# In The Matter Of: <br> DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan 

## DAY 4-AFTERNOON SESSION ONLY

May 9, 2012

SUSAN J. ROBIDAS, LCR (603) 622-0068 shortrptr@comcast.net



Original File 050912DE10261Day4PMsession.txt
Min-U-Script ${ }^{\circledR}$ with Word Index

Page 3

## STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

May 9, $2012-1: 18$ P.M.
Concord, New Hampshire
AFTERNOON SESSION ONLY

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

PRESENT:
Chairman Amy L. Ignatius, Presiding
Commissioner Michael D. Harrington
Commissioner Robert R. Scott
Sandy Deno, Clerk
APPEARANCES :
Reptg. Public Service Co. of N.H.
Gerald M. Eaton, Esq.
Sarah B. Knowlton, Esq.
Reptg. TransCanada:
Douglas L. Patch, Esq. (Orr \& Reno)
Reptg. Granite Ridge Energy:
Reptg. Granite Ridge Energy:
Maureen D. Smith, Esq. (Orr \& Reno)
Reptg. N.H. Sierra Club:
Arthur B. Cunningham, Esq.
Reptg. Conservation Law Foundation: N. Jonathan Peress, Esq.

COURT REPORTER: SUSAN J. ROBIDAS, N.H. LCR NO. 44
\{DE 10-261\} [AFTERNOON SESSION ONLY] \{05-09-12\}

|  |
| :--- |
| Page 2 |

APPEARANCES: ( $C$ o $n t i n u$ $t d)$

Reptg. Office of Energy \& Planning:
Eric Steltzer
Reptg. Residential Ratepayers:
Rorie E. P. Hollenberg, Esq.
Kenneth E. Traum
Office of Consumer Advocate
Reptg. PUC Staff:
Alexander F. Speidel, Esq.
George R. McCluskey, Electric Division
Edward Arnold (Jacobs Consultancy)


Page 2



| [WITNESS: Hachey] Page 13 | [WITNESS: Hachey] Page 15 |
| :---: | :---: |
| 1 Q. So, yesterday, you may remember, we approved | 1 that. When they're sitting there with 15 to |
| 2 Record Request No. 4 for energy service rate | 220 million positives in the future, |
| 3 numbers for calendar year 2011. If that's | 3 negatives in the history, something isn't |
| 4 fulfilled, will that provide the data tha | 4 right. You got to be able to explain how |
| 5 you think is needed? | 5 you go from here to here. I put myself |
| 6 A. Yes. | 6 often in the -- if I'm making a presentation |
| 7 Q. Thank you. | 7 upon management, what's the first thing I |
| 8 A. Yes, we already have -- by virtue of the | 8 got to explain? How these are negatives and |
| 9 FERC Form 1, we got half the data. I was | 9 suddenly these are positives, big positives. |
| 10 looking to find if there was any way that I | 10 So, beyond how to explain why there's so |
| 11 actually had all of the data from any of the | 11 many changes, I don't know. But that one |
| 12 filings or anything that PSNH may have made | 12 troubled me a lot, and that's why we got |
| 13 with the FERC Form 1. I got part of it, but | 13 into the docket. |
| 14 not the rest of it. And it's very elemental | 14 Q. Thank you. |
| 15 data. For example: It's really the sum of | 15 CMSR. SCOTT: That's all I have. |
| 16 the settlements for the calendar year. And | 16 CHAIRMAN IGNATIUS: Thank you. |
| 17 you would have had the sum of the | 17 No other questions? Any redirect from Mr. |
| 18 settlements at the very -- at the conclusion | 18 Patch? |
| 19 of every month, you'd have the prior month's | 19 MR. PATCH: Thank you. |
| 20 settlement within a week. So it's something | 20 REDIRECT EXAMINATION |
| 21 that's very readily obtainable. | 21 BY MR. PATCH: |
| 22 Q. Okay. Also, yesterday's panel indicated | 22 Q. Mr. Hachey, you recall that Ms. Knowlton |
| 23 multiple times how useful your comments | 23 asked you a question about whether it was |
| 24 were, if I remember correctly. To my count, | 24 your recommendation to the Commission in |
| [WITNESS: Hachey] Page 14 | [WITNESS: Hachey] Page 16 |
| 1 there's, I think, four revisions, to my | 1 this docket to retire Newington Station, and |
| 2 count, if I include PSNH 1, PSNH 2, PSNH 12, | 2 your answer to that was "No." I guess I'd |
| 3 and then the mark-ups we got yesterday on | 3 like to follow up and say, then what is your |
| 4 PSNH 12. So, by my count, that would be | 4 recommendation to the Commission in this |
| 5 four revisions to the CUO. Would you -- I'd | 5 docket? |
| 6 like your opinion on why you think there | 6 A. Sure. |
| 7 were so many changes to that document and | 7 CHAIRMAN IGNATIUS: Before you |
| 8 the calculations involved. | 8 answer the question, that strikes me as a -- |
| 9 A. Well, I don't know. I was -- we went | 9 his testimony is in. And is there -- I don't |
| 10 looking around for a docket to get into when | 10 understand why just asking him to describe his |
| 11 we saw this docket. But I looked at the | 11 recommendations is appropriate on redirect. |
| 12 study and went right to the net energy | 12 Is there something specific about Ms. |
| 13 benefits. And I looked at the historical | 13 Knowlton's question that needs to be |
| 14 benefits and I looked at the projected | 14 clarified? |
| 15 benefits. And I know a little bit about | 15 MR. PATCH: I just thought it |
| 16 power plants' relative efficiencies in New | 16 would be good to clear up for the record |
| 17 England, and you can't get there from here. | 17 exactly what his recommendation is. If the |
| 18 So that report never should have made the | 18 Commission, you know, knows that from his |
| 19 light of day, based on the way it was | 19 testimony, I'm happy to move on. But I just |
| 20 drafted the first time. So, after that, I | 20 wanted to make sure that you were clear on |
| 21 can't explain. We tried to signal as fast | 21 what his recommendation is. That was my |
| 22 as we could in Interrogatory Set 1, | 22 reason for asking. |
| 23 Interrogatory No. 2, look at the negatives | 23 (Off-the-record discussion among Commissioners.) |
| 24 in history. I couldn't do much more than | 24 CHAIRMAN IGNATIUS: All right. |


