 --

14                   CMSR. HARRINGTON:   Excuse me.  
15           What exhibit number is that so we're all on  
16           the same one?

17                   MR. PATCH:   I'm sorry?

18                   CMSR. HARRINGTON:   The exhibit  
19           number.

20                   MR. PATCH:   I don't have the  
21           exhibit list in front of me. I'm sorry. But  
22           it's the --

23                   CMSR. HARRINGTON:   Looks like  
24           it's PSNH 3.

1 MR. PATCH: PSNH 3. Thank you.

2 BY MR. PATCH:

3 Q. Mr. Large, Page 19, Lines 27 to 29.

4 A. (Mr. Large) I have it.

5 Q. And there you had indicated that, at the  
6 time the analysis was begun in June of 2010,  
7 you concluded it should be -- "it" meaning  
8 the NPT consideration -- should be excluded  
9 because the line had not received the  
10 approvals and permits that it needed; is  
11 that correct?

12 A. (Mr. Large) That is what I stated in that  
13 testimony, yes.

14 Q. I'm going to show you a copy of a PSNH  
15 response dated December 18th, 2011 to a data  
16 request from TransCanada, TC4-4, Set 4, No.  
17 4.

18 MR. PATCH: And I'd ask that it  
19 be marked.

20 (The document, as described, was  
21 herewith marked as TransCanada 6 for  
22 identification.)

23 CMSR. HARRINGTON: This will be  
24 marked as TransCanada 6.

1 THE CLERK: Correct.

2 CMSR. HARRINGTON: It's Data  
3 Request TC4-4, dated 12/16/2011.

4 BY MR. PATCH:

5 Q. You're listed as the witness on this  
6 particular response; is that correct?

7 A. (Mr. Large) Yes, I am, but certainly in  
8 consultation with our team.

9 Q. And Question 5 asked you to state whether  
10 PSNH believes there are any approvals for  
11 Northern Pass that are in doubt. Can you  
12 read the response?

13 A. (Mr. Large) I'd be happy to. The response  
14 begins with Items i through ix, where we  
15 object to the request on the basis that it's  
16 argumentative and seeks information that's  
17 not going to reasonably be calculated to  
18 lead to discovery of information that would  
19 be admissible in this proceeding.

20 The status of any given transmission  
21 project that was in the early planning stage  
22 in mid-2010 isn't relevant to the Newington  
23 CUO. In addition, information regarding the  
24 status of such projects is equally available

1 to the requestor, which is a member of  
2 ISO-New England. To the extent any  
3 information isn't public and relates to the  
4 Northern Pass transmission lines it's  
5 confidential and subject to attorney/client  
6 privilege.

7 Notwithstanding that, am I correct it  
8 was Roman VI you were referring to, Mr.  
9 Patch?

10 Q. Actually, Roman V.

11 A. (Mr. Large) Neither I nor PSNH possesses  
12 knowledge of any approvals that are in doubt  
13 by the Northern Pass entity.

14 Q. Now, obviously, this is a little bit later  
15 in time from when the study was prepared.  
16 But do you know what happened with regard to  
17 Northern Pass between the time the study was  
18 prepared and this particular date that would  
19 cause you to say they were in doubt at that  
20 point, but they're not in doubt then?

21 MS. KNOWLTON: Mr. Patch, I'd  
22 ask you to clarify when you refer to "the  
23 study," what study you mean.

24 MR. PATCH: Well, I guess I'm

1 speaking about the CUO prepared by Levitan  
2 Associates.

3 A. (Mr. Large) Well, I'll attempt to respond,  
4 Mr. Patch, because at Page 19 of my  
5 testimony, I don't use the words "in doubt."  
6 I said that they had not been received and  
7 needed for the project to move forward. So  
8 that's not a discussion about doubt. It's a  
9 statement about permits having been  
10 received.

11 BY MR. PATCH:

12 Q. Okay. So you didn't have any doubt in the  
13 summer of 2010 that they would be received?

14 A. (Mr. Large) No. And that's what the  
15 response in Roman V says.

16 Q. Well, I thought you were just referring to  
17 your testimony on Page 19, where you said it  
18 wasn't about doubt.

19 A. (Mr. Large) If I could have the reporter  
20 reread what the original question was,  
21 because my interpretation of what you asked  
22 was about there being doubts as identified  
23 in my testimony and then doubt as  
24 established in the data request. And my

1 point was to say that my testimony did not  
2 refer to "doubt."

3 Q. Well, did you have any doubt in the summer  
4 of 2010 about approvals? Is that why you  
5 told Levitan Associates not to include it,  
6 because there was some doubt?

7 A. (By Mr. Large) It wasn't a question of  
8 doubt. It was a question of the  
9 appropriateness in considering it for this  
10 analysis, when in fact our transmission team  
11 and the transmission portion of the least  
12 cost planning docket had excluded it from  
13 their plan, and it was clearly premature for  
14 it to be considered. And it was in  
15 discussion with our teammates from Levitan  
16 that we agreed to that conclusion. But I  
17 own responsibility for the recommendation  
18 that it be excluded.

19 A. (By Mr. Levitan) And if I may supplement,  
20 Mr. Large's response. As an independent and  
21 objective consulting firm, we welcome the  
22 opportunity to thrash out with PSNH the  
23 reasonableness of not including NPT in the  
24 study. And after careful and measured

1           consideration, it was a very easy call to  
2           reject its inclusion, since we knew in the  
3           summer of 2010 that there's no chance that  
4           the project was going to be commercialized  
5           in the 2014, 2015 time frame. And we  
6           recognize the legitimate triggers of  
7           commercial success: ISO system impact  
8           studies, ISO queue positions, environmental  
9           permits, financing, a clear commitment by HQ  
10          in Quebec to line up the financing to  
11          support the bill for exportation. All of  
12          these things were relevant in reaching that  
13          decision in 2010 to exclude NPT from the  
14          study design. It was on that basis that we  
15          bolted down the metrics and ran the numbers.

16   Q.     So, no chance at all, Mr. Levitan? In 2010,  
17           no chance at all it was going to be ready in  
18           that time frame? Is that what NPT -- excuse  
19           me. Let me finish the question. Is that  
20           what NPT officials were saying at that time?

21   A.     (By Mr. Levitan) I am not certain what NPT  
22           officials were saying at that time. I know  
23           I was cognizant of their expressions of  
24           support for the project. But of course, it



1 goes so far beyond NPT itself to include  
2 HQ's commitment as a provincial entity to  
3 enter into the financial commitments and to  
4 do the bill and to commit the resources in a  
5 weak energy marketplace, both for capacity  
6 and energy, when the market expectations had  
7 shifted radically from what was initially  
8 contemplated when gas was \$8 to \$10 per  
9 million BTUs. So, for those reasons, and,  
10 in particular, the lack of an ISO queue  
11 position and the lack of rightness with  
12 respect to environmental permits and other  
13 requirements, it seemed very clear to us, as  
14 a transmission modeling team, that the  
15 project would not be operational in the  
16 first half of the study horizon.

17 A. (Mr. Large) Additionally, that's supported  
18 by what the Northeast Utilities Transmission  
19 Organization that filed a document as part  
20 of the Least Cost Plan indicated, that NPT  
21 was not included in their plan horizon  
22 through 2015.

23 Q. Is that what they were saying publicly at  
24 that time, or is that just an internal

1 document?

2 A. (Mr. Large) Least Cost Plan section on  
3 transmission was filed as part of this  
4 docket.

5 Q. No, but my question is the time frames that  
6 you're talking about for when Northern Pass  
7 was going to be operational. Is what you  
8 just said consistent with what they were  
9 saying publicly at that time?

10 MS. KNOWLTON: I'm actually  
11 going to object because that's a  
12 mischaracterization of the testimony that's  
13 been given. I think what the witnesses have  
14 testified to is the period in which it would  
15 not be operational.

16 A. (By Mr. Levitan) And we noted from our  
17 advisory firm's substantial expertise with  
18 HVDC projects elsewhere in the greater  
19 Northeast what it takes to get them built  
20 even when there are signed contracts  
21 anchoring the project.

22 Q. Mr. Large, I'm going to show you a copy of a  
23 response to a data request from TransCanada,  
24 Set 3, No. 2, and ask that it be marked as

1 an exhibit.

2 CMSR. HARRINGTON: Any  
3 objections to marking this?

4 (No verbal response)

5 CMSR. HARRINGTON: Okay. This  
6 will be TransCanada No. 7.

7 (The document, as described, was  
8 herewith marked as TransCanada 7 for  
9 identification.)

10 MR. PATCH: Thank you.

11 BY MR. PATCH:

12 Q. Now, Mr. Large, you're listed as the witness  
13 on this response; is that correct?

14 A. (Mr. Large) I am, but certainly in  
15 consultation with our team members,  
16 including the Levitan team.

17 Q. And so you're familiar with the response,  
18 obviously.

19 A. (Mr. Large) Yes, I am.

20 Q. And this shows the data on Newington Station  
21 costs revenues and margins from the CRA  
22 studies for the years 2015, 2016, 2018; is  
23 that correct?

24 A. (Mr. Large) Yes, that's one view of the

1 world as presented in our CRA analysis, yes.

2 Q. Could you please take a look at the Levitan  
3 study, Page 49. And I'm looking at  
4 corrected Page 49, so I think that's part  
5 of...

6 CMSR. HARRINGTON: Mr. Patch,  
7 are you referring to the original Exhibit 1  
8 Page 49?

9 MR. PATCH: No, it's PSNH 2.  
10 That's the corrected pages.

11 CMSR. HARRINGTON: All right.

12 BY MR. PATCH:

13 Q. And again we're at G.17. At the box at the  
14 top, Expected Value, do you see the line  
15 Energy Revenue for the year 2015?

16 A. (Mr. Large) I have that. 29,886,000.

17 Q. And what's -- or okay. The CRA has for a  
18 base number for 2015 what figure?

19 A. (Mr. Large) It appears \$1,219,000.

20 Q. So that's about a \$28 million difference,  
21 roughly?

22 A. (Mr. Large) Yes.

23 Q. And for year 2016, what's the number that  
24 Levitan has?

1 A. (Mr. Large) 30,223,000.

2 Q. And what's the number that the CRA study  
3 has?

4 A. (Mr. Large) 796,000.

5 Q. So, again, we're talking about \$29 million  
6 difference, ballpark?

7 A. (Mr. Large) If one believes that the CRA  
8 analysis is an accurate representation of  
9 what Newington's benefits or energy revenues  
10 are going to be, that's what -- you would  
11 reach that conclusion.

12 Q. Who commissioned the CRA study?

13 A. (By Mr. Large) Northeast Utilities  
14 Transmission Organization.

15 Q. And for the year 2018, what's the number  
16 that Levitan has?

17 A. (Mr. Large) 24,323,000.

18 Q. Actually, I think the comparable number is  
19 30,887,000.

20 A. (Mr. Large) Oh, I'm sorry. Down by a line.  
21 30,887,000. Thank you.

22 Q. And what does the CRA have for a base number  
23 for 2018?

24 A. Energy revenue of 2,417,000.

1 Q. So, actually, the CRA study does sort of  
2 both, with and without NPT. If you look at  
3 the numbers, they have base and they have  
4 NPT numbers. But either way, the numbers  
5 are not significantly different. But in any  
6 event, they are significantly different than  
7 the ones Mr. Levitan provided, aren't they?

8 A. (By Mr. Large) They're different, yes, as  
9 pretty much any analysis that attempted to  
10 analyze such a variable would be. But I  
11 wouldn't begin to conclude that they are  
12 accurate or more accurate. As a matter of  
13 fact, I would find them to be far less  
14 accurate because they didn't account for and  
15 care for the actual operation of Newington  
16 Station that the Levitan model does.

17 A. (By Mr. Levitan) And I would also point out  
18 that the Charles River analysis is a  
19 pinpoint, terministic study used in a math  
20 model of a conventional simulation tool;  
21 whereas, the real option valuation technique  
22 is grinding through 250 scenarios,  
23 accounting for all sorts of uncertainty  
24 factors in terms of market key rates,

1 natural gas costs or oil gas parity ratios  
2 and the like. They didn't do that, nor did  
3 they even begin to contemplate the hedge  
4 value of the asset in terms of PSNH's use.  
5 But most importantly, the numbers represent  
6 very different states, since they're running  
7 a but-for test with and without NPT.

8 In our analysis, we didn't include NPT,  
9 which is exactly the point. If Charles  
10 River is right, and in fact Newington's  
11 energy margins are crushed following the  
12 injection of 1200 megawatts of energy per  
13 hour, then it will have a significant  
14 economic implication in a weak capacity  
15 market for Newington's future. Why roll the  
16 dice on its inclusion when you really don't  
17 know in 2010, 2011 and the like? All that  
18 leads you to is the premature retirement of  
19 the plant. So, with that abundance of  
20 caution, the decision was made once again to  
21 run it without NPT.

22 A. (By Mr. Large) If I could add, another point  
23 of difference between the two analyses is  
24 that CRA, when they were running the GE maps

1       model, was making use of publicly available  
2       data on generators throughout the region;  
3       whereas, we had access to PSNH's operating  
4       performance -- operating behavior data for  
5       the plant, in terms of minimum run time,  
6       ramp rates, cold and hot start costs, et  
7       cetera. So, for the limited amount of data  
8       that we were able to observe from the CRA  
9       study, it appeared that it was using older  
10      data, and perhaps not even accurate as older  
11      data. It was different. And so it tended  
12      to show that the minimum up-time would be  
13      much longer. So, in order to be able to be  
14      dispatched for a much longer minimum  
15      up-time, it would have to have a higher  
16      spark spread; whereas, the operating  
17      performance now of Newington is able to take  
18      into account some of the daily ups and downs  
19      of the energy spark spread.

20    Q.   Mr. Large, looking back at the CRA study,  
21       again commissioned by Northeast Utilities,  
22       I'd ask you to take a look at Page 4 under  
23       Section 2.1. And at the end of the first  
24       paragraph, if you could read to me the last



1 sentence in that first paragraph.

2 A. (Mr. Large) Page 4, the Background section,  
3 Mr. Patch, is that what you're referring to?

4 Q. No, it's not the Background section. It's  
5 the regular Page 4, not in Roman numerals.

6 CMSR. HARRINGTON: Which  
7 document are we in, Mr. Patch?

8 MR. PATCH: We're in the CRA  
9 study. Sorry, but I don't recall --

10 MR. SPEIDEL: TransCanada 5.

11 CMSR. HARRINGTON: TransCanada  
12 5.

13 MR. PATCH: Thank you.

14 BY MR. PATCH:

15 Q. Page 4, Section 2, Background, 2.1, last  
16 sentence in the paragraph, if you could read  
17 that, please, for the record.

18 A. (Mr. Large) Yes. That sentence says that  
19 major construction is expected to begin in  
20 2013, with a target in-service date of 2015.

21 Q. And Mr. Large, again, this report is  
22 dated -- do you know what the date is on it?  
23 December 7, 2010; is that correct?

24 A. (Mr. Large) The copy that you provided

1           doesn't have a date on it, Mr. Patch. But  
2           I'll accept that, subject to check.