| [WITNESS: Hachey] Page 17 | [WITNESS: Hachey] Page 19 |
| :---: | :---: |
| 1 We'll allow a very brief response to the | 1 her questions seemed to be that it's somehow |
| 2 questio | 2 to TransCanada's benefit if they keep the |
| 3 A. I've got my marching orde | 3 costs down. Is that in fact the case? |
| 4 Very brief, on Page 2 of 13, beginning | 4 Wouldn't it be to TransCanada's benefit if |
| 5 with Line 51, my principal conclusion | 5 their costs were higher, if they spent a |
| 6 that the study must be redone by | 6 billion dollars on Merrimack Station or |
| 7 analytical firm that is completely | something else; as long as all those costs |
| 8 independent of PSNH. | 8 are included in the ES rate, then that would |
| 9 BY MR. PATC | create a greater margin between the ES rate |
| 10 Q. Ms. Knowlton asked you a number of questions | 10 and what you could sell power to customers |
| 11 related to the corrections that I believe | 11 on the market |
| 12 were dated July 8th of 2011. And I think | 12 A. Yeah. If you look at our activities in this |
| 13 you had freely admitted that you hadn't | 13 state, other states, I don't think that |
| 14 reviewed those when you prepared MEH | 14 you'll find many instances where we're |
| 15 Exhibit 1, you know, the attachment to your | 15 trying to artificially push anybody's costs |
| 16 July 27th, 2011 testimony. Would you be | 16 up. In fact, I can virtually guarantee you |
| 17 willing to update MEH Exhibit 1 with those | 17 that in every instance we've been looking |
| 18 revised numbers if the Commission were to | 18 for efficient markets, whatever they may be. |
| 19 find it useful? | 19 So if we were interested in pushing PSNH's |
| 20 A. Absolutely. | 20 costs up, we would have supported the |
| 21 MR. PATCH: I guess I'll leave | 21 construction of the scrubber. If we were |
| 22 that to the Commission as to whether you think | 22 interested in pushing all sorts of other |
| 23 that would be helpful to have that done | 23 people's costs up, we wouldn't have been |
| 24 CHAIRMAN IGNATIUS: I think that | 24 opposed to Cape Wind in Massachusetts. |
| [WITNESS: Hachey] Page 18 | [WITNESS: Hachey] Page 20 |
| 1 would be good. Should we reserve a | 1 That's been the -- what we're looking for |
| 2 TransCanada 16 | 2 are efficient, competitive markets. And I |
| 3 THE CLERK: That's correct. | 3 have no interest in artificially pushing |
| 4 CHAIRMAN IGNATIUS: -- for that? | 4 anyone's costs up. |
| 5 (The data request, as described, was | 5 MR. PATCH: That's all the |
| 6 herewith reserved as TransCanada 16 | questions. Thank you. |
| 7 for identification.) | CHAIRMAN IGNATIUS: Thank you. |
| 8 Q. Mr. Hachey, Ms. Knowlton asked you some | 8 Thank you, Mr. Hachey. You're excused. |
| 9 questions regarding the ES rate, and I think | Do we go now to Mr. McCluskey? |
| 10 one of the implications being that PSNH is | 10 MR. SPEIDEL: Yes. |
| 11 in competition with TransCanada. Is that | 11 Commissioners, as a matter of fact, I'd like |
| 12 your understanding of the relationship | 12 to call Mr. McCluskey and Mr. Arnold, Staff's |
| 13 between the default service rate and the | 13 consultant, as a panel. Staff would engage in |
| 14 competitive market in New Hampshire, that | 14 direct with both and then at the end would be |
| 15 you're in competition with PSNH? | 15 open to cross-examination and Commission |
| 16 A. No. I thought that the idea was that the ES | 16 questions. |
| 17 rate was sort of the backstop or last | 17 Now, I do ask at the outset of |
| 18 whatever it's called, last resort service or | 18 our questioning that you have Staff |
| 19 something to that effect. I didn't know | 19 Exhibit 4 handy. Does everyone have a copy |
| 20 that we were in competition. But it doesn't | 20 of that handy on the Bench, because I have |
| 21 matter, so long as they keep their costs | 21 additionals if you would like some. |
| 22 appropriately allocated. We'll deal with | 22 CHAIRMAN IGNATIUS: Yes. |
| 23 from there. | 23 (WHEREUPON, GEORGE McCLUSKEY and |
| 24 Q. And one of the other implications of some of | 24 EDWARD ARNOLD were duly sworn and |


| [WITNESS PANEL: McCluskey\|Arnold] Page 21 | [WITNESS PANEL: McCluskey\|Arnold] Page 23 |
| :---: | :---: |
| 1 cautioned by the Court Reporter.) | 1 the back. |
| 2 GEORGE McCLUSKEY, SWORN | 2 A. (Mr. Arnold) Okay. |
| 3 EDWARD ARNOLD, SWORN | 3 Q. Please identify this document then, Mr. |
| 4 MR. SPEIDEL: Very good. We've | 4 Arnold. |
| 5 already introduced Mr. McCluskey, so I'll | 5 A. (Mr. Arnold) Okay. This is my review in |
| 6 begin with Mr. Arnold. | 6 final form of the LAI model. That's my |
| 7 DIRECT EXAMINATION | 7 review for George. |
| 8 BY MR. SPEIDEL: | 8 Q. For the Newington Station? |
| 9 Q. Mr. Arnold, are you situated? | 9 A. (By Mr. Arnold) Yes. |
| 10 A. Yes, I am. | 10 Q. Very good. Do you consider the matters |
| 11 Q. Okay. What is your full name and place of | 11 within this testimony, including your report |
| 12 employment? | 12 to Mr. McCluskey filed as part of Staff |
| 13 A. (Mr. Arnold) Can you hear me? Edward | 13 Exibit 1, to be within your area of |
| 14 Arnold. I work for Jacobs Consultancy, out | 14 professional expertise? |
| 15 of Chicago, Illinois. | 15 A. Yes, I do. |
| 16 Q. Now, what is your position at Jacobs, Mr. | 16 Q. Do you still support the conclusions made in |
| 17 Arnold? | 17 this written testimony regarding the |
| 18 A. (Mr. Arnold) I'm a group manager at Jacobs. | 18 Newington CUO, as summarized at Pages 29 and |
| 19 Q. What relationship do you have with the Staff | 1930 of Staff Exhibit 1, Lines 11 through 33 |
| 20 of the New Hampshire Public Utilities | 20 and 1 through 21? |
| 21 Commission? | 21 CMSR. HARRINGTON: Could you |
| 22 A. (Mr. Arnold) I am a consultant for the | 22 repeat the cite again? |
| 23 Staff. | 23 MR. SPEIDEL: Sure. Pages 29 |
| 24 Q. What do you consider to be your area of | 24 and 30 of the main body of the testimony -- |
| [WITNESS PANEL: McCluskey\|Arnold] Page 22 | [WITNESS PANEL: McCluskey\|Arnold] Page 24 |
| 1 professional expertise? | 1 A. (Mr. Arnold) Yes, I do. |
| 2 A. (Mr. Arnold) My main area of expertise is | 2 MR. SPEIDEL: -- Staff Exhibit |
| 3 valuation, typically using stochastic | 31 Lines 11 through 33 and 1 through 21. |
| 4 modeling techniques, sometimes using real | 4 BY MR. SPEIDEL: |
| 5 option techniques. I also do quite a bit of | 5 Q. Very good. All right. Leaving aside the |
| 6 event-based simulation modeling to help | 6 conclusions of your testimony in Staff |
| 7 people optimize logistics systems. I also | 7 Exhibit 1 for a moment, I would like to ask |
| 8 do some quantitative risk analysis. | 8 about your understanding of the model |
| 9 Q. Very good. Do you recognize this document | 9 prepared by Levitan \& Associates on behalf |
| 10 that I'm holding up, Staff Exhibit 1? I can | 10 of the Company for the Newington CUO study. |
| 11 bring it up to you. | 11 Would you agree that the model applies |
| 12 A. (Mr. Arnold) Bring it up. | 12 probabilities of events occurring in the |
| 13 CHAIRMAN IGNATIUS: Sounded a | 13 future to try to predict the future economic |
| 14 little bit like a magic trick there. | 14 performance of Newington Station? |
| 15 WITNESS ARNOLD: Yeah. | 15 MS. KNOWLTON: I'm going to |
| 16 BY MR. SPEIDEL | 16 object to the question. I thought that the |
| 17 Q. Do you recognize that document? | 17 purpose of this examination was to qualify the |
| 18 A. (Mr. Arnold) Let's see. Which one is it? | 18 witness and to make him available for |
| 19 Just open it up. Yes. This is the | 19 cross-examination. It sounds like he's -- |
| 20 testimony of -- yes, my testimony. | 20 MR. SPEIDEL: I think we might |
| 21 Absolutely. | 21 have a misunderstanding here. I'm engaged in |
| 22 Q. Very good. Now, would you please turn to | 22 the direct questioning of my witness. |
| 23 the document that's part of Staff Exhibit 1 | 23 MS. KNOWLTON: Right. I |
| 24 that has been styled as Staff Exhibit 9 at | 24 understand that. But I guess my understanding |


| [WITNESS PANEL: McCluskey\|Arnold] Page 25 | [WITNESS PANEL: McCluskey\|Arnold] Page 27 |
| :---: | :---: |
| 1 of what that direct examination would be is to | 1 Q. Can you provide some general examples of |
| 2 qualify the witness; have him verify his | 2 such analysis which you've engaged in and |
| 3 testimony; make any corrections to it; to | 3 clients you've worked |
| 4 extent he had any comments that he would like | 4 A. (By Mr. Arnold) Yes. |
| 5 to offer with regard to new testimony that's | 5 CHAIRMAN IGNATIUS: Before you |
| 6 been provided, that he have the opportunity to | 6 respond -- Ms. Knowlton. |
| 7 do so, but that it otherwise be limited. | 7 MS. KNOWLTON: Can Attorney |
| 8 MR. SPEIDEL: Well, I'm building | 8 Speidel give us an offer of proof of how this |
| 9 a line of questioning, Commissioners, | 9 is responsive to new testimony? |
| 10 regarding certain assertions made in rebuttal | 10 MR. SPEIDEL: Well, Mr. Levitan |
| 11 testimony of the Company relating to access to | 11 said yesterday that this has been an ordeal of |
| 12 models and confidentiality agreements between | 12 unheard-of proportions working with Staff and |
| 13 Jacobs, our consultant, and the Company. So | 13 working with Jacobs in trying to establish a |
| 14 this is new ground. I don't necessarily have | 14 non-disclosure agreement. And we are |
| 15 the ability to ask everything in a single | 15 rebutting those assertions made yesterday in |
| 16 question, and I don't think that would be | 16 the hearing room. And Staff strongly believes |
| 17 advisable. So I think we'll be building up to | 17 that we have a right to rebut those |
| 18 a pretty clear line of questioning within | 18 assertions, and I find it absolutely critical |
| 19 about three seconds, if we can continue. | 19 to our case. And we have not made broad-brush |
| 20 CHAIRMAN IGNATIUS: All right. | 20 assertions as part of our presentation here, |
| 21 Well, if you can keep your focus on | 21 and we are going to be very focused on our |
| 22 information that either has come out | 22 analysis. |
| 23 during the hearings or was in rebuttal that | 23 <br> CHAIRMAN IGNATIUS: What I think |
| 24 you could not have given a response to -- that | 24 would be helpful is if you were to phrase it |
| [WITNESS PANEL: McCluskey\|Arnold] Page 26 | [WITNESS PANEL: McCluskey\|Arnold] Page 28 |
| 1 the witnesses could not have given a response | 1 as, "You heard Mr. X testify to a certain |
| 2 to, that has been our practice in this case. | 2 statement," and then build from there so that |
| 3 MR. SPEIDEL: Yes. | 3 it's clear whether it relates to new and |
| 4 CHAIRMAN IGNATIUS: So get to | 4 rebuttal information or not |
| 5 that as quickly as you can. | 5 MR. SPEIDEL: Very good. |
| 6 MR. SPEIDEL: We are here and we | 6 BY MS. SPEIDEL: |
| 7 are going to ask about rebuttal matters. | 7 Q. Well, Mr. Arnold, yesterday you heard Mr. |
| 8 Thank you, Commissioners. | 8 Levitan say that he has never had such |
| 9 BY MS. SPEIDEL | 9 difficulties as he had with Jacobs and Staff |
| 10 Q. So, would you also agree that Levitan's | 10 in exercising some sort of understanding for |
| 11 model applies a proprietary mathematical | 11 a non-disclosure agreement. Have you found |
| 12 model structure to produce probability | 12 that in past instances -- and you might want |
| 13 distributions for the factors that would | 13 to give some specific examples -- that |
| 14 inform Newington Station's economic | 14 you've been able to reach non-disclosure |
| 15 performance? Yes or no? | 15 agreements with clients and/or third |
| 16 A. (Mr. Arnold) I agree with all that, except | 16 parties? |
| 17 the word "proprietary," because I can't say | 17 A. (By Mr. Arnold)Yes, in almost all cases we |
| 18 for sure if there's proprietary content in | 18 have been able to. |
| 19 their model, because I didn't see it. | 19 Q. Can you list a couple of clients, just as a |
| 20 Q. Okay. Have you analyzed similar | 20 matter of illustration? |
| 21 probabilistic models used to predict future | 21 A. (Mr. Arnold) Okay. I have to think about |
| 22 economic performance of capital assets in | 22 the ones where I have the right to use their |
| 23 private industry? | 23 name. BP, British Petroleum; Suncorp; |
| 24 A. (By Mr. Arnold) Yes, many times. | 24 Microsoft; ConocoPhillips. |