3       Q.    I think if you look at the bottom, second  
4           page --

5       A.    (Mr. Large) I see that now, yes. The cover  
6           doesn't include that.

7       Q.    Okay. Thank you. And it was commissioned  
8           by Northeast Utilities. And actually, the  
9           report was prepared -- you know, my guess.  
10          You tell me if I'm wrong -- five or six  
11          months after you prepared the IRP in this  
12          docket; correct?

13      A.    (Mr. Large) Five or six months after we  
14          filed it, yes.

15      Q.    Okay. As you indicated before, you have  
16          responsibility for preparing the IRP. And I  
17          guess one thing I have a hard time  
18          understanding, based on the responses that I  
19          heard to various questions this morning in  
20          the discussion about the non-disclosure  
21          agreement, you clearly understood that the  
22          IRP was going to be presented to the  
23          Commission, the Public Utilities Commission,  
24          in a public forum; is that correct?

1 MS. KNOWLTON: I'm going to  
2 object to the line of questioning, to the  
3 extent that you're asking about the IRP. That  
4 phase of this case has already been heard.

5 CMSR. HARRINGTON: Mr. Patch.

6 MR. PATCH: I'm not sure I  
7 understand that. I have a couple of sort of  
8 foundational questions I'd like to ask first.  
9 But I guess --

10 MS. KNOWLTON: I mean, Mr. Large  
11 was on the witness stand for two days on the  
12 IRP. We're here today on the CUO. So, you  
13 know, I think questions about the CUO are the  
14 focus of his examination today.

15 MR. PATCH: Okay. Well, my  
16 question actually, if you let me get there,  
17 relates to the CUO.

18 (Off-the-record discussion among Commissioners.)

19 CMSR. HARRINGTON: All right.  
20 We'll listen for a little bit, but we don't  
21 want to regress back into the IRP portion of  
22 the docket.

23 MR. PATCH: No, understood.

24 BY MR. PATCH:

1 Q. I guess it's clear from the record,  
2 Mr. Large, that you had responsibility for  
3 the preparation of the IRP, so I won't ask  
4 you that question again.

5 But you understood, did you not, that the  
6 IRP and the CUO study would be something that  
7 would have to be presented publicly in this  
8 case? Is that correct?

9 A. (Mr. Large) That was the whole intent of the  
10 preparation of those filings. Absolutely.

11 Q. So, I'm just having a problem understanding  
12 why you would not have instructed Levitan  
13 Associates with regard to the data on which  
14 they relied, but it would have to be  
15 information available publicly at the time  
16 that the report was presented, because I  
17 heard a lot of discussion this morning about  
18 various inputs that were protected or too  
19 expensive to provide. You want us to see  
20 the outputs but apparently not the inputs.  
21 So, could you explain that to me.

22 A. (Mr. Large) Well, the work done by Levitan  
23 was to examine what they felt were the best  
24 sources of information available to produce

1           the highest quality output product in the  
2           CUO that was possible. And their choice of  
3           using Bloomberg information was based upon  
4           their experience and historic use of that  
5           information. I believe I heard from my  
6           friends, Mr. Carlton and Mr. Levitan, that  
7           they were unclear until a later point in  
8           time about the lack of accessibility on a  
9           public basis of the Bloomberg information.  
10          I believe I heard that said earlier. So I  
11          take it their expectation was that wasn't an  
12          issue, and that substantial time, energy and  
13          expense went into trying to resolve those  
14          issues, and when found unresolvable, provide  
15          alternatives that would be perfectly  
16          consistent with, in the specific case of  
17          Bloomberg information, that data. And if I  
18          misstated or left something short on that  
19          response, please feel comfortable to add.

20        A.    (By Mr. Levitan) As a licensee, we were  
21              under rigid requirements that required us to  
22              protect the information. It was disclosed  
23              in graphic form in the form of basis  
24              spreads. But the actual data itself in

1           electronic format could not be provided, or  
2           it would have been a breach of our  
3           obligation.

4    Q.    Those are the only numbers you have used?

5    A.    (By Mr. Levitan) No.  There was lots of data  
6           that we could have used, all pretty much  
7           taking you to the exact same place:  Platts,  
8           you know, EIA data.  These data sets are  
9           commonly available to all consultants and  
10          Staff Commission and other market  
11          participants.

12                 We based our analysis on Bloomberg  
13           because we're comfortable using them, and  
14           they're embedded in our models.  Frankly,  
15           this had never come up before, in terms of  
16           public disclosure, cross-examination and the  
17           like.  If given the opportunity to do it  
18           over again to avoid this kind of  
19           controversy, I would have easily made the  
20           decision to use some data sets in the public  
21           sector so as to avoid this kind of extended  
22           argument.  But again, it wouldn't have  
23           changed a thing with respect to the results.

24   Q.    Okay.  I have a few questions for Mr.

1 Smagula and Ms. Tillotson, since you filed  
2 your testimony together.

3 In that testimony, the two of you say  
4 that you jointly have more than 50 years'  
5 experience monitoring the regulatory  
6 environment in order to plan for and implement  
7 any environmental regulations that apply to  
8 the Company's operations. And I was looking  
9 at Page 8, Lines 4 to 6. Does that sound  
10 familiar to you?

11 A. (By Mr. Smagula) Yes.

12 Q. And you also say that you are constantly  
13 monitoring the status of regulations;  
14 correct?

15 A. (By Mr. Smagula) Yes.

16 Q. And you say that PSNH needs to wait until a  
17 final rule is established with a compliance  
18 date in order to begin planning; correct?

19 A. (By Mr. Smagula) That's correct.

20 Q. And you say that quality planning must be  
21 based on final regulations; correct?

22 A. (By Mr. Smagula) Yes.

23 Q. At the same time in your testimony, you  
24 cited the Commission's December 28, 2010

1 letter that's been marked in this docket as  
2 TransCanada No. 1, Pages 13 and 14 of your  
3 testimony. And that letter says that a  
4 sound planning process should consider  
5 reasonably foreseeable regulatory changes,  
6 not just those where a final regulation with  
7 a compliance date is in place; correct?

8 A. (By Mr. Smagula) I don't have the text in  
9 front of me. But assuming you're correct,  
10 I'll agree to it.

11 Q. It's Page 13 and 14 of your testimony, if  
12 you want to double-check it.

13 A. (By Mr. Smagula) I'm sure it's correct.

14 MS. KNOWLTON: Mr. Smagula, I'd  
15 just ask you to speak more into the  
16 microphone. Thank you.

17 A. (By Mr. Smagula) I'll trust that your text  
18 is correct.

19 BY MR. PATCH:

20 Q. Okay. Thank you. And given what that  
21 letter lays out as basically a standard to  
22 use, in the next IRP docket, would PSNH  
23 utilize a different standard than the one  
24 that you've articulated with regard to final



1 regulations with a compliance date? Would  
2 you use a different standard next time?

3 A. (By Mr. Smagula) I think the standard we  
4 used is as we had characterized it, and that  
5 is consistent to what had been used in all  
6 the preceding IRP dockets. In the future, I  
7 guess I'm not going to assume what we will  
8 use, but we will certainly take into  
9 consideration all of the discussions here  
10 and certainly review the ruling from the  
11 Commission as to what would be appropriate  
12 in future dockets and future analysis. I  
13 think there has been much discussion about  
14 what should or should not be included and  
15 things that certain parties may have thought  
16 were appropriate. But if we look at what  
17 we've done in the past and we look at our  
18 traditional planning process, we filed  
19 consistent with both of those.

20 Q. And so, then, it sounds like direction from  
21 the Commission and the order in this docket  
22 with regard to what standard you ought to  
23 use in the future might be helpful, because  
24 it sounds like the Commission's standard

1 outline in the December 28th letter is  
2 pretty different from the one that you  
3 articulated in your testimony; correct?

4 A. (By Mr. Smagula) I guess I think I responded  
5 to your question. I'm not sure I'd  
6 characterize what the Commission should do  
7 beyond that.

8 Q. All right. On Page 14, you say that at the  
9 time the Company prepared the IRP, it did  
10 not, in good faith and with prudence, commit  
11 Company resources for planning for any  
12 potential future compliance with any of --  
13 and then you cited the proposed regulations,  
14 the ones that had been cited by the Consumer  
15 Advocate, Sierra Club and CLF; correct?

16 A. (By Mr. Smagula) That's correct.

17 Q. Now, given your many years of experience and  
18 your self-described "constant monitoring of  
19 regulations," if the plan were being  
20 prepared today, are there any other  
21 environmental regulations you would take  
22 into account with regard to Newington  
23 Station, given what the Commission said in  
24 the December 2010 letter?

1     A.     (By Mr. Smagula) You know, as I look at the  
2            regulations that have been referenced, the  
3            CUO has been, I guess I could characterize  
4            it as criticized for not taking a review of  
5            the regulations. But we have reviewed the  
6            regulations. And I won't belabor everyone,  
7            unless it's desired, to go through every  
8            regulation and comment with regard to the  
9            status of Newington and its compliance with  
10          regard to the regulations on part and  
11          visibility, Clean Air Transport Rule, or the  
12          MAC Rule, and cite the condition of the  
13          facility, the equipment that's been  
14          installed, and our means of managing its  
15          availability into the future, irrespective  
16          of what these rules are, based on the fact  
17          that it's gas-fired and it does have some  
18          limited use of oil. We feel very  
19          comfortable that our assessment of this unit  
20          is very positive with regard to that  
21          equipment that's installed. And the fact  
22          that we didn't spend pages and go into it in  
23          detail perhaps is something to reflect upon  
24          in the future. So I think we're aware of

1           certain people's perception of this  
2           projected need to meet in the future, but I  
3           think the station is well positioned for it.

4   Q.   Have you read the Levitan study?

5   A.   (By Mr. Smagula) I have reviewed the Levitan  
6           study.

7   Q.   Are you familiar with the fact that he  
8           assumed the retirement of 2100 megawatts of  
9           generation?

10  A.   I'm familiar that there was some megawatts,  
11           but I don't recall the exact number.

12  Q.   Well, I'd ask you to look at Page 38 -- and  
13           I guess it would be Exhibit 1, Page 38 of  
14           the CUO study, and it's Page 221 of the  
15           overall plan.

16  A.   (By Mr. Smagula) I have the page here.

17  Q.   Okay. About four lines down there's a  
18           sentence that begins with "Generally  
19           consistent with the Connecticut IRP, we  
20           assumed retirement of approximately 2100  
21           megawatts of capacity over the period 2014  
22           to 2016" -- and then the next phrase is of  
23           particular interest to my question -- "due  
24           to increasingly strict environmental

1 standards." Now, that sounds a little  
2 different than the standard that you have  
3 used in deciding whether or not to take into  
4 account particular environmental  
5 regulations.

6 A. (By Mr. Smagula) I think --

7 MS. KNOWLTON: Actually, I want  
8 to state an objection for a minute, because  
9 the standard that the Commission stated in the  
10 December 2010 letter, as I understand it,  
11 related to the IRP. And this is -- Mr.  
12 Smagula's here testifying as to the CUO.

13 MR. PATCH: Well, my question of  
14 whether Mr. Smagula -- maybe I wasn't clear  
15 enough. But with regard to the standard that  
16 he articulated when PSNH takes into account  
17 environmental regulations, and that's the  
18 standard basically, that they're and there's a  
19 compliance date. And what I'm asking him is  
20 that that's a little different than apparently  
21 what Levitan Associates used as the basis for  
22 assuming 2100 megawatts of capacity  
23 retirement.

24 CMSR. HARRINGTON: Do you

1 understand the question?

2 WITNESS SMAGULA: Yes.

3 MR. PATCH: It's not a question  
4 for Mr. Levitan. It's really for Mr. Smagula.

5 A. (By Mr. Smagula) Well, if I look at the  
6 units that are referenced which characterize  
7 the quantity of megawatts that are  
8 identified, and I look at those units  
9 specifically, because I do have some  
10 familiarity with it, Norwalk Harbor units  
11 are oil-fired. Montville 6 is an oil-fired  
12 unit without a precipitate. Middletown 3 is  
13 a cyclone-fired unit which will burn natural  
14 gas. Bridgeport Harbor is an older facility  
15 and so on.

16 So, talking about units being retired  
17 and comparing them generically or  
18 specifically with Newington Station is not  
19 an appropriate measure. I'm satisfied that  
20 the statement made is perhaps appropriate,  
21 but its characterization and its linkage to  
22 Newington cannot be made directly.

23 Q. Okay. But that wasn't my question, was it,  
24 Mr. Smagula?

1 A. (By Mr. Smagula) Okay. Then I guess maybe  
2 we'll -- I'll be happy to respond if you  
3 could repeat it then. I'm sorry.

4 Q. I mean, it appears, based on the language  
5 that Levitan Associates used in that portion  
6 of the IRP, that they were just referring to  
7 increasingly strict environmental standards;  
8 whereas, you seem to rely specifically on  
9 final regulations with a compliance date.

10 A. (By Mr. Smagula) I guess I provided you with  
11 some input from me, but I'm not sure I'm the  
12 appropriate one to comment on their study.  
13 I may want to invite them to provide remarks  
14 as well.

15 Q. Okay. I'll actually give Mr. Levitan that  
16 opportunity a little bit later. I have some  
17 questions for them as well.

18 A. (By Mr. Smagula) Okay. Good.

19 A. (By Mr. Levitan) Although, I would be happy  
20 to comment now if you would appreciate the  
21 clarification.

22 Q. Actually, I'd prefer to wait. Thank you.

23 You're familiar, Mr. Smagula, aren't you,  
24 with the correction that Levitan Associates

1 had to make to the study? There was some  
2 testimony about that this morning.

3 A. (By Mr. Smagula) I did hear some numbers  
4 that were changed. I'm not as directly  
5 familiar with the specifics of each, but I  
6 understand generally what took place.

7 Q. I mean, as an example of -- I just want to  
8 point you to net present value of the  
9 expected energy net revenues reduced from  
10 120 million to 40 million. And I'm  
11 referencing Page 52 of the IRP -- actually,  
12 of the -- I guess it's the CUO contained in  
13 the IRP, and corrected Page 52, which would  
14 be part of PSNH Exhibit 2. I don't know if  
15 you want to take a look at that, but --

16 A. (By Mr. Smagula) I heard them correct the  
17 number. I'm not sure what I can do to  
18 assist you any further.

19 Q. Well, as an order of magnitude, from \$120  
20 million to \$40 million, does that sound  
21 consistent?

22 MS. KNOWLTON: And I'm actually  
23 going to object to this line of questioning.  
24 When Mr. Smagula took the stand in the case



1           this morning, and I asked him what his role in  
2           the CUO was, I thought he was very clear that,  
3           as a director of generation of PSNH, what he  
4           did was provide some input data about the  
5           operation of the plant. So, I mean, I really  
6           feel like these questions are not properly  
7           focused to Mr. Smagula's involvement in the  
8           CUO.

9                           MR. PATCH: Well, Mr. Chairman,  
10           I'll actually withdraw that question for now  
11           and lay a foundation for it.

12                          I'd like to ask that a  
13           response to TransCanada 3-1, with Mr.  
14           Smagula as the witness, be marked as the  
15           next exhibit.

16                          CMSR. HARRINGTON: Any  
17           objections to entering this?

18                          (No verbal response.)