| [WITNESS PANEL: McCluskey\|Arnold] Page 33 | [WITNESS PANEL: McCluskey\|Arnold] Page 35 |
| :---: | :---: |
| 1 accurately represents what this asset will | 1 A. (Mr. Arnold) Okay. |
| 2 do in the future under the condition | 2 Q. All right. So you can see -- what do you |
| 3 specified? Do you believe it's free of | 3 have on the top there? Do you see that this |
| 4 material errors, et cetera? | 4 is an e-mail that you received on Wednesday, |
| 5 Q. Very good. So, Mr. Arnold, I would like to | 5 June 1st |
| 6 present a document to you and distribute it | 6 A. (Mr. Arnold) Yes. |
| 7 amongst the room attendees. And I'll give a | 7 Q. And this e-mail is from myself to Mr. George |
| 8 little descriptio | 8 McCluskey and you, an internal e-mail to |
| 9 (Mr. Speidel distributing document.) | 9 Staff and its consultant? |
| 10 BY MS. SPEIDEL: | 10 A. (Mr. Arnold) Yes. |
| 11 Q. Mr. Arnold, did you prepare this document? | 11 Q. All right. Can you read the body of the |
| 12 A. (Mr. Arnold) Yes, I did. | 12 e-mail, just a few sentences here? "These |
| 13 Q. Is this document a summary that you prepared | 13 ar |
| 14 of Jacobs' negotiations with Levitan for a | 14 A. (Mr. Arnold) "George and Ed: These are the |
| 15 non-disclosure agreement? | 15 actual documents discussed in my e-mail that |
| 16 A. (Mr. Arnold) It's a summary of negotiations, | 16 I just sent. Anne Ross gave me the go-ahead |
| 17 e-mails, phone calls, discussions and talks. | 17 to have Ed/Jacobs Consulting enter into a |
| 18 Q. Okay. Let's turn this over to the back of | 18 non-disclose. But as you've seen, I told |
| 19 the page, because this is in reverse | 19 Jerry to make modifications to enable us to |
| 20 chronological order. | 20 share info among ourselves, Commissioners |
| 21 CHAIRMAN IGNATIUS: And for the | 21 and OCA as well." |
| 22 sake of the record, we'll identify this for | 22 Q. Okay. Very good. And let's turn to Page 11 |
| 23 identification as Staff Exhibit 8. | 23 of Staff Exhibit 4. |
| 24 MR. SPEIDEL: Thank you very | 24 A. (Mr. Arnold) Okay. |
| [WITNESS PANEL: McCluskey\|Arnold] Page 34 | [WITNESS PANEL: McCluskey\|Arnold] Page 36 |
| 1 much, Chairman Ignatius. | 1 Q. As was discussed yesterday, I won't |
| 2 (The document, as described, was | 2 reiterate this, there was a response from |
| 3 herewith marked as Staff 8 for | 3 Mr. Eaton at the Company saying, "I think |
| 4 identification.) | 4 we're almost there. Your additions are |
| 5 BY MS. SPEIDEL: | 5 acceptable" and so on. |
| 6 Q. Let's start from the beginning. As I had | 6 Let's turn to Page 12. And this is the |
| 7 mentioned yesterday in the line of | 7 substance of the question I'm going to ask. |
| 8 questioning to Mr. Levitan, there was a | 8 Do you recall receiving this e-mail on |
| 9 proposal for a non-disclosure agreement | 9 Thursday, June 2nd? |
| 10 submitted to Staff on the 31st of May. And | 10 A. (By Mr. Arnold) Yes. |
| 11 you can see in the first bullet point that | 11 Q. Okay. Do you mind reading what it says |
| 12 ultimately it was conveyed to Jacobs. | 12 there? |
| 13 A. (Mr. Arnold) Right. | 13 A. (Mr. Arnold) Okay. It's from you? |
| 14 Q. Now, as you go further in time, there's some | 14 Q. Yes, from myself. |
| 15 communications. But I'll ask a specific | 15 A. (By Mr. Arnold) "Jerry, that is a good add. |
| 16 question here. And if you take a look at | 16 We are okay with that being added. When you |
| 17 Staff Exhibit 4 -- do you have a copy of | 17 send along the revised agreement, I will |
| 18 that handy with you? | 18 make sure that Ed Arnold, or his responsible |
| 19 A. (Mr. Arnold) Staff Exhibit 4. | 19 corporate officer, signs it before close of |
| 20 Q. I can give you a copy. Here you go. | 20 business today." |
| 21 (Mr. Speidel gives document to witness.) | 21 Q. Very good. Okay. So, after this point, Mr. |
| 22 A. (Mr. Arnold) All right. | 22 Arnold, do you recall that there had been |
| 23 Q. So you can see the page up -- let's turn to | 23 bilateral negotiations going on between some |
| $24 \quad$ Page 8 of Staff Exhibit 4. | 24 of your corporate officers at Jacobs and |


| [WITNESS PANEL: McCluskey\|Arnold] Page 37 | [WITNESS PANEL: McCluskey\|Arnold] Page 39 |
| :---: | :---: |
| 1 through PSNH's representatives with Levitan | 1 So I'll read as follows: "I have |
| 2 to try to sign some sort of non-disclosure | 2 discussed the possibilities for solutions to |
| 3 agreement? Would you agree with that? | 3 the" -- from Staff 10 -- "I have discussed |
| 4 A. (By Mr. Arnold) Right. To try to arrive at | 4 the possibilities for solutions to the |
| 5 a form of an agreement that both parties | 5 impasse on non-disclosure between Jacobs and |
| 6 would sign. | 6 Levitan \& Associates with my legal |
| 7 Q. Very good. Now, as you see, as you go | 7 colleagues here at the Commission, and, in |
| 8 forward in the timeline, there's a bullet | 8 light of the continuing concerns outlined by |
| 9 point, three bullet points down from the top | 9 Jacobs regarding their need for a retention |
| 10 of Page 2, that reads, "June 6th, 2011: | 10 carve-out for their work product under the |
| 11 e-mail to involved parties from Alexander | 11 non-disclosure agreement, I think that it is |
| 12 Speidel RE: status of agreement | 12 time to take stock of where we stand on |
| 13 negotiations." Do you recall my sending | 13 this. |
| 14 that sort of e-mail? | 14 "My hopes for a workaround using Staff |
| 15 A. (Mr. Arnold) I looked at it recently. | 15 as an information-retention conduit are not |
| 16 Q. Very good. And if we turn to the front of | 16 supportable at this time, in light of |
| 17 this timeline, you can see there's a bullet, | 17 further guidance from my superiors" -- sorry |
| 18 second down, reading "July 15th, 2011." | 18 -- "supervisors. Therefore, Jacobs and |
| 19 A. (By Mr. Arnold) Yes. | 19 Levitan need to come to a non-disclosure |
| 20 Q. "Ed Arnold sends e-mail to Jerry Eaton with | 20 agreement that is reasonable for both |
| 21 latest version of NDA." Do you recall | 21 parties so that Jacobs/Ed Arnold can do the |
| 22 sending that kind of an e-mail? | 22 work they need to do on behalf of Staff. In |
| 23 A. (Mr. Arnold) Yes. | 23 Staff's view the version of the |
| 24 Q. All right. I will distribute two documents | 24 non-disclosure agreement with the |
| [WITNESS PANEL: McCluskey\|Arnold] Page 38 | [WITNESS PANEL: McCluskey\|Arnold] Page 40 |
| 1 now to the hearing room, if I may. | 1 work-product carve-out suggested by Jacobs |
| 2 (Atty. Speidel distributes documents.) | 2 is such a reasonable agreement. |
| 3 BY MR. SPEIDEL: | 3 "At this time, it is useful to keep in |
| 4 Q. As that's being passed around, I would like | 4 mind what I told PSNH and Levitan Staff at |
| 5 to just -- let me see here. Just a second. | 5 the Friday meeting. Levitan and its client, |
| 6 Okay. Now, Mr. Arnold, let's look at | 6 PSNH, bear the burden of demonstrating to |
| 7 Staff -- | 7 this Commission that the Newington |
| 8 MR. SPEIDEL: And I would like | 8 Continuing Unit Operation Study has been |
| 9 to have what's styled as "Staff Exhibit 10" | 9 prepared using robust, verifiable scientific |
| 10 marked as such, and also what's styled as | 10 methods. In order for Staff to issue a |
| 11 "Staff Exhibit 9" marked as such. And these | 11 recommendation on this docket stating that |
| 12 two matters, the Exhibit 9 is the e-mail of | 12 Staff has been able to independently verify |
| 13 July 15th sent by Mr. Arnold, and Staff | 13 the methodology of the Newington study, |
| 14 Exhibit 10 is an e-mail from myself sent on | 14 Staff and our consultant, Jacobs/Ed Arnold, |
| 15 Monday, June the 6th. | 15 need to have access to information about the |
| 16 (The documents, as described, were | 16 methodology, as determined by Staff and its |
| 17 herewith marked as Staff 9 and 10 for | 17 consultant. We accept the need for a |
| 18 identification.) | 18 non-disclosure agreement between Jacobs and |
| 19 BY MR. SPEIDEL: | 19 Levitan as a prerequisite for more granular |
| 20 Q. So, looking at Staff Exhibit 10 first -- I | 20 levels of access by Jacobs/Ed Arnold that |
| 21 know that's counterintuitive -- I think it | 21 implicate possible trade secrets. But |
| 22 would be helpful for me just to read this | 22 please bear in mind that if such an |
| 23 out quickly and have you say whether you | 23 agreement cannot be reached, and the |
| 24 agree with Staff's position on this still. | 24 information needed for Staff and Jacobs' |


| [WITNESS PANEL: McCluskey\|Arnold] Page 41 | [WITNESS PANEL: McCluskey\|Arnold] Page 43 |
| :---: | :---: |
| 1 analysis of the methodology used in the | 1 Q. What does it read? |
| 2 Newington study is not made available, Staff | 2 A. (Mr. Arnold) "By the time the Staff |
| 3 will likely not be able to issue a | 3 testimony was filed on July 27th, 2011 LAI |
| 4 recommendation to the Commission with the | 4 had not heard of a reply from Jacobs to that |
| 5 component verifying the Levitan methodology | 5 proposed NDA." |
| 6 for the Newington study." | 6 Q. Did you think that by sending an e-mail on |
| 7 So, Mr. Arnold, can you confirm that | 7 July 15th, Jacobs was making a good faith |
| 8 this was sent by me and you had a carbon | 8 effort to respond to some of the comments |
| 9 copy on Monday, June 6th, of 2011? | 9 that the Company had made on the proposed |
| 10 A. (Mr. Arnold) Yes. | 10 NDA? |
| 11 Q. And would you still agree with this | 11 A. (Mr. Arnold) Yes. |
| 12 conclusion that we've reached in this | 12 Q. Thank you. |
| 13 instance as Staff -- | 13 Now, Mr. Arnold, is it the usual |
| 14 A. (Mr. Arnold) Yes. | 14 practice of Jacobs to maintain an archival |
| 15 Q. -- as consultant? Thank you. | 15 copy of its own work product for legal |
| 16 All right. Now let's turn to Staff | 16 purposes, even if such work product relied |
| 17 Exhibit 9. There's a reference to it on | 17 on proprietary information for its |
| 18 Staff Exhibit 8, which is the timeline. You | 18 development? |
| 19 have a little summary here, and you can read | 19 A. (Mr. Arnold) Yes. It's "work product." I |
| 20 it yourself. What is the date? And just | 20 think that's an important term. |
| 21 read the e-mail, please. | 21 Q. Mr. Arnold, in your experience, has any |
| 22 A. (Mr. Arnold) Okay. The date is July 15th. | 22 client or third party who've presented |
| 23 It is to Jerry, and you are copied. | 23 proprietary models in the context of Jacobs' |
| 24 CHAIRMAN IGNATIUS: Before you | 24 work for its clients, objected to this |
| [WITNESS PANEL: McCluskey\|Arnold] Page 42 | [WITNESS PANEL: McCluskey\|Arnold] Page 44 |
| 1 read, I'm not sure why we're reading exhibits | 1 provision allowing for one archival copy of |
| 2 into the record. If they're in the record, | 2 work product to be retained by Jacobs? |
| 3 they're in the record. So is there -- this is | 3 A. (Mr. Arnold) In cases like this where |
| 4 a short one. But what's -- if you can direct | 4 proprietary models are involved, I -- after |
| 5 the witness to your particular question. | 5 working on many cases like this, there was |
| 6 MR. SPEIDEL: Very good. | 6 one case where a client objected. |
| 7 BY MR. SPEIDEL: | 7 Q. Just one? |
| 8 Q. Mr. Arnold, in this e-mail, did you return a | 8 A. (Mr. Arnold) Right. We could not reach an |
| 9 version of the non-disclosure agreement to | 9 agreement. |
| 10 the go-between, Mr. Jerry Eaton of PSNH, | 10 Q. Okay. If Levitan had agreed to the version |
| 11 between Jacobs and Levitan that was | 11 of the non-disclosure agreement presented by |
| 12 acceptable to Jacobs \& Associates? | 12 Jacobs on July 15th, 2011, by e-mail, would |
| 13 A. (Mr. Arnold) Yes, I did. It was attached. | 13 Jacobs have approved of the execution of |
| 14 Q. And this is attached to Staff Exhibit 9? | 14 such an agreement? |
| 15 A. (Mr. Arnold) Right. | 15 A. (Mr. Arnold) Can you say that again? |
| 16 Q. Very good. So I'm going to show you one | 16 Q. If Levitan had agreed to the version of the |
| 17 more document for your own purposes, because | 17 non-disclosure agreement presented by |
| 18 it's already been entered as a Company | 18 Jacobs -- that is, the one on July 15, |
| 19 exhibit. This is PSNH Exhibit 13. And this | 192011 -- would Jacobs have approved of the |
| 20 is the revised response to Staff Round 4, | 20 execution of such an agreement? |
| 21 one of the data responses. And do you just | 21 A. (Mr. Arnold) I am certain they would have. |
| 22 see the little sentence at the very end | 22 Yes. |
| 23 there? | 23 Q. Okay. Now, the work product at issue in the |
| 24 A. (Mr. Arnold) Yes. | 24 non-disclosure agreement negotiations, would |


| [WITNESS PANEL: McCluskey\|Arnold] Page 45 | [WITNESS PANEL: McCluskey\|Arnold] Page 47 |
| :---: | :---: |
| 1 that be like that presented in Staff's joint | 1 problems with substitute data that had been |
| 2 testimony, Staff Exhibit 1? | 2 proposed by the Company and Levitan? |
| 3 A. (Mr. Arnold) Yes. It would probably be | 3 A. (Mr. Arnold) There could be. I've seen |
| 4 that, plus a collection of any e-mails or | 4 that. I've lived through it. |
| 5 other materials that were sent to parties, | 5 Q. In your experience, would you expect that a |
| 6 you know, such as you or George, or if I was | 6 creator of a model submitted to Jacobs for |
| 7 communicating directly with Levitan or | 7 independent analysis should have arranged |
| 8 somebody. | 8 for a license to provide Jacobs with access |
| 9 Q. Okay. Now, Mr. Arnold, please turn to | 9 to data, such as the Bloomberg pricing data |
| 10 A. (Mr. Arnold) But the key is "work product." | 10 that you referred to? |
| 11 It's typically our report that is kept. | 11 A. (Mr. Arnold) Most of the organizations that |
| 12 Q. Thank you. | 12 I work with. And when I'm on the other side |
| 13 Okay. Now, Mr. Arnold, please turn to | 13 of the table, I'm typically prepared to do |
| 14 Page 30 of Staff Exhibit 1, your prefiled | 14 that. |
| 15 testimony. And that would be the main body | 15 Q. Okay. |
| 16 of the testimony. | 16 A. (Mr. Arnold) I mean, I only get there if I |
| 17 A. (Mr. Arnold) Okay | 17 have to. I try and other people try as much |
| 18 Q. Could you please read Item 7, Lines 13 to | 18 as they can to use non-proprietary data or |
| 19 16, just briefly. | 19 proxy data. |
|  | 20 Q. Very good. Now, Mr. Arnold, as part of your |
| 21 ask why, if this is only identifying areas | 21 efforts that you engaged in to discern the |
| 22 that are new, that have come up as response to | 22 workings and effectiveness of Levitan's CUO |
| 23 rebuttal testimony or things that have | 23 study model, though you did not have access |
| 24 transpired in the hearing. | 24 to the Bloomberg pricing data, and access, |
| [WITNESS PANEL: McCluskey\|Arnold] Page 46 | [WITNESS PANEL: McCluskey\|Arnold] Page 48 |
| 1 MR. SPEIDEL: Well, I can | 1 as you define it, to Levitan's complex, |
| 2 tighten it up a little bit, but it is in | 2 probabilistic modeling, you directed a |
| 3 reference to the assertions made by Mr. | 3 so-called "backcast"; correct? |
| 4 Levitan yesterday that the so-called "input | 4 A. (By Mr. Arnold) Correct. |
| 5 data issue was a non-starter," that the input | 5 Q. Briefly, what is a "backcast," and why did |
| 6 data substitutes that had been proposed by the | 6 you run the backcast? |
| 7 Company and Levitan in their rebuttal | 7 CHAIRMAN IGNATIUS: Ms. |
| 8 testimony would have been a perfectly adequate | 8 Knowlton. |
| 9 substitute for what Staff required for its | 9 MS. KNOWLTON: I'm going to |
| 10 analysis. We are saying that that is not the | 10 object again. I think this is the same issue, |
| 11 case through this line of questioning. | 11 which is if Mr. Speidel could phrase the |
| 12 CHAIRMAN IGNATIUS: Well, why | 12 question in terms of a specific statement or |
| 13 don't you ask directly about the things that | 13 testimony given by Dr. Carlson or Mr. Levitan. |
| 14 you just mentioned as opposed to restating | 14 But explaining what a backcast is I think |
| 15 what was in his prefiled. We've read it. We | 15 really goes back to the prefiled testimony of |
| 16 know what the statements are. | 16 Staff's witness. |
| 17 MR. SPEIDEL: That's fine | 17 MR. SPEIDEL: Well, it's more |
| 18 BY MR. SPEIDEL: | 18 for the benefit of the Commission. But I see |
| 19 Q. Now, Mr. Arnold, would you believe that, in | 19 the point. I wanted to give a little bit of |
| 20 light of the fact that the Bloomberg data | 20 background. But we can get right into it |
| 21 had not been provided by the Company or by | 21 then. |
| 22 Levitan is part of your review of the model | 22 CHAIRMAN IGNATIUS: Thank you. |
| 23 presented for the Newington study, would you | 23 BY MR. SPEIDEL: |
| 24 believe that there could be any potential | 24 Q. In reference to a backcast, Mr. Arnold, are |