19                          CMSR. HARRINGTON: Seeing none,  
20           this will be TransCanada 7 -- 8.

21                          (The document, as described, was  
22           herewith marked as TransCanada 8 for  
23           identification.)

24   Q.    Are you familiar, Mr. Smagula, with this

1 response that has you listed as a witness,  
2 dated June 3rd, 2011?

3 A. (By Mr. Smagula) I'm familiar with it, yes.

4 Q. And Paragraph C asks, "Does PSNH still  
5 believe that the original Levitan work  
6 'properly represents the expected value of  
7 Newington to customers?'" Do you see that?

8 A. I do.

9 Q. Could you read the response.

10 A. (By Mr. Smagula) "PSNH still believes there  
11 is a range of outcomes under which Newington  
12 provides value to customers by being a  
13 physical hedge against market prices, as  
14 well as providing revenue to customers. The  
15 original and revised Levitan study  
16 quantifies the range of value Newington  
17 provides. The differences in outcomes  
18 predicted by the original and revised  
19 Levitan studies are relatively small, and as  
20 a result, PSNH believes that the original  
21 Levitan work 'properly represents expected  
22 value of Newington's customers.'"

23 Q. I wanted to focus on the phrase "relatively  
24 small" and ask you whether a reduction from

1           120 million to 40 million -- basically, over  
2           a 200-percent reduction -- is "relatively  
3           small" in your opinion?

4    A.    (By Mr. Smagula) I guess it seems as though  
5           the number is about half or less than half  
6           of what it was previously.  Relatively  
7           small, though, is relative to what?  Is it  
8           relative to zero, or is it relative to the  
9           two numbers?  So I guess it is a reasonably  
10          good change.  I don't know how to  
11          characterize that any further.

12   Q.    Okay.  Mr. Smagula, are you familiar with  
13          the capacity factors in recent years at  
14          Newington Station?

15   A.    (By Mr. Smagula) I am.

16   Q.    And I believe in your testimony you referred  
17          to them as -- and I'm looking at Page 15,  
18          Lines 8 and 9, "a reduced capacity factor in  
19          recent years."  Does that sound correct?

20   A.    (By Mr. Smagula) Yes.

21   Q.    In fact, I don't know if you're familiar  
22          with -- I'm going to give you a copy of this  
23          Commission order.  It's an order dated  
24          December 21, 2009, approving the 2010 energy

1 service rate. And I would ask you to take a  
2 look at this order at Page 17.

3 MS. KNOWLTON: Mr. Patch, could  
4 you give us the order number.

5 MR. PATCH: Order 25,061 in  
6 Docket DE 09-180. It's dated December 31st,  
7 2009.

8 MS. KNOWLTON: Thank you.

9 BY MR. PATCH:

10 Q. And the first full paragraph describes  
11 comments by Steve Mullen, the assistant  
12 director of the Electric Division here at  
13 the Commission. And it says there, "Mr.  
14 Mullen noted that Newington Station had  
15 become increasingly uneconomic, and as a  
16 result, its capacity factor has steadily  
17 declined from 55.9 percent in 2003 to  
18 3.3 percent in 2008." Did I read that  
19 correctly?

20 A. (By Mr. Smagula) Yes.

21 Q. So, at Page 16 of your testimony, Line 16,  
22 you referred to, quote, anticipated  
23 continued lower capacity factors; is that  
24 correct?

1 A. (By Mr. Smagula) Yes.

2 Q. Do you know the capacity factors that  
3 Levitan assumed?

4 A. (By Mr. Smagula) I would have to ask them or  
5 refer to what they have on their study. I  
6 don't have that number in my memory.

7 Q. I mean, subject to check, in the first round  
8 it was 15 to 19 percent; and in the  
9 corrected version, it was 7 to 10.7 percent.  
10 I'm looking at the revised G.17. Subject to  
11 check, would you accept that?

12 A. (By Mr. Smagula) Yes.

13 Q. And any of those numbers are higher than any  
14 capacity factors that have been present at  
15 Newington since 2007; is that correct?

16 A. (By Mr. Smagula) It is.

17 Q. Now, a couple of questions --

18 A. (By Mr. Smagula) I will add, however, that  
19 we provided them with the information, and  
20 their knowledge of fuel and other factors  
21 creates their projection as to what the  
22 operations of the facility will be. I do  
23 not project the capacity factors.

24 Q. At Page 87 of the IRP itself, it describes

1           Newington Station as, quote, Designed as a  
2           peaking unit for quick start-up." Does that  
3           sound correct?

4       A.    (By Mr. Smagula) That's a general  
5           characterization of its design. That's  
6           correct.

7       Q.    And on the same page, "designed for fast  
8           response and start-up."

9       A.    (By Mr. Smagula) Yes, that's the same  
10          concept.

11      Q.    What's the cold-start time for Newington?

12      A.    It has been reduced significantly from what  
13           it had been in the past. I think at the  
14           moment it's in the six- to seven-hour range,  
15           subject to check.

16      Q.    So if a nuclear unit were to go offline on a  
17           summer afternoon at, say, 1:00, and  
18           Newington was needed to come online from a  
19           cold start, it would be, at a minimum, 7 or  
20           8 p.m. before it would be producing power at  
21           its capacity. Is that what those numbers  
22           mean?

23      A.    (By Mr. Smagula) The numbers we refer to as  
24           six to seven hours to ISO are numbers that

1           we feel very comfortable with. If there is  
2           a system emergency, it is my opinion that we  
3           could improve that. But the ISO system  
4           would fill that gap, would fill that period  
5           of time with other resources that are more  
6           readily available to come on until a more  
7           economic unit could come on. And the fact  
8           that Newington provides strength in the  
9           345KV line from Vermont down into eastern  
10          Massachusetts I think would be a very  
11          important factor for it to get online  
12          quickly.

13       Q.    It's a 400-megawatt unit, and of those 400  
14           megawatts, is it true about 80 megawatts are  
15           designed for oil?

16       A.    (By Mr. Smagula) No.

17       Q.    How would you characterize it?

18       A.    (By Mr. Smagula) It's a 400-megawatt unit  
19           that can run very close to full load on gas,  
20           on natural gas. However, if a full load is  
21           needed, we supplement the gas with some oil  
22           firing to get full load. It can achieve  
23           full load on an oil or a oil/gas  
24           combination, but not quite a full load on

1 all gas.

2 Q. In 2011, do you have any idea of what  
3 percentage of the time Newington operated on  
4 oil versus natural gas? Ballpark.

5 A. (By Mr. Smagula) I think it operated very  
6 sparingly on oil. There have been some  
7 problems with the natural gas supply system  
8 at times where there was a deficiency in  
9 availability, where Newington stepped in to  
10 fill that gap for New England. But it was  
11 very limited. Based on economics.

12 Q. And those economics being that the price of  
13 oil is a lot higher than the price of  
14 natural gas on an MMBtu basis; is that  
15 right?

16 A. (By Mr. Smagula) I guess I view the price of  
17 natural gas is a lot lower than oil.

18 Q. That's what I meant to say.

19 A. (By Mr. Smagula) And that's the current  
20 market assessment with gas.

21 Q. I'm going to show you a copy of what I think  
22 is a Form 1 document with regard to  
23 Newington, and I believe this is for 2011.

24 MR. PATCH: And I would ask that



1           this be marked as the next exhibit for  
2           TransCanada.

3                           CMSR. HARRINGTON: Any objection  
4           to marking?

5                           (No verbal response)

6                           CMSR. HARRINGTON: So this will  
7           be TransCanada 9. It's a document from Public  
8           Service Company of New Hampshire, "Steam  
9           Electric Generating Plant Statistics," dated  
10          2011/Q4 -- 4/9/12 I guess is the date.

11                          (The document, as described, was  
12                          herewith marked as TransCanada 9 for  
13                          identification.)

14   BY MR. PATCH:

15   Q.   Mr. Smagula, are you familiar with this  
16          particular document?

17   A.   (By Mr. Smagula) Not typically, but I have  
18          had familiarity with it in the past.

19   Q.   Now, if I'm reading this correctly, I mean,  
20          Newington's in the far right column;  
21          Schiller's in the column next to it. But  
22          I'm interested in Newington. It has No. 6  
23          oil barrels, No. 2 barrels and No. 6 gas;  
24          correct? Down near the bottom?

1 A. (By Mr. Smagula) I see it, yes.

2 Q. And it looks as though the unit produced in  
3 2011, 125 -- make sure I gets this right --  
4 125,215-megawatt hours -- or kilowatt hours,  
5 125,215,000; is that correct?

6 A. (By Mr. Smagula) Yes.

7 Q. That's Line No. 12.

8 I mean, overall in 2011, I think it was  
9 approximately a 3.4 percent capacity factor.  
10 Does that sound about right?

11 A. That could be right. I'd have to check  
12 that.

13 Q. And it shows that --

14 CMSR. HARRINGTON: Excuse me,  
15 Mr. Patch. Just for clarity, the writing on  
16 the bottom of this, where it's written in by  
17 hand "3.4 percent capacity factor," was that  
18 produced by yourself, or does that come from a  
19 Public Service document?

20 MR. PATCH: No, it was produced  
21 by TransCanada.

22 CMSR. HARRINGTON: Okay. Thank  
23 you.

24 MR. PATCH: And if you'd prefer,

1 we could submit a clean copy.

2 CMSR. HARRINGTON: No, I just  
3 wanted -- and the bottom figure below that  
4 says -- I'm not sure what it says. Check  
5 97.32, slash, something fuel cost maybe?

6 MR. PATCH: Yeah, that's per  
7 megawatt hour fuel cost. It was an estimate  
8 done. I'm not sure I need to ask questions  
9 about that.

10 CMSR. HARRINGTON: All right.

11 BY MR. PATCH:

12 Q. No. 6 oil barrels, if I read correctly, it's  
13 83 million -- 83,126; is that correct? I'm  
14 looking at, I guess it's Line 38.

15 A. (By Mr. Smagula) That's correct.

16 Q. And then No. 2 oil, 10,647 barrels.

17 A. (By Mr. Smagula) That's what's on the sheet,  
18 yes.

19 Q. And then MCF looks as though it's 1,034,154  
20 MCF of gas; right?

21 A. (By Mr. Smagula) That's correct.

22 Q. Now I'm going to ask you to take this,  
23 subject to check. I mean, you're probably  
24 familiar with the MMBTU conversion factor.

1 Do you know how to make that conversion to  
2 an MMBTU figure?

3 A. (By Mr. Smagula) I don't have that with me  
4 or in my head at the moment.

5 Q. Okay. Well, based on these numbers, would  
6 it surprise you to learn that approximately  
7 36 percent of the 2011 power actually was  
8 produced by oil versus natural gas?

9 A. (By Mr. Smagula) That could be the case. I  
10 guess I'd have to refresh myself on exactly  
11 what we earned last year and when and why.

12 Q. I mean, you admitted that the price of oil  
13 is obviously significantly higher right now  
14 than the price of natural gas. So I'm  
15 trying to understand, if that's the case,  
16 why would PSNH have utilized so much oil as  
17 opposed to natural gas in 2011?

18 A. (By Mr. Smagula) I think our choice is to  
19 run the most economic fuel that's available.  
20 And we bid our unit in on gas, and it's  
21 based on gas price and gas availability. If  
22 there are times when the system, when the  
23 ISO-New England system has a problem with  
24 the supply of natural gas, as I said

1 earlier, we occasionally will be actually  
2 dispatched on oil.

3 Also, and I guess I'll have to confirm  
4 all of this -- but also, we have certain  
5 regulatory requirements that require us to  
6 do testing periodically with our air permit  
7 on oil. And there are times when,  
8 irrespective of the incremental cost to  
9 customers, we have a regulatory and  
10 environmental obligation to operate the unit  
11 on oil in order to achieve test data to  
12 provide appropriate filings with our  
13 regulatory community. So there are a number  
14 of reasons why we do this.

15 We also sometimes have control system  
16 modifications or other operational  
17 characteristics of the unit which we need to  
18 assure reliability of the unit in order to  
19 prove that equipment is operating and  
20 responding properly, when we would have to  
21 operate the unit on the alternate fuel.

22 I think, if I recall, we were having  
23 some start-up gas testing, so that the unit  
24 traditionally would start up on oil and then

1 transfer to gas. We were doing testing so  
2 that we could start up on just gas and be  
3 able to more economically start our units,  
4 which contributes to the shorter start time.  
5 But it also contributes to our customers on  
6 a lower-cost start-up, which makes it more  
7 environmentally friendly, but also makes it  
8 more economically friendly. I think there  
9 were periods in which that start-up on gas  
10 had to be adjusted and curtailed in order to  
11 go into an oil start-up until that -- those  
12 systems were proven.

13 So I believe our reasons to operate on  
14 gas were driven by either environmental,  
15 economic or various business decisions in  
16 order to maximize the flexibility of the  
17 unit and meet our regulatory or dispatch  
18 obligations.

19 A. (Mr. Large) And if I could add, it's unclear  
20 from your question, Mr. Patch when you speak  
21 about taking the amount of oil that was  
22 utilized, if you're referring only to the  
23 RFO or the No. 2 oil, because if in fact it  
24 included the No. 2 oil, that really doesn't

1           generate many megawatt hours. That's the  
2           house heating oil, so...

3       Q.    It was both, No. 6 and No. 2.

4       A.    (Mr. Large) So I think a more accurate  
5           computation would exclude the No. 2 oil from  
6           the percent of megawatt hours made.

7           Certainly the numbers on the page, you could  
8           do that arithmetic and come up with the  
9           value that you did. But in terms of making  
10          megawatt hours, it's not producing megawatt  
11          hours.

12      Q.    Does it all go to running the station,  
13           either way?

14      A.    (By Mr. Smagula) Well, it doesn't go into  
15           the cost to generate megawatt hours.

16      Q.    And ratepayers pay for all of that, right,  
17           regardless of whether it's No. 2 or No. 6;  
18           right?

19      A.    (By Mr. Smagula) That's correct.

20      Q.    Okay. I'm going to show you -- this is  
21           "Monthly Average Fuel Price and RT Hub LMP."  
22           This is an ISO document that shows the price  
23           of oil and dates back to 2003. But  
24           through -- it has projections, actually,

1 through September of 2012. It's an ISO  
2 document. And this is really just to  
3 underscore something that you already  
4 indicated, which is that the price of oil is  
5 obviously, at this point in time, anyway,  
6 and at least in the fairly recent past,  
7 significantly higher than the price of  
8 natural gas. And, again, in my mind, at  
9 least it raises the question of why you  
10 would be burning oil at all unless you  
11 absolutely had to during 2011. Maybe you  
12 want to respond to that?

13 A. (By Mr. Smagula) I did respond to that. I  
14 told you that there are operational and  
15 regulatory and other reasons why we burn  
16 oil. Other than those reasons, we  
17 absolutely burn the lowest-cost fuel, or as  
18 you can see from the capacity factors, we  
19 purchase energy on the open market.

20 A. (Mr. Large) If I can, my take is that these  
21 are monthly average values, and it doesn't  
22 recognize the fact that there are days and  
23 hours in which natural gas prices are  
24 substantially higher than oil. And the



1 beauty and benefit of having a station like  
2 Newington, with dual fuel capacity and the  
3 ability to run at or near full load, takes  
4 full advantage of the fact that on those  
5 days when there are very high natural gas  
6 prices or lack of availability of natural  
7 gas, it can operate on oil, and does.

8 A. (By Mr. Smagula) If I had anticipated your  
9 question further, I would be able to become  
10 very specific with you. But I think my  
11 characterization of the different reasons we  
12 burn oil should explain why we do it. We  
13 only do it if we need to do it.

14 MR. PATCH: Mr. Chairman, I'm  
15 not sure that I requested that this be marked  
16 as an exhibit, but I would request that it be  
17 marked.

18 CMSR. HARRINGTON: That would be  
19 TransCanada 9 -- 10?

20 THE CLERK: Ten.

21 (The document, as described, was  
22 herewith marked as TransCanada 10  
23 for identification.)

24 BY MR. PATCH:

1 Q. Mr. Smagula, I'd like to ask you to look at  
2 Page 9, I believe it is, of the CUO study.  
3 Appendix G, about four lines down in the  
4 first full paragraph where it says, "The  
5 station has a 12-hour cold start-up time."  
6 Now, that sounds inconsistent with your  
7 testimony that it's a six- to seven-hour  
8 start-up time. Maybe you could explain  
9 that.

10 A. (By Mr. Smagula) Well, it was my  
11 recollection that it was a seven- to  
12 eight-hour cold start.

13 Q. Seven to eight? I thought you said six to  
14 seven.

15 A. (By Mr. Smagula) If I said six to seven -- I  
16 think I did say six to seven. I'm not sure.  
17 I could... I'd have to check on that number.  
18 I may have recalled the time for a hot start  
19 being six to seven hours. But on a cold  
20 start, it could be longer. It would be  
21 longer, but I...

22 Q. Okay. Okay. Mr. Levitan and Dr. Carlton,  
23 I'm prepared to ask you a few questions now.

24 I mean, obviously, we've been through the

1 corrections that were made to the studies, so  
2 I don't see the need to belabor that. It  
3 sounded like they were grouped into at least  
4 two different categories; one were corrections  
5 that were made, I think as you said, on Page  
6 15 of your testimony, after legitimate  
7 questions were raised in the first round of  
8 discovery and at the first technical session.  
9 So in fact, you didn't make the corrections on  
10 your own. It was only after TransCanada and  
11 others raised questions that you made them; is  
12 that correct?

13 A. (By Mr. Levitan) We made the corrections on  
14 our own. We appreciated Mr. Hachey's  
15 constructive criticisms at that first  
16 technical session which revealed defects in  
17 the results and then motivated us to go back  
18 and do a deep dive into the programming  
19 code, the assumptions and the like, at which  
20 point we quickly found problem areas and  
21 moved to correct them at once.

22 Q. On Page 15, Line 20 of your rebuttal  
23 testimony, you made it sound as though there  
24 were time constraints on the completion of

1 the study. Could you explain that.

2 A. (By Mr. Levitan) Page 15, Line 20?

3 Q. Yes.

4 A. (By Mr. Levitan) The production process in  
5 the summer of 2010 was less ideal. We got a  
6 bit of a late start, and we found ourselves  
7 challenged to accomplish a great deal of  
8 programming and technical analysis with an  
9 eye toward a September filing date. I would  
10 defer to my colleague, Dr. Carlton, to flush  
11 out some of the additional challenges.

12 A. (By Mr. Carlton) As Mr. Levitan stated, we  
13 didn't get the go-ahead until a little bit  
14 later than we had initially anticipated,  
15 based on our proposal discussions. In that  
16 initial proposal there was this framework  
17 specified of doing a real option valuation  
18 analysis for which we needed to do some  
19 from-scratch model development. So one of  
20 the time pressures was simply that there was  
21 a shorter time line for the model  
22 development and testing phase before filing  
23 that report and...

24 Q. Are you done?

1 A. (By Mr. Carlton) And then, in addition,  
2 there were some other extenuating  
3 circumstances.

4 Q. Do you want to describe them?

5 A. (By Mr. Carlton) I'm sorry. It was a death  
6 in my family.

7 Q. Okay. Sorry.

8 The next set of corrections that Levitan  
9 Associates made, as I understand it, were  
10 really in response to a request from Staff for  
11 a backcast case. Could you explain what a  
12 "backcast case" is, first of all.

13 A. (By Mr. Carlton) Well, a backcast case is  
14 what the name may seem to imply. You go  
15 backwards in time, but rather than trying to  
16 run a model in reverse chronological order,  
17 you take a past time period and you run the  
18 model forward. The basic idea is to be able  
19 to compare model performance against the  
20 actual results which would be known at that  
21 time. However, there are many difficult  
22 aspects of doing a reasonably good job at a  
23 backcast case, the main one being that every  
24 year or any time period you look at is going

1           to be just one state of nature. It's going  
2           to be unique for certain reasons, and  
3           especially for a probabilistic model. Part  
4           of the model validation process is to know  
5           whether its distribution of values are in  
6           the reasonable range, not just a  
7           single-point estimate.

8       Q.    So as a result of that request from Staff,  
9           then you uncovered some other errors. And  
10          those concerned, as I understand it, start  
11          fuel, use assumptions. And No. 2 fuel use  
12          for station warming hadn't been included in  
13          fixed costs. I think there were a couple of  
14          other areas that were uncovered as part of  
15          that. So they weren't something you came  
16          across on your own. It was only after Staff  
17          requested that particular analysis; is that  
18          correct?

19       A.    (By Mr. Carlton) That's right. So, in the  
20          course of trying to reconcile the  
21          differences, one factor I was able to  
22          isolate, as recently been stated, that the  
23          No. 2 oil is not used in generation. It was  
24          used, in part, for start fuel, and then as

1 we determined, a significant amount was also  
2 used for plant warming purposes. And given  
3 that we knew how many starts had occurred in  
4 the year 2010, that we were studying how  
5 many were cold, how many were hot starts, we  
6 were able to estimate how much total fuel  
7 use for No. 2 oil would be involved and  
8 calibrate that against the model result.

9 Q. One of the assumptions that you made was  
10 that 2100 megawatts of capacity in NEPOOL  
11 would retire; is that correct? I'm looking  
12 at Page 38 of the CUO. And we already  
13 looked at it with Mr. Smagula at  
14 Footnote 26. So, is that correct?

15 A. (By Mr. Levitan) It is correct in the narrow  
16 context of the mid case. As I'm sure you  
17 recognize, three distinct capacity price  
18 forecasts were formulated. Only in the mid  
19 case was the assumption of 2100 megawatts of  
20 retirement considered.

21 Q. And are you familiar with New England ISO  
22 Forward Capacity Auctions? And I'm going to  
23 refer now specifically to capacity auction  
24 No. 6.

1 A. (By Mr. Levitan) Yes, I'm familiar with it.

2 Q. And this particular capacity auction is for  
3 delivery June 1, 2015 to May 31, 2016. Does  
4 that sound correct?

5 A. (By Mr. Levitan) Sounds correct. I don't  
6 have the building block assumptions from  
7 that auction in front of me. But your  
8 characterization sounds right.

9 Q. And have you checked to see how the units  
10 that you listed in Footnote 26 fared in that  
11 particular auction, as to whether or not  
12 they've been obligated through 2016? Have  
13 you had a chance to do that?

14 A. (By Mr. Levitan) No, I have not. Nor would  
15 it matter, insofar as the analysis reflected  
16 these unit retirements on a generic basis.  
17 I'm sure that it was stated either in this  
18 report or in data responses that we relied  
19 on the work done by another consultant in  
20 the 2010 Connecticut IRP to come up with an  
21 estimation of total plant attrition over the  
22 forecast period. If these plants don't  
23 retire, typically, another resource would be  
24 expected to retire in conjunction with the



1           assumption of our total RTO-wide attrition  
2           that was used in this forecast.

3       Q.   Well, would it surprise you to learn that,  
4           in fact, as a result of that particular  
5           capacity auction, that the ISO anticipates  
6           being 2800 megawatts long?

7       A.   (By Mr. Levitan) No, it would not surprise  
8           me.

9       Q.   Okay. I'm going to show you a copy of a  
10          document that is dated April 30th, 2012.  
11          And I have not copied the entire document  
12          which is over a hundred pages, but I would  
13          represent to the Commission that what I have  
14          copied is what I believe to be the relevant  
15          portions of this filing with the FERC by the  
16          ISO with regard to the results of this No. 6  
17          capacity auction and the relevant portions  
18          of it as they relate to the units that Mr.  
19          Levitan had assumed would be retired. And  
20          we have highlighted in yellow the particular  
21          units as they appear in this filing. So I  
22          would ask --

23                           CMSR. HARRINGTON: Mr. Patch, do  
24          you want to enter this as an exhibit?

1 MR. PATCH: Please.

2 CMSR. HARRINGTON: Any  
3 objections?

4 (No verbal response)

5 CMSR. HARRINGTON: Seeing none,  
6 this will be TransCanada 11?

7 THE CLERK: Eleven.

8 (The document, as described, was  
9 herewith marked as TransCanada 11  
10 for identification.)

11 Q. And maybe, Mr. Levitan, in light of your  
12 comments, you don't want to run through each  
13 of these. But I would represent to you that  
14 what I have highlighted on the hand-numbered  
15 pages are the portions of this particular  
16 filing by the ISO with the FERC that relate  
17 to the generating units that you referenced  
18 in Footnote 26. And I would further  
19 represent to you that, based on the math  
20 that I've done, which is -- or Mr. Hachey's  
21 actually done, which would probably give you  
22 more faith than if I did it, that for some  
23 summer ratings, 2,045 megawatt for the  
24 units, 1821 -- or 89 -- almost 90 percent of

1           the total capacity that you had identified  
2           in that footnote are included as capacity  
3           obligations through at least May of 2016. I  
4           would just ask you to accept that, subject  
5           to check. And I know you have an  
6           explanation that you've already given, at  
7           least in part. Maybe there's something  
8           else --

9       A.    (By Mr. Levitan) No, I'm happy to consider  
10           it, subject to check.

11       Q.    Thank you.

12       A.    (By Mr. Levitan) Of course, it's worth  
13           noting --

14       Q.    Go ahead.

15       A.    (By Mr. Levitan) -- that there are many  
16           components of the Forward Capacity Market  
17           that continue to be revisited by both FERC  
18           and stakeholders across the region. And it  
19           is the evolving nature of the restructuring  
20           of the Forward Capacity Market that  
21           certainly encourages incumbent generators to  
22           hang in there, wait for a better day. Some  
23           of the structural reforms presently before  
24           the ISO and various stakeholder committees

1           could not have been known with as much  
2           accuracy in 2010 as we know today.

3       Q.   Well, that may be true.   But I guess I would  
4           ask you to look back at the CRA study then,  
5           which was done, actually, five or six months  
6           later than the study you did.   This has been  
7           marked as an exhibit in this docket.   It's  
8           TransCanada -- sorry, but I don't recall the  
9           number.   But I'd ask you to look at Page 23  
10          of that particular document.   And underneath  
11          that chart, at the top it says, "The  
12          capacity retirements assumed to take place  
13          in 2010 and beyond based on accepted delist  
14          bids in the Forward Capacity Auctions  
15          include:   Somerset 6 and Salem Harbor 1 and  
16          2."

17                 So, in fact, the CRA study had a very  
18                 different approach than what you had.   And  
19                 that was done in 2010; was it not?

20       A.   (By Mr. Levitan) It was done in 2010.   But  
21           I'm not sufficiently acquainted with the  
22           study to really comment on the differences.

23                         CMSR. HARRINGTON:   Mr. Patch  
24           with regard to your exhibit, just a question

1 from labeling. This is on TransCanada 11.  
2 When you go to the first chart, the page there  
3 is labeled page, I guess that's one. For  
4 Bridgeport Harbor 2, you go across, and  
5 underneath the dates there's a series of zeros  
6 there --

7 MR. PATCH: That's right.

8 CMSR. HARRINGTON: And the next  
9 page you have other ones highlighted where  
10 there's -- well, in the case of Middletown, it  
11 starts with 236,000. What are those -- what's  
12 the units of those? 236,000 what for  
13 Middletown?

14 MR. PATCH: Kilowatts.

15 CMSR. HARRINGTON: Pardon?

16 MR. PATCH: Kilowatts.

17 CMSR. HARRINGTON: Is it  
18 kilowatts or -- so, that's the capacity?  
19 Okay.

20 So in the case of Bridgeport  
21 Harbor, you've highlighted where it's all  
22 zeros, and you're saying they do not have a  
23 capacity supply obligation?

24 MR. PATCH: That's correct. And

1           so that's among the 10 percent or so that we  
2           said of the ones in Footnote 26 that do not.  
3           You know, it adds up approximately to  
4           90 percent that do.

5                           CMSR. HARRINGTON:   So those are  
6           the ones that didn't clear the auction, in the  
7           case of Bridgeport Harbor 2?

8                           MR. PATCH:   That's right.

9   BY MR. PATCH:

10   Q.   And Mr. Levitan, or anybody else on the  
11       panel, just because they didn't clear the  
12       auction doesn't necessarily mean that  
13       they're going to retire; is that fair to  
14       say?

15   A.   (By Mr. Levitan) It's technically correct.  
16       But if a resource did not clear the auction  
17       and it's holding on by its fingertips and  
18       making virtually no profit from energy sales  
19       and ancillary sales, the loss of capacity  
20       revenue would no doubt discourage them from  
21       staying in the market.  I haven't met a  
22       resource that would be that benevolent year  
23       over year.  So its retirement would likely  
24       ensue.

1                   With respect to the Charles  
2                   River analysis for NPT, I note on the very  
3                   page that you referenced that they're  
4                   stating that the retirements are calculated  
5                   on a conservative basis. They have noted  
6                   that additional delist bids have been  
7                   rejected based on reliability concerns.  
8                   They note, if those concerns are resolved,  
9                   additional unit retirements are likely.  
10                  Specifically, permanent delist bids have  
11                  been filed for Salem Harbor 3 and 4 for  
12                  FCA 5. And they go on to say that a delist  
13                  was requested for Vermont Yankee, for which  
14                  the Vermont Legislature voted to deny  
15                  extension of an operating license was  
16                  rejected in FCA 4. We now know, of course,  
17                  Vermont Yankee did not clear FCA 6.

18                  So, there's a lot going on  
19                  here in the context of the study that they  
20                  were asked to perform. Presumably, they  
21                  wanted to state the energy price-suppression  
22                  benefit attributed to NPT on a conservative  
23                  basis. So they conservatively carried  
24                  forward resources that were likely to retire

1           just so as to avoid over-estimating the  
2           price-suppression effect. If we were doing  
3           this study, in all likelihood, we would have  
4           stated it conservatively as well.