| [WITNESS PANEL: McCluskey\|Arnold] Page 49 | [WITNESS PANEL: McCluskey\|Arnold] Page 51 |
| :---: | :---: |
| 1 you familiar with Mr. Levitan and Dr. | 1 because I didn't have access to the model or |
| 2 Carlson's testimony which has been filed as | 2 the data used to run the model, I really |
| $3 \quad$ PSNH Exhibit 8? | 3 couldn't do the type of analysis that |
| 4 A. (Mr. Arnold) Yes. | 4 they're referring to in the first two |
| 5 Q. Okay. Do you have a copy handy? | 5 criticisms here. We requested the data |
| 6 A. (Mr. Arnold) Yes. | 6 related to the second criticism and were |
| 7 Q. All right. So let's turn to Page 22, | 7 unable to get it. |
| 8 Line 26 of the Levitan rebuttal testimony. | 8 But in general, when I talk about my |
| 9 That's what I'll refer to it in short. | 9 "benchmark," it's the 30-percent number. |
| 10 CHAIRMAN IGNATIUS: Which | 10 I'm talking about experience. I went back |
| 11 exhibit number, please? | 11 to similar backcasts, where both the model |
| 12 MR. SPEIDEL: That is PSNH | 12 and the forecast was being evaluated. And |
| 13 Exhibit 8. | 13 almost all of the backcasts that were |
| 14 A. (Mr. Arnold) What are the lines? | 14 performed fell within plus or minus |
| 15 BY MR. SPEIDEL: | 1530 percent of the actual near-term near |
| 16 Q. The specific lines on Page 22 would be | 16 values. So, that's my metric. Now, I also |
| 17 Line 26. | 17 want to say that that metric is based on the |
| 18 A. (Mr. Arnold) Okay. What's the title? | 18 median. It's a median-based metric. It's |
| 19 Q. Well, we're just kind of starting there. | 19 not based on the expected or average value. |
| 20 A. (Mr. Arnold) Are you talking about the | 20 So that's all I can really do is use my |
| 21 numbers at the bottom of the page? | 21 basis of backcast for similar-type models. |
| 22 Q. No. There's -- here we are at "G. Model | 22 Q. Okay. Now, Mr. Arnold, there's a second |
| 23 Calibration with Backcast | 23 criticism within the Levitan testimony that |
| 24 A. (By Mr. Arnold) I got it, yeah. | 24 begins on Line 14 of Page 23, and it |
| [WITNESS PANEL: McCluskey\|Arnold] Page 50 | [WITNESS PANEL: McCluskey\|Arnold] Page 52 |
| 1 Q. So, is it fair to say that, starting at that | 1 continues through Line 32. Do you have a |
| 2 point in the testimony, the Levitan rebuttal | 2 brief criticism -- I'm sorry -- a brief |
| 3 testimony, through Page 24 at Line 3, put | 3 response to this criticism? |
| 4 forth four criticisms of your technical | 4 A. (Mr. Arnold) Are these the second three? |
| 5 analysis of the accuracy of the Levitan | 5 Q. Yes, the second. Second of four, as a |
| 6 model -- | 6 matter of fact. |
| 7 A. (Mr. Arnold) Yes. | 7 A. (Mr. Arnold) Okay. All right. |
| 8 Q. -- using the backcast effort? | 8 Q. On Page 23. |
| 9 A. (Mr. Arnold) Yes. | 9 A. (Mr. Arnold) Okay. On the second one, |
| 10 Q. Okay. So there's the first criticism. And | 10 basically, we couldn't use this approach |
| 11 I won't read it into the record. It's | 11 because we didn't have the information. |
| 12 fairly technical. But it begins at Line 40 | 12 Q. All right. And the third criticism on |
| 13 on Page 22, and it ends at Line 12 on Page | 13 Lines 34 through 39 on Page 33? |
| 1423. | 14 A. (By Mr. Arnold) Right. On the third |
| 15 A. (Mr. Arnold) Yes | 15 criticism, I fundamentally disagree here. |
| 16 Q. Do you have a brief response, Mr. Arnold, to | 16 These are relatively small numbers compared |
| 17 that criticism? | 17 to some of the earlier numbers that were |
| 18 A. (Mr. Arnold) Yes, I do. I mean, the essence | 18 presented for net energy revenue. But the |
| 19 of this criticism was that my benchmark | 19 difference between these numbers is big. So |
| 20 wasn't valid. And Mr. Levitan or Dr. | 20 I think the percentage here is reasonable. |
| 21 Carlson went into an impressive course on | 21 You know, if on the other hand we were |
| 22 statistics here, which I agree with. But | 22 talking about a difference between two very |
| 23 it's not really pertinent here, because my | 23 large numbers, I would say we've got a |
| 24 basis was my experience. I really -- | 24 problem here. But this is a big difference |