5   Q.    I think I left up there on the Bench a copy  
6           of Order 25,061. And I would ask if Mr.  
7           Levitan or Dr. Carlton, either one of you,  
8           could take a look at Page 18. Turning to --

9   A.    (Mr. Large) I don't think we do. If you  
10          could be kind enough to share that with us?

11   Q.    We had two copies of the order, so --

12   A.    (By Mr. Large) We have 24,945... where would  
13          you like us to go?

14   Q.    Have you got it?

15   A.    (By Mr. Large) We do not.

16   A.    (By Mr. Levitan) Yes, we do.

17   A.    (Mr. Large) Oh, I'm sorry. We do have it.

18   Q.    We're at 25,061, Page 18. And on that  
19          page -- are you there?

20   A.    (By Mr. Levitan) Yes.

21   Q.    There are statements attributed to Steve  
22          Mullen, the assistant director of the  
23          Electric Division, where he said that with  
24          the end of the Forward Capacity Market



1 transition payments in May of 2010, lower  
2 future capacity prices resulting from the  
3 Forward Capacity Auctions may result in a  
4 widening gap between plant-related expenses  
5 and revenues for Newington Station. Do you  
6 see that?

7 A. Yes.

8 Q. Do you know how much Newington received for  
9 market transition payments in 2010?

10 A. (By Mr. Levitan) I do not have that  
11 information.

12 Q. Would you accept, subject to check, that it  
13 was \$20 million? And I think that's on the  
14 same Page 18. Maybe it's referenced above  
15 where I just read to you.

16 A. (By Mr. Levitan) I see the reference in the  
17 document.

18 Q. And so those are revenues that Newington no  
19 longer receives. I mean, they stopped in  
20 2010; is that right?

21 A. (By Mr. Levitan) To the best of my  
22 knowledge, revenues are received based on  
23 the FCA outcome from annual auction to  
24 annual auction.

1 Q. In your testimony at Page 18, you commented  
2 on Mr. Hachey's testimony about  
3 reconfiguration auctions. Do you recall  
4 that?

5 A. (By Mr. Levitan) Yes.

6 Q. And he had pointed out that you failed to  
7 take into account the fact that retiring the  
8 Newington Station could result in \$20- to  
9 \$30 million of capacity revenue if Newington  
10 were to shed its future capacity obligations  
11 in the reconfiguration auctions; correct?

12 A. (By Mr. Levitan) Yes.

13 Q. I'm going to show you a copy of a response  
14 to a data request. It's TransCanada Set 4,  
15 No. 12. And you're listed as the witness.

16 MR. PATCH: And I would ask that  
17 this be marked as the next exhibit for  
18 TransCanada.

19 CMSR. HARRINGTON: Mr. Patch,  
20 how much longer will your cross-examination  
21 go?

22 MR. PATCH: If I could just have  
23 one minute, I'll take a quick look at my  
24 questions.

1 CMSR. HARRINGTON: I'm just  
2 trying to get an idea because we're coming up  
3 on needing a break.

4 Any objection to entering this  
5 in evidence?

6 (No verbal response)

7 CMSR. HARRINGTON: So this will  
8 be TransCanada 12.

9 (The document, as described, was  
10 herewith marked as TransCanada 12  
11 for identification.)

12 MR. PATCH: My guess is about 15  
13 more minutes. Would you like to continue?

14 CMSR. HARRINGTON: Yeah, we'll  
15 continue for 15 minutes.

16 People should start thinking  
17 about whether they can stay later this  
18 afternoon, because we do have a lot to get  
19 through, and we need to get PSNH's redirect  
20 on some of the witnesses that won't be  
21 available tomorrow afternoon. So, maybe we  
22 can stay a little later than planned  
23 tonight.

24 Go ahead and continue, Mr.

1 Patch.

2 BY MR. PATCH:

3 Q. So, Mr. Levitan, I'd ask you to look at  
4 Section Roman X. And the question there was  
5 regarding LAI-8, an attachment to your  
6 rebuttal testimony. "Is it Mr. Levitan's  
7 opinion that his calculation of 'net  
8 retirement disbenefit' is an appropriate  
9 valuation of the retirement benefit or cost  
10 to PSNH customers of Newington?" And I'd  
11 ask that you read the response.

12 A. (By Mr. Levitan) The response goes as  
13 follows: "The purpose of the analysis  
14 presented in Exhibit LAI-8 was to estimate  
15 how under certain assumptions the net  
16 revenues of Newington shedding its capacity  
17 supply obligations would differ from the  
18 revenues received under the continued  
19 operation scenario. This is a simple rough  
20 estimate that shows significant retirement  
21 disbenefits compared to the continued  
22 operation scenario. LAI believes that this  
23 analysis is appropriate for the purpose of  
24 the CUO study. However, valuation of the

1 retirement benefit or cost to PSNH customers  
2 would probably require a more complex type  
3 of analysis that goes beyond the scope of  
4 this proceeding."

5 Q. And then Roman XII regarding that same  
6 LAI-18 [sic], "Does this exhibit account in  
7 any way to the ongoing costs of operating  
8 Newington?" And your response to that was?

9 A. (By Mr. Levitan) "No." The analysis that's  
10 presented in LAI-8 simply shows the net  
11 retirement benefit -- or disbenefit over the  
12 forecast period.

13 Q. So I'm just having a hard time understanding  
14 why you fault Mr. Hachey's analysis, when  
15 you didn't even include in your own  
16 back-of-the-envelope calculation the actual  
17 cost of the operating the facility.

18 A. (By Mr. Levitan) Mr. Hachey formulated an  
19 idealized scenario where there would be a  
20 continued sustained differential between the  
21 FCA price outcome and the reconfiguration  
22 auction prices of a dollar per kilowatt  
23 month. It makes no sense to me as an  
24 industry analyst to hold that differential

1 constant since the differential is driven  
2 entirely by the magnitude of the megawatt  
3 overhang in New England. You know from our  
4 modeling assumptions that we do consider  
5 additional DR entering the resource mix and  
6 additional imports from New York, although a  
7 decline in the level of imports due to the  
8 price differentials. But most importantly,  
9 we look at capacity attrition effects,  
10 whether it's 2100 megawatts or 2500  
11 megawatts or something less than that. It's  
12 baked into each scenario.

13 As the magnitude of the megawatt  
14 overhang dissipates, inevitably there would  
15 be upward pressure, and significant upward  
16 pressure on RA prices. So the benefits of  
17 shedding the capacity supply obligation  
18 would dissipate with that differential that  
19 narrows. If Mr. Hachey is right that,  
20 regardless of the magnitude of the megawatt  
21 overhang, RA prices will stay fixed at a  
22 dollar per kilowatt month, then the benefits  
23 to PSNH's customers associated with shedding  
24 the CSO would be large. But I don't expect

1           that outcome. And I think if you were to  
2           poll industry experts, most would agree it's  
3           overhang that drives the delta price-wise,  
4           and that is inevitably going to disappear.

5   Q.   On Pages 20 and 21 of your rebuttal  
6           testimony, you criticized Mr. Hachey's  
7           rejection of your price-suppression analysis  
8           saying that it was "misplaced"; correct?

9   A.   (By Mr. Levitan) Could you point me to a  
10          line, please?

11   Q.   Well, it's not one line. It's generally  
12          Pages 20 and 21. I think there's Q & A --

13   A.   (By Mr. Levitan) Yes. And I acknowledged in  
14          the testimony that the use of the word  
15          "suppression" in the context of capacity  
16          price benefits is a bit of a misnomer. But  
17          perhaps we'll get to that.

18   Q.   Yes. I mean, I was going to ask you that.  
19          Lines 33 to 34 on Page 21 is where you in  
20          fact said that; right?

21   A.   (By Mr. Levitan) Yes.

22   Q.   "Price suppression may have been a  
23          misnomer."

24                I'm going to show you copy of a data

1 request from TransCanada dated December 16,  
2 2011, and it has you as the witness.

3 CMSR. HARRINGTON: Any  
4 objections to entering this in the record?

5 (No verbal response)

6 CMSR. HARRINGTON: This is going  
7 to be TransCanada 12?

8 THE CLERK: Thirteen.

9 (The document, as described, was  
10 herewith marked as TransCanada 13  
11 for identification.)

12 CMSR. HARRINGTON: Oh, I'll get  
13 these straight one of these days.

14 "Monthly Average Fuel Price and RT Hub LMP."

15 Q. In your response, you say what you meant  
16 when you used the term "capacity price  
17 suppression benefit" was "the economic  
18 benefits that were redound to customers  
19 resulting from Newington remaining in  
20 service"; is that correct?

21 A. (By Mr. Levitan) Yes.

22 Q. And you go on to say that, just as sellers  
23 are entitled to consider portfolio benefits  
24 of their actions in the markets -- and I



1           just want to stop there and ask you what you  
2           meant by this. Are you saying that the  
3           sellers are entitled to withhold capacity  
4           from the market, that it's okay to  
5           manipulate the capacity market?

6    A.    (By Mr. Levitan) I'm wondering -- I'd ask  
7           for your forbearance for a second. Where  
8           are you reading from in the testimony?

9    Q.    Not the testimony. This is the response to  
10          TC 4-16. It's the second line. You say,  
11          "Just as sellers are entitled to consider  
12          portfolio benefits of their actions in the  
13          markets, buyers may account for the benefits  
14          resulting from their actions."

15   A.    (By Mr. Levitan) Well, there are a number of  
16          rigid safeguards that are built into the  
17          existing ISO market structure. The internal  
18          market monitor can and will take immediate  
19          action to ensure that sellers do not  
20          economically withhold, thus bringing the  
21          market to cause energy prices to deviate  
22          from a competitive outcome. So I would say,  
23          no, sellers are not entitled to withhold.  
24          They have an obligation to show up for work

1           and produce energy based on the marginal  
2           cost of producing that energy, subject to  
3           unit availability day in and day out.

4    Q.    So, if Newington Station were an uneconomic  
5           resource to PSNH's customers, then I guess  
6           what you're saying is ISO has enough rules  
7           in place that it wouldn't be allowed to  
8           operate? Is that what you're saying?

9    A.    (By Mr. Levitan) No, that's not what I said.

10   Q.    Okay. Then if it were an uneconomic  
11           resource, and PSNH continued operating it  
12           solely to lower capacity market prices, that  
13           would be fireside market manipulation; would  
14           it not?

15   A.    (By Mr. Levitan) No, it would not.

16   Q.    It would not? Why not?

17   A.    (By Mr. Levitan) Because first, the  
18           Newington Station is an incumbent resource.  
19           It's a price taker. It is not a price  
20           setter. It's been around for a long time.  
21           It would not be a manipulation of FCA  
22           outcome based on continued unit operation.  
23           What is meant in the study design and in the  
24           data response is that the hypothetical

1 retirement prematurely of the Newington  
2 Station could be followed by a run-up in  
3 capacity prices as a result of the slope of  
4 the supply curve. A more expensive resource  
5 would be expected to fill the gap  
6 attributable to the loss of 400 megawatts  
7 and, all other things being the same, would  
8 put upward pressure, not neutral or downward  
9 pressure, on capacity prices, the cost of  
10 which would redound to all ratepayers in the  
11 state of New Hampshire and, to a lesser  
12 extent, outside the state as well.

13 Q. Just a couple more questions, Mr. Levitan,  
14 with regard to the reconfiguration auction.

15 Have all of the FCM auctions thus far  
16 been significantly in excess of capacity? Is  
17 that fair to say?

18 A. (By Mr. Levitan) There has been a  
19 substantial amount of qualified resources  
20 that have cleared the ICR in each auction.

21 Q. So it sounds like the answer is yes.

22 A. (By Mr. Levitan) Yes.

23 Q. Do you believe that the next auction --  
24 which I think is the last one scheduled,

1       isn't it -- No. 7, do you believe that it  
2       will continue to be -- or to provide for  
3       excess capacity as the other six have?

4    A.    (By Mr. Levitan) There are at present major  
5       efforts among New England stakeholders and  
6       ISO in response to FERC's directive to sort  
7       out the defects in the capacity market here  
8       in New England. That effort is well  
9       underway. There are many potential outcomes  
10      that could potentially result in the removal  
11      of the floor in FCA 7, but more likely in  
12      FCA 8, many other structural changes that  
13      could have a profound effect on the future  
14      trajectory of capacity prices in the region.

15   Q.    Are you familiar with the FERC order that's  
16       specific to FCA 7?

17   A.    (By Mr. Levitan) No.

18   Q.    And with regard to Mr. Hachey's testimony on  
19       this, what assumptions did he make for  
20       reconfiguration auction pricing through  
21       FCA 7?

22   A.    (By Mr. Levitan) I believe that Mr. Hachey  
23       looked back at the reconfiguration auction  
24       price of a dollar per kilowatt month and

1           just held it constant over the forecast  
2           period and thus calculated the differential  
3           between the pro rated FCA price outcome  
4           versus the reconfiguration auction price of  
5           a dollar, assuming that as other capacity  
6           resources scramble into the reconfiguration  
7           auction, there would not be any upward  
8           pressure on RA prices. That was simplifying  
9           assumption on his part as a comment to the  
10          "reasonableness."

11       Q.    Thank you.

12                               MR. PATCH:   That's all the  
13                               questions I have.

14                           CMSR. HARRINGTON:   Okay. We'll  
15                           go off the record now and take a short recess.

16                               (Brief recess taken at 3:15 p.m., and  
17                               hearing resumed at 3:34 p.m.)

18                           CMSR. HARRINGTON:   Mr. Patch,  
19                           you're done your questioning?

20                           MR. PATCH:   Yes.

21                           CMSR. HARRINGTON:   So, next  
22                           would be Granite Ridge.

23                           MR. MOFFETT:   No questions, Mr.  
24                           Chairman. Thank you.

1 CMSR. HARRINGTON: Sierra Club.

2 MR. CUNNINGHAM: No questions,  
3 Mr. Chair.

4 CMSR. HARRINGTON: Conservation  
5 law Foundation.

6 MR. PERESS: Thank you,  
7 Commissioner. I do have just a few questions.  
8 Thank you.

9 CROSS-EXAMINATION

10 BY MR. PERESS:

11 Q. I'd like to refer Mr. Levitan to what's been  
12 marked PSNH Exhibit 10, which is the  
13 redacted copy of the modeling system  
14 overview, and specifically to Page 3.

15 A. (By Mr. Levitan) We're there.

16 Q. So, if I understand the natural gas forward  
17 pricing model, basically what the -- what  
18 Levitan -- what you did was to calculate an  
19 error to account for the differential in  
20 prices between Henry Hub and Dracut in your  
21 forward natural gas projection; is that  
22 right?

23 A. (By Mr. Levitan) Yes.

24 Q. And from the testimony that we heard

1 earlier, I understand that you did not  
2 disclose the historic data that you used to  
3 develop the basis spread adders which is  
4 what you used to forecast the gas prices at  
5 Dracut; is that correct?

6 A. (By Mr. Carlton) That's correct. That was  
7 part of the Bloomberg data. However, we did  
8 provide in a data response the 12 monthly  
9 percentage adders to make it easy for  
10 anybody to calculate from any data source  
11 what the add-on would be.

12 Q. I understand that. If I'm looking at the  
13 testimony correctly, you criticized Staff's  
14 estimation of those basis spreads using the  
15 Emera data; is that correct?

16 A. (By Mr. Carlton) The Emera invoice data was  
17 used for a different basis spread. So the  
18 one you were just discussing was the Henry  
19 Hub to Dracut Hub basis spread. And then,  
20 in addition, there's getting the gas to the  
21 Newington Station. And that is a basis  
22 spread between the Dracut price and the  
23 Emera invoice price on any of the days that  
24 PSNH makes gas purchases.

1 Q. Thank you. So if I understand this, the  
2 Henry Hub to Dracut spread is part of the  
3 cost projection that would go into your  
4 projection of the marginal cost at  
5 Newington; is that correct?

6 A. (By Mr. Carlton) That's correct.

7 Q. And it would go into your projection of  
8 energy prices for all of ISO-New England; is  
9 that correct?

10 A. (By Mr. Carlton) That's correct. We also  
11 use the Dracut Hub to drive the electric  
12 price model.

13 Q. And it would go to the dispatch projections  
14 that you are using for Newington; is that  
15 correct?

16 WITNESS LEVITAN: Commissioner,  
17 may we have a moment to confer?

18 CMSR. HARRINGTON: Sure.

19 A. (By Mr. Levitan) If you would forgive us for  
20 one moment, please.

21 (Off-the-record discussion among panel members.)

22 A. (By Mr. Carlton) Sorry. Could you repeat  
23 the last question?

24 Q. The Henry Hub to Dracut spread would also



1 ultimately dictate the dispatch scenarios  
2 for Newington -- or have a big impact on the  
3 dispatch scenarios for Newington; isn't that  
4 correct?

5 A. (By Mr. Carlton) Well, yes, the Henry Hub to  
6 Dracut scenario would affect the dispatch.

7 Q. So, isn't it true that the parties lack the  
8 data necessary to assess the validity of  
9 your gas price forecast at Dracut, since you  
10 didn't provide it?

11 A. (By Mr. Carlton) We did provide it.

12 Q. The underlying data, the historical data  
13 that you used.

14 A. (By Mr. Carlton) No, not the underlying  
15 data. But we provided the month-by-month  
16 forward price projection at Dracut.

17 Q. I understand that. But isn't it correct  
18 that the parties lacked the ability to  
19 assess the validity of that month-by-month  
20 price projection without that historic data?

21 A. (By Mr. Carlton) Again, it gets back to  
22 whether you think two different vendors'  
23 daily spot prices are largely substitutable.  
24 One can obtain, at relatively low cost, data

1 on a gas price series of historical data.

2 Q. But you've already testified that the spot  
3 prices you used were not provided; correct?

4 A. (By Mr. Carlton) That is correct.

5 Q. And did you also --

6 A. (By Mr. Levitan) And I also testified that,  
7 in my experience, the data sets for key  
8 pricing points across New England are  
9 strongly correlated at least -- or "highly  
10 strongly correlated" I think is the way I  
11 put it, at least in terms of the mid points,  
12 because different vendors are discussing,  
13 day in and day out with different brokers.  
14 There might be more wider or narrower bid  
15 spreads from vendor to vendor, but the  
16 midpoint are right on top of one another.

17 Q. And you testified previously that you  
18 decided to use vendor data that you could  
19 not disclose; right?

20 A. (By Mr. Carlton) We did not know that at the  
21 outset.

22 A. (By Mr. Levitan) We were following our  
23 normal corporate forecasting procedure,  
24 which has been used in a variety of major

1 state regulatory proceedings throughout the  
2 Mid-Atlantic, New York and New England for  
3 multiple client engagements. This had not  
4 come up before, so I did not think it  
5 through.

6 Q. And I think, Mr. Levitan, you testified that  
7 Mr. Hachey's review of your modeling  
8 assumptions and the modeling results -- I  
9 think you used the term "constructive  
10 criticism" -- uncovered defects in the study  
11 methodology; is that correct?

12 A. (By Mr. Levitan) Yes. We appreciated Mr.  
13 Hachey's criticisms and comments at the  
14 technical session.

15 Q. And on the basis of the defects that he  
16 uncovered, you recalculated the ratepayer  
17 value of Newington; is that correct?

18 A. (By Mr. Levitan) I don't know that it's fair  
19 to say that Mr. Hachey "uncovered" the  
20 defects. He simply galvanized us to take a  
21 fresh look at the structure of the model and  
22 the equations in the model in which was  
23 buried a problem, which once discovered was  
24 easy to fix.

1 Q. And after he "galvanized" you, the asset  
2 valuation for Newington went down quite  
3 considerably; is that correct?

4 A. (By Mr. Levitan) Yes, in relation to the  
5 expected value that was stated in the  
6 September CUO; but no, in the more narrow  
7 context of it leading to the same  
8 conclusion -- that being that the Newington  
9 Station remains clearly in the black with  
10 respect to customers' economic interests.

11 Q. But you recalculated -- strike that.

12 Exhibit G.12, which is Page 44 of the  
13 CUO, you recalculated what you term "net  
14 revenue requirement" and determined that it  
15 was less than half of what you had originally  
16 projected; is that correct? I'm sorry. The  
17 ratepayer benefit was less than half of what  
18 you had originally projected; is that correct?

19 A. (By Mr. Levitan) Yes.

20 Q. And this Dracut gas price is very critical  
21 to the asset valuation, isn't it?

22 A. (By Mr. Levitan) I would say no.

23 Q. So it's critical to the marginal cost. It's  
24 critical to energy prices. It's critical to

1 dispatch scenarios. But it's not critical  
2 to the valuation?

3 A. It's key to the valuation, but I wouldn't  
4 say "critical," because it is correlated  
5 with energy prices across all the key  
6 pricing points in New England. And it is  
7 therefore the single largest determinant of  
8 the LMP hour to hour in the day-ahead  
9 market, in the real-time market. But the  
10 action at Newington reflects an additional  
11 micro basis adder from the Dracut pricing  
12 point on the joint facility system to the  
13 Newington Station. And historically, that  
14 basis -- or micro basis adder has been very  
15 significant in the winter, in at least 2010,  
16 and significant in the non-winter months as  
17 well. That has a direct significant bearing  
18 on the dispatch and the net profitability of  
19 the Newington Station. But going forward,  
20 there are all sorts of reasons why looking  
21 back may not be a good indication of what  
22 Newington's fuel costs will be going  
23 forward.

24 Q. So I also believe you testified that you

1           conducted numerous forward gas price  
2           projections for distribution companies  
3           throughout New England; is that correct?

4    A.    (By Mr. Levitan) Yes.

5    Q.    And those were used by those distribution  
6           utilities for planning purposes? Is that  
7           why you did that?

8    A.    (By Mr. Levitan) They used them for a  
9           variety of purposes. Those purposes would  
10          include: For long-term resource planning,  
11          for short-term resource planning, for  
12          purposes of entering into long-term  
13          contracts for renewable energy sources, for  
14          purposes of evaluating the merit of  
15          conventional quick-start peaking resources  
16          in Connecticut. I could go on. But those  
17          are some of the first-order applications of  
18          the forecast.

19   Q.    And other than for the Continued Unit  
20          Operations Study, did Public Service Company  
21          of New Hampshire ask you to provide them  
22          with the forward gas price projection in  
23          association with this Integrated Resource  
24          Plan?

1 MS. KNOWLTON: I'm going to  
2 object, to the extent the question is asking  
3 about the IRP. Again, this panel is here to  
4 testify about the CUO.

5 CMSR. HARRINGTON: Mr. Peress.

6 MR. PERESS: Commissioner, in  
7 the first instance, we had agreed at the  
8 beginning of this hearing that there was not a  
9 black line as between the panels and the  
10 questioning. And the question that I asked  
11 related directly to the work that they did on  
12 the CUO. I'm just asking if it had any other  
13 uses for PSNH in the context of the plan. I  
14 think to suggest that the CUO can be  
15 completely separated from the plan is not a  
16 sound proposition as a matter of law. The CUO  
17 is part of the plan.

18 CMSR. HARRINGTON: I'll allow  
19 the question.

20 A. (By Mr. Carlton) Well, we provided PSNH with  
21 the monthly forward prices that were used in  
22 the CUO study. And exactly what they did  
23 with those prices, I'm not entirely aware.

24 MR. PERESS: I have no for

1 questions. Thank you, Commissioners.

2 CMSR. HARRINGTON: Okay. Thank  
3 you. Going to move on, if I can find my list  
4 here. New Hampshire Office of Energy and  
5 Planning?

6 MR. STELTZER: No questions.  
7 Thank you.

8 CMSR. HARRINGTON: OCA?

9 MS. HOLLENBERG: No questions.  
10 Thank you.

11 CMSR. HARRINGTON: Okay. Making  
12 progress. Redirect by Public Service?

13 MS. KNOWLTON: The Company does  
14 have limited redirect. I'm actually --  
15 there's one of the documents that was marked  
16 by one of the parties, by Trans -- I'm  
17 sorry -- by Staff with an excerpt of a  
18 document. And I'm waiting to -- I'm having a  
19 hand delivery. I'm waiting to receive the  
20 full document. So, either we could take a  
21 break on redirect, or if the Commissioners  
22 would allow me to conduct redirect after  
23 they've concluded their questions, and  
24 hopefully I will have received that document.



1 CMSR. HARRINGTON: We'll just  
2 start with our questions now and see if that  
3 works.

4 MS. KNOWLTON: Thank you.

5 CMSR. HARRINGTON: Commissioner  
6 Scott.

7 CMSR. SCOTT: Thank you.

8 INTERROGATORIES BY CMSR. SCOTT:

9 Q. And again to the panel, I will -- whoever  
10 feels most able to answer the question is  
11 fine with me.

12 On the study itself, on the modeling  
13 runs, just to ground everybody, if you could,  
14 the last modeling run you did, can you give me  
15 a time frame? When was that?

16 A. (By Mr. Carlton) Well, the last model run  
17 that was done was the one that Staff had  
18 requested, and that was done in the summer  
19 of 2011. I don't recall the exact date, but  
20 it's been provided in a data response.

21 MR. SPEIDEL: Yes, if I may  
22 interject as a matter of clarification. I  
23 believe that re-run was presented as part of  
24 Public Service of New Hampshire's response to

1           Technical Session Question 2, and that would  
2           have a cover letter of July 12th, 2011. And I  
3           believe that has been submitted as PSNH  
4           Exhibit 11.

5                           CMSR. SCOTT: Thank you for that  
6           clarification.

7   BY CMSR. SCOTT:

8   Q.   Obviously, since that time we've seen a  
9       continuing drop in gas prices and  
10      projections into the future. I was -- given  
11      your expertise, I was just curious, you  
12      know, given the one-year -- or almost a year  
13      time difference, have you -- is there  
14      anything in your conclusions that have  
15      significantly changed based on the passage  
16      of time and events?

17   A.   (By Mr. Carlton) With respect to the falling  
18      gas prices, I would say no. From recent  
19      look-ups of Mass. Hub and Henry Hub forward  
20      concerns, the spark spread based on those  
21      two indices is as large, if not larger than  
22      it has been in the past. There's often a  
23      relationship where lower natural gas prices,  
24      even though they bring down power prices,

1 result in a slight increase in the market  
2 rate.

3 Q. And the same question, I guess. It's tied  
4 together, so it's probably going to be the  
5 same answer, which is fine.

6 Again, in the past year, the capacity  
7 factor of the plant, has that changed your  
8 thinking as far as any outcomes for the study?

9 A. (By Mr. Carlton) We haven't evaluated it in  
10 that regard. We heard earlier that it was  
11 lower in 2011 than it was in 2010. But  
12 we're not continually trying to update the  
13 study with new information. But part of the  
14 purpose of running those capacity analyses  
15 is you're going to get a lot of year-to-year  
16 variability, which greatly affects the  
17 economics on a year-over-year basis of a  
18 peaker-type plant as opposed to a baseload  
19 plant. So you may get one or more years in  
20 a row of relatively low capacity prices  
21 based on current economic conditions  
22 followed by an increase for a while.

23 A. (By Mr. Levitan) Because the plant dispatch  
24 factor is in the single digits, it doesn't

1           take much in the way of extreme heat and  
2           humidity relative to more normal summertime  
3           conditions, or extreme cold, which we didn't  
4           have, for the most part, in the winter of  
5           2011-12. It was mild as well in the winter  
6           of 2010 and 2011. But had we experienced  
7           normal weather conditions, or colder than  
8           average conditions, or even the low  
9           likelihood of a cold snap, then the dispatch  
10          of the plant would have been significantly  
11          higher. Those weather conditions were not  
12          encountered.

13       Q.    Thank you. That's fair.

14                    You mentioned your background in some of  
15                    the work you've done for other commissions.  
16                    Have you ever done a CUO study before?

17       A.    (By Mr. Levitan) In the narrow context of  
18              its implementation here in New Hampshire,  
19              the answer is no. But for purposes of  
20              advising global investors, debt lenders and  
21              generation companies on the going-forward  
22              economics of purchasing a fleet of  
23              conventional resources, where many of the  
24              units -- or some of the units are old-style

1 oil and/or gas/steam turbine generators, we  
2 have exhausted the engineering and the  
3 economic and the transmission and fuel  
4 issues surrounding the potential repowering  
5 of the asset, or how long in certain  
6 capacity markets the resource could be  
7 expected to limp along. Those analyses have  
8 been undertaken for very prominent investors  
9 and generation owners throughout the U.S.

10 Q. And in those analyses, did you use similar  
11 methodologies?

12 A. (By Mr. Levitan) We have incorporated  
13 aspects of real option valuation, but not  
14 with the level of rigor practiced here for  
15 the CUO.

16 Q. And those -- again, I heard you earlier.  
17 You haven't done exactly the same thing for  
18 another commission. But in those analyses,  
19 did they require non-disclosure agreements?  
20 Is that a -- that's not a new thing for you.

21 A. (By Mr. Levitan) Yes, in all cases, they  
22 would have required non-disclosure  
23 agreements with the generation owner selling  
24 the unit or the fleet, as well, typically,

1 as required by the lender or the investor,  
2 to protect their commercial interests. So,  
3 firms like ours and, for that matter, other  
4 prominent engineering firms doing business  
5 in this room or elsewhere in North America,  
6 typically enter into those NDAs.

7 Q. On the valuation itself, could you describe  
8 comparisons you might have made? Obviously,  
9 there's cost of if the plant were to close,  
10 how would PSNH meet its customer needs  
11 without the plants. Can you describe a  
12 little bit the analysis you did on that end,  
13 you know, the use of long-term contracts or  
14 buying off the market, that type of thing?

15 A. (By Mr. Levitan) We focused on the unit's  
16 continued operation. The threshold question  
17 before us on a risk-adjusted basis when we  
18 stochastically sample a broad spectrum of  
19 possible market outcomes or probable market  
20 outcomes: Does this unit provide economic  
21 benefits to PSNH's customers? Given the  
22 uncertainty in the energy markets, given the  
23 uncertainty about retirements, given the  
24 uncertainty about the evolving capacity

1       markets in New England, we did our best to  
2       throw a lot of math and engineering  
3       economics at the problem. And we concluded,  
4       especially upon refinement of the initial  
5       results in April of 2011, that the unit is  
6       in the black, consistently in the black,  
7       year over year. And there are all sorts of  
8       reasons well documented in the study for  
9       that. And in calibrating the value of the  
10      product slate -- capacity, energy, ancillary  
11      services, the hedge value of the asset -- to  
12      kind of narrow the spectrum of financial  
13      outcomes in comparison to the out-of-pocket  
14      cash cost of continued Newington operations  
15      the conclusion was straightforward: It's in  
16      the black. So we did not then take the next  
17      step of postulating a world of shedding the  
18      capacity supply obligation and buying "loose  
19      juice" from the day-ahead and real-time  
20      market, or buying -- you know, entering into  
21      structured financial products with a  
22      credit-worthy counterpart doing business in  
23      New England to strip out the risk of serving  
24      PSNH's customers. Those questions could

1           have been answered, but were not because of  
2           the determination that the asset itself was  
3           in the black.