| [WITNESS PANEL: McCluskey\|Arnold] Page 53 | [WITNESS PANEL: McCluskey\|Arnold] Page 55 |
| :---: | :---: |
| 1 between two numbers that are similar in | 1 didn't have the Dracut prices. |
| 2 magnitude. | 2 Second -- you want me to go to the |
| 3 Q. Okay. And there's one fourth criticism on | 3 second criticism? |
| 4 this point -- | 4 Q. Sure. Go ahead. |
| 5 A. (Mr. Arnold) Right | 5 A. (Mr. Arnold) The second criticism is that |
| 6 Q. -- of the testimony from Lines 41 through 4 | 6 only used three months to base the forecast |
| 7 on Page 24. | 7 on. And that's not correct. I did use that |
| 8 A. (Mr. Arnold) | 8 as a basis. But what I used, I basically |
| 9 Q. Are we going to perhaps provide additional | 9 looked at those three months together with |
| 10 background on that criticism from Mr. | 10 our current internal forecast for this item, |
| 11 McCluskey's testimony? | 11 and I used our current long-term forecast as |
| 12 A. (Mr. Arnold) You're talking about the fourth | 12 the basis with the three months. |
| 13 criticism? | 13 And the third item is that it's talking |
| 14 Q. Yes, the fourth criticism, I think we might | 14 about the use of futures curves. It says |
| 15 address that specific one through Mr. | 15 LAI made use of futures market curves for |
| 16 McCluskey's questioning. Is that | 16 WTI oil prices and Henry Hub prices together |
| 17 A. (Mr. Arnold) I think that might be good to | 17 with oil product and gas location spreads to |
| 18 have him address it. We basically agreed | 18 forecast the RFO 2 fuel oil and the Dracut |
| 19 with it. | 19 prices in their study. Use of these futures |
| 20 Q. Okay. Good. Now, let's turn to Page 25 of | 20 or forward prices is generally preferred to |
| 21 the Levitan rebuttal testimony with the | 21 relying on any single analyst's long-term |
| 22 heading reading "Fuels Price Forecast." | 22 forecast of spot prices. |
| 23 CHAIRMAN IGNATIUS: I'm sorry. | 23 Well, I agree. I wouldn't rely on a |
| 24 Page 24 has that heading? | 24 single forecast. Our forecast is a |
| [WITNESS PANEL: McCluskey\|Arnold] Page 54 | [WITNESS PANEL: McCluskey\|Arnold] Page 56 |
| 1 MR. SPEIDEL: Yes, 24. I'm very | 1 composite forecast. And we found that that |
| 2 sorry. The body of the material is on Page 25 | 2 is almost always superior to the future |
| 3 and the heading is on 24. The very bottom of | 3 strips for forecasts. There have been very |
| 424 and the body of Page 25. | 4 few occasions where the future strips are |
| 5 A. (By Mr. Arnold) Okay. I've got it | 5 influenced significantly by near-term |
| 6 BY MR. SPEIDEL: | 6 events. Again, we use a composite forecast |
| 7 Q. Okay. Now, is it fair to say that the | 7 from six people within the consultancy, |
| 8 Levitan rebuttal testimony through Page 25, | 8 three organizations outside. |
| 9 Line 36, put forward three criticisms of | 9 Q. Okay. Very good, Mr. Arnold. Thank you. |
| 10 your technical analysis of the fuel | 10 Now, you had heard yesterday some |
| 11 prices -- | 11 comments from certain of the Levitan and |
| 12 A. (Mr. Arnold) Yes. | 12 Company witnesses that the time frame for |
| 13 Q. -- considered as part of the Levitan model? | 13 preparing the Newington CUO study was fairly |
| 14 A. (Mr. Arnold) Yes. | 14 compressed. Do you believe that there might |
| 15 Q. Okay. Have you any brief responses to these | 15 be some implications for that resulting in |
| 16 criticisms, starting with the first? | 16 the study's quality or things that might |
| 17 A. (Mr. Arnold) Yes. First of all, just in the | 17 occur as a result of that compressed time |
| 18 initial statement, I actually said 4.0 | 18 frame? |
| 19 versus 4.4. I think that was straightened | 19 A. (Mr. Arnold) Yes, I do. I think that there |
| 20 out. | 20 is some chance there still could be some |
| 21 Now, on the second one, I didn't use | 21 issues with the model that would make me a |
| 22 Dracut. I didn't have access to Dracut | 22 little more concerned that issues may exist. |
| 23 prices. So my ratio was RFO to Henry Hub. | 23 I say that with confidence because I've |
| 24 I would have liked to use Dracut, but I | 24 lived through it when these models are |


| [WITNESS PANEL: McCluskey\|Arnold] Page 57 | [WITNESS PANEL: McCluskey\|Arnold] Page 59 |
| :---: | :---: |
| 1 complex. It's nothing against the model. | 1 any other updates or -- |
| 2 It's just that it takes time. It takes peer | 2 A. (By Mr. McCluskey) Next one is Page 11, Line |
| 3 review. It's not hard to have issues. | 3 16. Sorry I'm jumping around. Okay. Line |
| 4 Q. So, just to be clear, you think there's a | 4 16. The "\$4.1 million" should be replaced |
| 5 potential that there's additional errors | 5 with "\$3.7 million |
| 6 the model that have not been discussed | 6 The next one is on Page 26, Line 17. |
| 7 through this proceeding yet | 7 And there I would like to strike from the |
| 8 A. (Mr. Arnold) Ye | 8 word "possibly" on Line 17 to the end of the |
| 9 Q. Very good. Thank you very much, Mr. Arnold. | 9 sentence, which ends "emissions." |
| 10 Mr. McCluskey, I'm going to start | 10 MR. PATCH: Can I just have that |
| 11 asking you some questions. And we've | 11 again? I didn't catch that. |
| 12 already been introduced, so I guess we can | 12 WITNESS McCLUSKEY: Starting on |
| 13 get right to it | 13 Line 17, the word "possibly." So whatever |
| 14 Mr. McCluskey, do you have any line | 14 comes after "possibly," including "possibly," |
| 15 edits or changes to the testimony that has | 15 would be stricken. |
| 16 been filed as Staff Exhibit 1? | 16 BY MR. SPEIDEL |
| 17 A. Yes, I've got three or four small changes | 17 Q. And could you provide a little bit of brief |
| 18 that I would like to make. The first one is | 18 background why you made that change, Mr. |
| 19 on Page 22, Line 1, and it refers to the | 19 McCluskey? |
| 20 ratio of "4.4 to 1." | 20 A. (By Mr. McCluskey) Yes. Okay. Just give me |
| 21 Q. Okay. And how would you like to have that | 21 one moment. In the testimony, Staff stated |
| 22 revised? | 22 that the EPA's Utility MACT Rule forced PSNH |
| 23 A. I would like to change that to "4.0 to 1. | 23 to make capital expenditures on control |
| 24 CHAIRMAN IGNATIUS: Can I ask, | 24 equipment, possibly an activated |
| [WITNESS PANEL: McCluskey\|Arnold] Page 58 | [WITNESS PANEL: McCluskey\|Arnold] Page 60 |
| 1 when you're calling this an update or a | 1 carbon-injection system to reduce mercury |
| 2 correction, is that because of what now -- is | 2 emissions. After further research, Staff |
| 3 that because of the phrase as it now stands at | 3 recognizes that the primary pollutant for |
| 4 and so you're updating it to today's date? Or | 4 modified generation is not mercury but |
| 5 are you stating that at the time you submitted | 5 nickel cancer-causing substances; hence, we |
| 6 your testimony in September, it should have | 6 think the need to strike the reference to |
| 7 been read -- as of that date it should have | 7 "installing an activated carbon-injection |
| 8 been read "4.4 to 1"? | 8 system." |
| 9 WITNESS McCLUSKEY: In this | 9 Q. Okay. |
| 10 case, it should have read "4.0 to 1." I | 10 MS. KNOWLTON: Can I -- I just |
| 11 believe Mr. Arnold said that a matter of | 11 want to make sure that I'm understanding what |
| 12 moments ago. In some analysis that he did, he | 12 this is. I mean, is it essentially the |
| 13 used the ratio of 4.0 to 1 , and for some | 13 Staff's position on this issue has changed? |
| 14 reason when we developed the testimony, it | 14 It's a retraction of a position? Is that a |
| 15 should have been 4.4 to 1. | 15 fair characterization? |
| 16 CHAIRMAN IGNATIUS: All right. | 16 MR. SPEIDEL: I think it would |
| 17 I just want to be sure that it wasn't changing | 17 be -- versus a retraction, I'd say it's an |
| 18 what now it's referring to. It's still as of | 18 update based on new information, and it's |
| 19 the filing of the testimony date. | 19 something that I believe would redound to the |
| 20 WITNESS McCLUSKEY: That's | 20 Company's benefit. |
| 21 correct. | 21 BY MR. SPEIDEL: |
| 22 CHAIRMAN IGNATIUS: Thank you. | 22 Q. Isn't that correct in some sense? |
| 23 BY MR. SPEIDEL: | 23 A. (By Mr. McCluskey) No. If I could respond? |
| 24 Q. All right. And in that vein, Mr. McCluskey, | 24 Q. Okay. |