4       Q.    Okay.  Thank you.  And for Mr. Smagula.  
5            Earlier, when you were talking about the  
6            Newington Station, I think you made the  
7            comment about -- which I'm sure is true --  
8            long-term and short-term planning horizons.  
9            I was curious.  What do you use for -- is  
10           there some planning scheme you have?  What  
11           do you use for determining those horizons?

12      A.    (By Mr. Smagula) Well, we use a five-year  
13            horizon.  And we look at the emerging  
14            changes in regulation, we look at emerging a  
15            number of scenarios on fuel pricing, we look  
16            at our maintenance needs, we look at our  
17            capacity investments, and we factor in all  
18            of those drivers of capacity factor and  
19            costs to look at that.  It's a process we've  
20            been using for over 25 years in our company  
21            on all our facilities.  So we don't hire a  
22            consultant to do this for us.  We don't hire  
23            a service.  We don't subscribe to a number  
24            of databases in order to feed that.  It's



1           based on our experience with awareness of  
2           the New England marketplace.

3       Q.    Do you memorialize that somehow or --

4       A.    (By Mr. Smagula) Well, we develop budgets,  
5           and from our budgets we develop the pieces  
6           of equipment that we intend to maintain.  
7           And through our energy service rate filing,  
8           that gets reviewed by a third-party  
9           consultant on an annual basis to determine  
10          if our projected and current costs are  
11          reasonable, based on a lot of these  
12          appropriate variables.  So there are other  
13          regulatory PUC venues where opinions are  
14          based on that assessment and our work there.

15      A.    (By Mr. Levitan) Commissioner, would you  
16          permit me to amend my prior response?

17      Q.    Sure.  I'd rather do it now than later.

18      A.    (By Mr. Levitan) Sure.  Thank you.

19                In discussing the structure of the CUO,  
20           I hope I did not leave the Commission with  
21           the mistaken impression that the Company is  
22           not aggressively looking at its options, day  
23           in and day out, with respect to the  
24           Newington Station.  There are opportunities

1 through brokers and other credit-worthy  
2 counter-parties to enter into structured  
3 products to take the place of the block of  
4 energy that could be otherwise sourced from  
5 Newington when the strike price of a  
6 financial option or a physical option is  
7 attractive. So they're constantly  
8 systematically reviewing the relative merit  
9 of Newington dispatch versus calling on a  
10 plant as an option to meet that mid-range of  
11 peaking block of energy, particularly when  
12 there's a real chance in the real-time  
13 market that prices explode.

14 What I meant to say is that we did not  
15 run a scenario where we contemplated the  
16 complete absence of Newington as a mid-range  
17 or peaking option and having then to go to  
18 the marketplace to supplant lost energy  
19 production from the unit.

20 Q. That's helpful. And I think you've grasped  
21 some of my thought process, anyways. It  
22 wasn't whether -- and again, I'm  
23 paraphrasing you. You made the conclusion  
24 that this station's in the black. And

1 following beyond that, my question, I guess  
2 is, is there not a potential for another  
3 option, that even though the station's in  
4 the black, it would be even more profitable,  
5 if you will, or less cost to PSNH ratepayers  
6 than the station, if that makes sense?

7 A. (By Mr. Levitan) Well, the postulated,  
8 accelerated retirement of the station would,  
9 from a directional standpoint, cause  
10 capacity prices to run up. Exactly how far,  
11 no one knows for sure. It's mostly  
12 geometry. If you hold things constant, then  
13 the slope of the supply curve, given the  
14 vertical demand curve characteristic of the  
15 Forward Capacity Market, suggests it could  
16 run up a lot. Not for long, but certainly  
17 for a year or two.

18 As far as energy prices are concerned,  
19 the unit doesn't dispatch that much. So,  
20 for the most part, throughout the year the  
21 LMPs would be unaffected by the potential  
22 retirement of the unit. The problem is when  
23 the unit does operate is when you need it  
24 the most. And so the loss of 400 megawatts,

1       both with respect to operating reserves or  
2       in the day-ahead market, would have a --  
3       could have a significant adverse impact on  
4       the LMPs. So it would not be a major run-up  
5       in LMPs, but a fractional uptick in LMPs  
6       resulting from the loss of the station. And  
7       when you multiply that fractional uptick in  
8       LMPs times the entire load in the state,  
9       it's an adverse economic outcome for all.

10    Q.    Thank you.

11                           CMSR. SCOTT: That's all I have.

12                           CMSR. HARRINGTON: Thank you.

13    INTERROGATORIES BY MR. HARRINGTON:

14    Q.    Again I'll ask questions of whoever is most  
15       appropriate to answer those.

16               One question is, I guess, going back to  
17       TransCanada No. 9, which is the chart that was  
18       passed out, on Line 43 down there, I'm just  
19       making sure I'm reading this correctly. It  
20       talks about the average cost of fuel burned  
21       per kilowatt hour net generation. And for No.  
22       6 oil and No. 6 gas it's the same number.  
23       Does that mean the cost is the same to run the  
24       station on gas and oil?

1     A.     (By Mr. Smagula) Thank you for asking that  
2           question. After reflecting on the prior  
3           questions and the discussions, I looked at  
4           the sheet further during the break, and I  
5           realized there was discussion with  
6           representatives from Levitan, Line 42, which  
7           identifies the average cost of oil versus  
8           gas on a cents per million BTU -- or  
9           dollars-per-million-BTU basis. And if you  
10          look, they're very similar. What that means  
11          is that -- and I just didn't think of it  
12          instantaneously at the time -- is that the  
13          oil we have in the tanks at Newington  
14          Station were bought years ago. It's oil  
15          that is very low-priced, and that when we  
16          bid -- when we believe the unit will run, we  
17          obtain prices for tomorrow's natural gas,  
18          and we bid the unit out on gas and oil. But  
19          if the unit is unlikely to run, we don't bid  
20          in a gas price; we just have an oil price.  
21          And we mark the oil price up so that our  
22          customers don't just get reimbursed for the  
23          cost of the fuel, but in fact make a small  
24          margin. And since our oil price on the tank

1 is so low, the unit has been picked up to  
2 operate with a little more than we would  
3 normally expect. And that's what occurred  
4 in 2011, is the unit ran on oil because of  
5 its economic oil price it has on site.

6 Q. But presumably, eventually this cheap oil  
7 goes away because it gets all burned.

8 A. (By Mr. Smagula) Yes, but we only burn very  
9 modest amounts. But, yes, there's only a  
10 finite quantity of that.

11 Q. And how much is there left at the rate  
12 you're burning it now? Because I'm assuming  
13 this would be a fairly drastic increase from  
14 buying new oil.

15 A. (By Mr. Smagula) Yeah, I -- I'm not sure I  
16 have that value with me. But we have a few  
17 dozen days of full-load oil. So there's  
18 quite a bit of BTUs in oil still on site to  
19 cover us for any contingency.

20 CMSR. SCOTT: Sorry to go out of  
21 order. So, on the same Form 1 here, on 40,  
22 there's a zero price for No. 6. Is that  
23 because, again, it's historically already  
24 bought in the past? Is that what that means?

1                   WITNESS SMAGULA: Yes, that's  
2           the average delivered price during the year.  
3           We didn't buy any. We haven't bought oil for  
4           many years.

5 BY CMSR. HARRINGTON:

6 Q.    So, assuming continued operation, somewhere  
7       down the road here, if gas prices stay where  
8       they are, the No. 6 gas would come down and  
9       the No. 6 oil would go up substantially.

10 A.    (By Mr. Smagula) Well, the No. 6 oil would  
11       be the same, based on what we have in the  
12       tank, and the gas would come down. We would  
13       burn a small quantity of oil periodically to  
14       meet certain circumstances. But --

15 Q.    Okay.

16 A.    (By Mr. Smagula) -- gas is our fuel at this  
17       point, generally.

18 Q.    Okay. That makes sense.

19               Based on the study itself, I'm just  
20       trying to get some of the assumptions there.  
21       Now, what was used for the capacity factors  
22       and -- let me back up and start again.

23               You looked out over five years on this  
24       study, the next five years of operation at

1 Newington Station?

2 A. (By Mr. Carlton) The next 10 years. 2011  
3 through 2020.

4 Q. And what was the assumed capacity factor  
5 during that time?

6 A. (By Mr. Carlton) Well, we had no assumption,  
7 We ran the model for economic dispatch, and  
8 depending upon the size of the spark spread  
9 and its duration from scenario to scenario  
10 or year to year there was resulting in a  
11 capacity factor.

12 Q. Using that analysis, then, what was the  
13 resulting capacity factor for the plant?

14 A. (By Mr. Carlton) Well, it was typically in  
15 the single -- high single digits. But, you  
16 know, it varies a lot from scenario to  
17 scenario. If you look at the study,  
18 Page 49, Exhibit G.17, it provides some  
19 example of performance indicators. So in  
20 the top panel it gives what the overall  
21 average of the 250 scenarios is. And for  
22 2011, for example, it gives a capacity  
23 factor of 8 percent; in 2012, 7 percent.

24 Q. Okay. And those resulted by your projection



1       of -- well, I mean, I'm assuming the  
2       modeling was based on the cost of natural  
3       gas at Newington and then what you expected  
4       to be the economic dispatch price for what  
5       would be the marginal LMP that gets  
6       dispatched? You got to say "Yes" or "No."  
7       You can't shake you head.

8       A.    (By Mr. Carlton) Yes.

9       A.    (By Mr. Levitan) It's the relationship  
10       between the LMP, which is reflective of all  
11       the resources throughout ISO-New England,  
12       not just Newington, and the marginal cost of  
13       producing energy at full-load or part-load  
14       heat rate based on the use of natural gas  
15       only or oil only or some blend of oil and  
16       natural gas at the plant, adjusted, of  
17       course, for non-fuel-variable O & M. That's  
18       the dispatch arithmetic that dictates the  
19       output of the plant.

20       Q.    And as far as gas prices, what was the range  
21       you assumed? I mean, again, I assume that  
22       you had many different runs. But what was  
23       the range on that?

24       A.    (By Mr. Carlton) I don't know if in the

1 study -- I don't believe we presented a  
2 breakdown showing distribution of the  
3 prices. But we do have graphs of what the  
4 expected forward prices were. So, for Page  
5 40, it shows the monthly fuel prices.  
6 Again, given the volatilities that were  
7 assumed in the simulation analysis, there  
8 would be a sizable spread in prices. So it  
9 shows basically in 2011 that it was somewhat  
10 above \$5 in winter and below \$5 in the  
11 summer, looks like. And around that there  
12 may be a variation that would go down to the  
13 \$2 or \$3 range and up to \$10 or more. That  
14 variation may grow somewhat over time. So  
15 you have a growing -- what's called a  
16 "growing cone of uncertainty."

17 But as I said a little bit earlier, the  
18 level of the gas prices isn't a prime driver  
19 of the plant's economics, because gas is on  
20 the margin throughout ISO-New England much  
21 of the time, and therefore the power prices  
22 tend to go up and down in tandem and the  
23 market heat rates are relatively stable.  
24 They'll vary a little bit, depending upon

1       the fuel price scenario, but not very much.  
2       So, as Mr. Levitan said, another secondary  
3       important driver is the size of the micro  
4       basis spread to get the gas to the power  
5       plant.

6   Q.   Okay.  So, basically what you're saying,  
7       because the economic dispatch is basically  
8       based on the price of gas, and the price of  
9       gas is built into the price that Newington  
10      would bid in at, that they sort of moved  
11      together.  So, barring something really  
12      wild, a fairly small movement or even fairly  
13      good-size movement in the price of gas won't  
14      really affect the capacity very much; the  
15      dispatching would be about the same.

16  A.   (By Mr. Carlton) That's a good assessment.

17  A.   (By Mr. Levitan) With one exception, and  
18      that is, occasionally New England's  
19      pipelines experience, on a coincident basis,  
20      deliverability constraints due to when cold  
21      snaps occur.  And it has been experienced.  
22      And when cold snaps occur, gas in the  
23      day-ahead market and gas in the real-time  
24      market skyrocket and get blown out of

1 anything recognizable the other 355 or 360  
2 days of the year. On those very days, the  
3 plant would be expected to burn residual  
4 fuel oil, much less costly than gas, as a  
5 raw material for power introduction. So  
6 with that exception in mind, your statement  
7 is correct.

8 Q. And on the -- we've heard that they buy  
9 large quantities of oil well in advance,  
10 which turned out to be pretty economic this  
11 time. How is the gas purchased? Do you buy  
12 it in the spot market or --

13 A. (By Mr. Smagula) We buy gas on a daily  
14 market and day-ahead market -- we buy gas on  
15 the day-ahead market.

16 Q. And just trying to get back to some of the  
17 other things that got built into more or  
18 less assumptions. You stated -- and we  
19 don't have to go over it again for many  
20 reasons -- why you didn't contain Northern  
21 Pass as a scenario of what happens if  
22 Northern Pass gets built. And the same  
23 thing on what happens if there were new  
24 environmental regulations, such as a cooling

1 tower. So if one of those was to come to  
2 pass, would that -- would your analysis be  
3 worth anything, or would it have to be  
4 redone, if either Northern Pass or whatever  
5 it was, like a \$120 million cooling tower  
6 was required?

7 A. (By Mr. Levitan) It's our opinion that at  
8 such time that it's known with reasonable  
9 certainty that screens or a cooling tower is  
10 required would be exactly the right time to  
11 re-run the financial model to figure out  
12 whether that incremental capital expenditure  
13 is, counter-balanced by the value of the  
14 products. It's not so simple as just to  
15 infer from the existing work, because to the  
16 extent that Newington, in this environment,  
17 has a 316(b) compliance problem, then it's  
18 probable that many other resources in  
19 sensitive estuaries or rivers with some  
20 exposure would be likewise challenged to  
21 make that investment, particularly since the  
22 owners of those resources, for the most  
23 part, are not financially healthy generation  
24 firms. So you can't simply conclude that in

1       the current marketplace, that our applicable  
2       forecast of capacity and energy prices would  
3       be of equal relevance at such a point in  
4       time that Newington faces a 316(b) CapEx of  
5       magnitude that was discussed this morning.

6    Q.   Okay.  You said -- if I get what you're  
7       saying, if and when that would happen, you  
8       would have to re-look at it.  But it also  
9       could substantially change market conditions  
10      as well because of other plants having to  
11      get the same type of compliance, which would  
12      tend to drive up prices.

13   A.   (By Mr. Levitan) Yes, yes.  And to have  
14      postulated the occurrence of heavy CapEx  
15      spent, for example, a 316(b) compliance in  
16      2016 or 2017 would have introduced financial  
17      skewing of the results, which, in our  
18      opinion, could conclude falsely that the  
19      right decision is to retire Newington well  
20      ahead of schedule.  Why give up the free  
21      option that PSNH's customers currently enjoy  
22      based on a roll of the dice.  It's better,  
23      we believe, to wait until we understand the  
24      applicability and timing and then

1 re-calibrate.

2 Q. Okay. Thank you.

3 The question on maintenance, from what we  
4 heard earlier, the capacity of the plant has  
5 been going down substantially over the past  
6 few years; so that, rather than running for  
7 longer periods of time, it's now running  
8 shorter periods of times and probably maybe  
9 starting up and shutting down more often. How  
10 is this type of running it basically only as a  
11 peaker now -- what is the effect of that long  
12 term, do you expect, on your maintenance  
13 budget?

14 A. (By Mr. Smagula) We don't think it will  
15 cause our maintenance budget to increase.  
16 We have been in this operating mode now and  
17 have been experiencing it for a number of  
18 years. And we've developed certain  
19 processes and procedures in order make sure  
20 we exercise equipment that would otherwise  
21 be idle. And we go through an occasional  
22 warm-up of the boilers, get the control  
23 systems operational, rotate some of our  
24 large pieces of equipment. So we've

1 developed practices at Newington Station in  
2 order to make it reliable and not affect its  
3 efficiency and so on. And we've learned  
4 from other sister units in New England as to  
5 what their techniques and practices are. So  
6 there are many units that can be identified  
7 in the 4- to 600-megawatt range that have a  
8 similar position in ISO-New England. One In  
9 Four(?), of which we are a part owner to, we  
10 get information on their approach. And we  
11 try to also learn what other similar units  
12 are doing. So we don't see that as creating  
13 any incremental cost. As a matter of fact,  
14 as I indicated earlier, our expense budget  
15 has dropped over the last few years by about  
16 a million dollars also.

17 Q. I was more referring to the aging factor  
18 with -- you know, five hours of start-up is  
19 usually equivalent to, I don't know, using a  
20 number of 10, 20, 30 hours of operation when  
21 it comes towards preventative maintenance  
22 requiring tear-downs and just general aging  
23 of the equipment.

24 A. (By Mr. Smagula) With the good condition of



1       the unit and the investments we made over  
2       the last six to eight years -- and I won't  
3       go through the list of those -- the unit is  
4       in very good condition, and that the  
5       incremental cold starts, wear and tear is  
6       very moderate. It's very low. And we feel  
7       as though we monitor our equipment pretty  
8       aggressively now on our oil analysis and  
9       other issues, on temperatures on start-up,  
10      make sure they're in proper condition. So  
11      we haven't seen any degradation and don't  
12      expect to with the number of starts we  
13      envision.

14    Q.   And you mentioned earlier that there was a  
15       possibility of making a modification to one  
16       of the boilers?

17    A.   (By Mr. Smagula) One of the auxiliary  
18       boilers. We have two light oil-fired --  
19       No. 2-fired boilers which provide heat to  
20       the facility. And one of those units we're  
21       considering may require some maintenance  
22       over the next few years. We were looking  
23       into whether we'll do that maintenance, and  
24       if we do, how. So we're looking whenever

1           there's an opportunity such as that. We  
2           also look at what's the alternative we have  
3           to replace that piece of equipment. We do  
4           that with any pump or valve. We're looking  
5           at the possibility of replacing it with a  
6           boiler that would burn natural gas. And  
7           that's all.

8    Q.    Okay. So, presumably there would be savings  
9           there from not burning oil.

10   A.    (By Mr. Smagula) That's correct.

11   Q.    And there was a lot of discussion on the  
12           Forward Capacity Market, which I regret to  
13           say I actually understood. I spent too much  
14           time doing that.

15                   What would be the effect OF \$1 FCA  
16           clearing price, say in FCA 7 or 8, on  
17           Newington?

18   A.    (By Mr. Levitan) It would be bad.

19   Q.    How bad is my question? Would that put it,  
20           at least for that year, out of the black and  
21           into the red?

22   A.    (By Mr. Levitan) I hesitate to guess without  
23           taking a moment to properly consider. But  
24           it would be a material adverse change in the

1 project's cash flows and could place the  
2 resource in that one year "underwater," so  
3 to speak.

4 But what is more important than any  
5 one-year snapshot of the cash flows that  
6 deteriorate for incumbent generators across  
7 the region is the staying power of those  
8 resources to stay in the resource mix. This  
9 gets complicated quickly. But the removal  
10 of the FCA floor -- and I recognize that  
11 FERC is acquiescent with respect to its  
12 extension one more year. But the removal of  
13 the FCA floor will definitely impair the  
14 financial prospects of a number of incumbent  
15 generation owners that burn only residual  
16 fuel oil and are facing CapEx, as well as  
17 units that are both dual-fuel-capable, but  
18 using old-style steam-turbine generators  
19 from the '50s, '60s and '70s.

20 I'm sure, Commissioner, that you know  
21 from your active involvement with ISO and  
22 other stakeholder groups, that the ISO has  
23 expressed great concern about the loss of  
24 these resources. And one good reason for

1       that concern is simply as a hedge against  
2       pipeline deliverability constraints which  
3       could bring the region to its knees during  
4       cold snaps. Unlike PJM or New York ISO,  
5       which has greatly benefited by major  
6       infrastructure spent in pipeline and  
7       gathering systems to accommodate shale gas  
8       production, here in New England, we don't  
9       have that luxury. We are looking at more or  
10      less the same pipeline configuration. And  
11      this is really important because almost all  
12      of the other plants that have been  
13      identified as candidates for attrition in  
14      the ISO studies, as well as many of the  
15      consultant studies referenced here today,  
16      and that we've used before and that we've  
17      been responsible for as well, these are  
18      resources that are located "behind the city  
19      gates." They're served by all these cities.  
20      There's very little likelihood during cold  
21      snaps, or even moderate winter conditions,  
22      that gas would be deliverable to these  
23      plants, which is exactly why they are more  
24      likely to be the first units to retire.

1           Only Newington sits directly connected  
2           to PNGTS. There aren't any other old-style  
3           STGs, to the best of my knowledge, that are  
4           directly connected to interstate pipelines.  
5           That is a very important reliability  
6           consideration that bodes well for continued  
7           benefits to PSNH's customers, as well as  
8           those outside the region -- outside the  
9           state.

10    Q.   And again on this, what did you look at then  
11       for forward capacity prices? Was there a  
12       range there as well? How did that model --

13    A.   (By Mr. Levitan) We calculated them, and  
14       they are revealed in the study. And then  
15       there are a number of data responses on  
16       this. If you bear with me for a moment...  
17       If you would please turn to the CUO study.

18    Q.   This is the original, the first one?

19    A.   (By Mr. Levitan) Actually, it wouldn't make  
20       a difference because it didn't change. But  
21       if you'd be kind enough to turn, please, to  
22       Page 37 of the revised study issued in April  
23       of 2011. Here you will see the three  
24       distinct cases that we were responsible for

1 in formulating. And you'll see that 2015  
2 has very little separation among the three  
3 cases. But starting in 2016 --

4 Q. Excuse me for one second. When did you  
5 assume the floor would disappear?

6 A. (By Mr. Levitan) We assumed the floor would  
7 disappear in delivery year 2016 in this  
8 analysis. And I think that is one of the  
9 key reasons why there's differentiation  
10 between the high and low case in 2016.

11 The basic reasoning for the  
12 differentiation in the mid case, the high  
13 case and the low case is provided on Page 38  
14 of the CUO. Simply put: The mid-range  
15 forecast reflects an assumption of about  
16 2100 megawatts of retired capacity through  
17 2016 in response to more restrictive  
18 environmental standards. And it also calls  
19 for the phase-down of imports from NYISO  
20 across the 345 lines. In the high case,  
21 we've assumed that the prices escalate back  
22 three years in the forecast period. Here,  
23 the thought was that the region, in response  
24 to FERC, would implement reforms in response

1 to the anticipation concern, the concern  
2 that EDCs and states exercise monopsony  
3 power to artificially depress capacity --

4 Q. The other market effect.

5 A. (By Mr. Levitan) Yes. And we know from the  
6 PJM that the implementation of the Minimum  
7 Offer Price Rule now has direct relevance  
8 here in New England. Whether it's an  
9 Alternative Price Rule or a Minimum Offer  
10 Price Rule, we're contemplating here  
11 outcomes in 2018, '19 and '20, where there  
12 are adjustments made to the FCA price to  
13 account for what could potentially be the  
14 addition of new conventional resources prior  
15 to the need date. So that's reflected in  
16 the high price. And it also accounts for  
17 the lessening of imports from New York to  
18 New England in response to capacity needs in  
19 New York on Long Island, and to a lesser  
20 extent, the rest of the state. We did not  
21 contemplate the attrition or the loss point  
22 2 or 3 in doing --

23 Q. I'm sorry. You did not --

24 A. (By Mr. Levitan) We did not --

1 Q. -- participate in --

2 A. (By Mr. Levitan) Right, but we did consider  
3 a reduction in exports from NYISO through a  
4 variety -- through a number of import notes  
5 in Connecticut.

6 In the low case, we have contemplated  
7 some of the same assumptions that you would  
8 normally expect to see that are the inferences  
9 in the high case. In the low case, 200  
10 megawatts of imports persist over the  
11 forecast period for NYISO. We've postulated  
12 the retirement of the West Springfield  
13 facility being delayed one year. We  
14 somewhat arbitrarily blended in an  
15 additional 200 megs of DR in the capacity  
16 mix, all of which helps to sustain a lower  
17 trajectory going forward.

18 In handicapping these scenarios, we  
19 acknowledge that there's a lot of our N  
20 science in this. And we don't know with  
21 great confidence what's going to happen,  
22 which is exactly why the resource does  
23 constitute a hedge against the uncertain  
24 capacity price outcomes in the region. So



1 we have said that 50 percent of the sampled  
2 outcomes are either along the low-price  
3 trajectory or the high-price trajectory; so,  
4 50 percent, therefore, on the mid-case  
5 trajectory as well. And that then gives us  
6 the primary financial drivers on the  
7 non-energy part that drives these results.

8 Q. Okay. Thank you. And one last question,  
9 which I think I know the answer to, about  
10 your discussion on Northern Pass. And you  
11 didn't consider that even being built as  
12 part of your study. I assume the same thing  
13 goes for the Northern Energy Link, the  
14 proposal by National Grid to come down from  
15 Canada -- Canadian Power -- Wind power from  
16 Maine in the HVDC line coming down to --

17 A. (By Mr. Levitan) With all due respect, I  
18 don't want to leave the Commission with the  
19 view that we just tossed out NPT and didn't  
20 consider it being built. Again, this goes  
21 back to the reasons we did the study the way  
22 we did it in the first place. Had we, for  
23 the sake of discussion, incorporated a  
24 1200-megawatt HVDC interface injecting that

1           quantity of energy in the neighborhood, it  
2           could and perhaps would have had a clear  
3           economic depressant effect on Newington's  
4           future. Why skew the financial results for  
5           something that may or may not happen? If it  
6           does happen, it's highly likely to happen  
7           not before 2016, and perhaps later.

8       Q.    I understand. I'm not questioning your  
9           logic. I just want to say the same logic  
10          applies to other projects that are  
11          speculative at this time.

12     A.    (By Mr. Levitan) That's correct.

13     Q.    Okay. That's all the questions I had.

14     A.    (By Mr. Levitan) And as well as retirement.

15                       CMSR. HARRINGTON: Go ahead,  
16           Cmsr. Scott.

17                       CMSR. SCOTT: One, hopefully,  
18           final question.

19     INTERROGATORIES BY MR. SCOTT:

20     Q.    Have you done any -- on your analysis  
21           itself, have you done any -- I'm sure you've  
22           done some kind of sensitivity analysis.  
23           What I'm interested in, are there -- can you  
24           identify critical components that drive the

1       analysis more than anything else? You know,  
2       is it the price of gas or -- you know, are  
3       there certain things that your client, PSNH,  
4       you know, ultimately you'd want to tell  
5       them, Look, if this changes significantly,  
6       you need to pay attention to this?

7     A.    (By Mr. Levitan) Well, sure. One key driver  
8       would be the re-tooling of New England's  
9       FCM, which would result in significant  
10       changes against our baseline assumptions.  
11       Another would be the potential applicability  
12       of onerous environmental CapEx. You've  
13       heard Mr. Smagula address the firm's view on  
14       both the uncertainty of those regulations  
15       and potential timing for implementation.  
16       If, for whatever reason, those requirements  
17       visit PSNH with respect to each of the  
18       EPA-related requirements, that would be a  
19       time to re-run the model. And a third  
20       driver would be accelerated attrition  
21       effects across the resource mix, or a  
22       deceleration of the plant retirement  
23       relative to the timing and quantity that we  
24       forecast. So we'd want to look at that,

1           since that affects the operating revenues  
2           driving capacity of sales, the key driver of  
3           the unit's outlook.

4           You want to add to that list?

5   Q.   Before you go on, could you clarify the last  
6       statement? So, to paraphrase, if less  
7       plants retire than you predict, that could  
8       be a negative impact? Is that what you --

9   A.   (By Mr. Levitan) If, for the sake of  
10       argument, the floor is extended year over  
11       year, or there are other modifications to  
12       the demand curve slope or the supply curve,  
13       that makes it easier for old-style resources  
14       to hang in there. We would need to account  
15       for that and refresh the economic  
16       determination in an environment where some  
17       of the capacity price trajectory shown in  
18       the study may be materially lower.

19   Q.   Thank you for clarifying.

20   A.   (By Mr. Carlton) I don't think I have  
21       anything else to add to the matter.

22                   CMSR. SCOTT: Thank you.

23                   CMSR. HARRINGTON: Okay. So  
24       that's going to be it for this afternoon.

1 We'll go off the record now, and we will  
2 adjourn and reopen tomorrow at 8:30 and make  
3 sure we can get through this first thing in  
4 the morning. I'd like to have an 8:30 actual  
5 start, not an 8:30 mulling. So, try for 8:30  
6 in the morning. The meeting is adjourned.

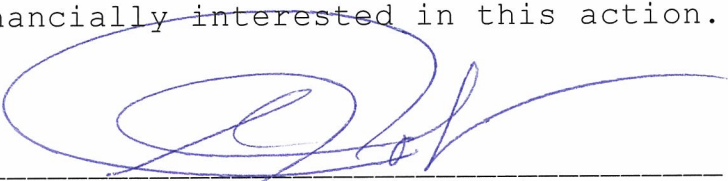
7 (Whereupon the AFTERNOON SESSION of the  
8 hearing was adjourned at 4:34 p.m.)  
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[WITNESSES: LARGE|LEVITAN|CARLTON|SMAGULA|TILLOTSON]

**C E R T I F I C A T E**

I, Susan J. Robidas, a Licensed  
Shorthand Court Reporter and Notary Public  
of the State of New Hampshire, do hereby  
certify that the foregoing is a true and  
accurate transcript of my stenographic  
notes of these proceedings taken at the  
place and on the date hereinbefore set  
forth, to the best of my skill and ability  
under the conditions present at the time.

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



---

Susan J. Robidas, LCR/RPR  
Licensed Shorthand Court Reporter  
Registered Professional Reporter  
N.H. LCR No. 44 (RSA 310-A:173)