| [WITNESS PANEL: McCluskey\|Arnold] Page 61 | [WITNESS PANEL: McCluskey\|Arnold] Page 63 |
| :---: | :---: |
| 1 CHAIRMAN IGNATIUS: Well, one | 1 A. (By Mr. McCluskey) And replace the phrase |
| 2 moment. Is there an objection to the question | 2 "an activated carbon injection" with the |
| 3 or just -- | 3 word "a," so it will read "a system." |
| 4 MS. KNOWLTON: I'm just trying | 4 And on Line 7, strike the word |
| 5 to understand the nature of the change, | 5 "injection." |
| 6 whether he's changing his position, you know, | 6 BY MR. SPEIDEL: |
| 7 whether he was incorrect at the time that he | 7 Q. Very good. Now, Mr. McCluskey, I think we |
| 8 wrote it. I'm just trying to understand what | 8 have some testimony [sic] within PSNH |
| 9 causes the change. | 9 Exhibit 8 -- that is, the Levitan testimony. |
| 10 CHAIRMAN IGNATIUS: All right. | 10 And that would be on Page 24 of that |
| 11 I guess what I thought was happening was that | 11 testimony? |
| 12 there's still the statement regarding PSNH | 12 A. (By Mr. McCluskey) What's the exhibit? |
| 13 possibly making additional and expensive | 13 Eight? |
| 14 control equipment investments, but rather than | 14 Q. PSNH Exhibit 8. |
| 15 to reduce mercury emissions, it would be to | 15 A. (By Mr. McCluskey) Okay. Which page? |
| 16 reduce other things. And so the statement of | 16 Q. Twenty-four. |
| 17 the need for expensive equipment remains; it's | 17 A. (By Mr. McCluskey) Thank you. |
| 18 just the specific mercury reference is | 18 Q. And that states, to paraphrase that, the |
| 19 changing. Is that right? | 19 natural gas basis spreads calculated by |
| 20 MR. SPEIDEL: Right. I don't | 20 Staff are not well supported and that 2010 |
| 21 understand why the Company would object to | 21 appears to have had unusually large summer |
| 22 just freshening the information, because we | 22 basis spread. Do you recall that? |
| 23 aren't doing it to harm the Company's | 23 A. (By Mr. McCluskey) I do. |
| 24 interest. So I don't know what the basis of | 24 Q. Now, would you agree that, using Emera's |
| [WITNESS PANEL: McCluskey\|Arnold] Page 62 | [WITNESS PANEL: McCluskey\|Arnold] Page 64 |
| 1 the objection would be. It's just providing | 1 price data supplied by the Company, and |
| 2 up-to-the-minute information. | 2 Dracut daily natural gas prices, Staff |
| 3 MS. KNOWLTON: I haven't | 3 engaged in some calculations of those |
| 4 necessarily objected. I was trying to | 4 spreads? |
| 5 understand the basis for it. I mean this is a | 5 A. (By Mr. McCluskey) Yes, the -- |
| 6 topic the Company did discovery on. So, I | 6 Q. Now, let's be careful about being too |
| 7 mean, I just -- it affects the discovery | 7 specific. But would you agree with that or |
| 8 responses that we received to date so far. So | 8 not, with the creation of such a summary? |
| 9 that's why I'm trying to gain an understanding | 9 A. (By Mr. McCluskey) I do. |
| 10 of what the implications of this are what's | 10 Q. Okay. Now, if you could just give me a |
| 11 driving this. | 11 moment, I'd like to distribute a |
| 12 CHAIRMAN IGNATIUS: Why don't we | 12 confidential exhibit. We're only going to |
| 13 move on. | 13 refer to it in very general terms, without |
| 14 BY MR. SPEIDEL: | 14 specific dollar figures. So I will give it |
| 15 Q. All right. Now, Mr. McCluskey, I think -- | 15 to the Commissioners, to the Company and to |
| 16 A. (By Mr. McCluskey) If I could continue with | 16 the Office of the Consumer Advocate and the |
| 17 my - | 17 witnesses. |
| 18 Q. You have a few more line edits. That's what | 18 CHAIRMAN IGNATIUS: Now, whose |
| 19 I was going to ask, yes. | 19 confidential data is this? |
| 20 A. (By Mr. McCluskey) Line 28. Sorry. | 20 MR. SPEIDEL: It is confidential |
| 21 Page 28, Line 4. | 21 data supplied by the Company. So, it is Emera |
| 22 CMSR. HARRINGTON: You said what | 22 pricing data supplied by their suppliers. |
| 23 line? | 23 CHAIRMAN IGNATIUS: Are there |
| 24 WITNESS McCLUSKEY: Four. | 24 parties to whom it should not be distributed? |


|  | TNESS PANEL: McCluskey\|Arnold] Page 65 | [WITNESS PANEL: McCluskey\|Arnold] Page 67 |  |
| :---: | :---: | :---: | :---: |
| 1 | Is it one of those -- |  | out to be not supported by calculation; they |
| 2 | MR. SPEIDEL: In an abundance of |  | were provided data by PSNH, which PSNH could |
| 3 | caution, I believe that none of the parties, |  | not support. So, Staff requested the daily |
| 4 | aside from the Office of Consumer Advocate and |  | prices from Emera, the supplier, and |
| 5 | the Staff should have access to this data. |  | received them. And we compared those |
| 6 | CHAIRMAN IGNATIUS: Is there any |  | prices, those daily prices, with the Dracut |
| 7 | objection that? | 7 | daily trading prices and calculated, for |
| 8 | (No verbal response) | 8 | certain seasons of the year, average basis |
| 9 | CHAIRMAN IGNATIUS: All right. | 9 | differentials for 2010 |
| 10 | MR. SPEIDEL: Thank you. | 10 | In the rebuttal testimony, Levitan |
| 11 | (Mr. Speidel distributes document.) | 11 | claimed that using a single year was not |
| 12 | MR. SPEIDEL: I would like to | 12 | adequate support for those basis |
| 13 | ask that this be marked as Staff Exhibit 1 -- | 13 | differentials, and they went on to say that |
| 14 | I'm sorry -- Staff Exhibit 11, a confidential | 14 | typically they would use a six-year period. |
| 15 | exhibit. | 15 | So -- |
| 16 | CHAIRMAN IGNATIUS: So marked | 16 | CMSR. HARRINGTON: Six-year |
| 17 | for identification. | 17 | what? |
| 18 | (The document, as described, was | 18 | WITNESS McCLUSKEY: Six-year |
| 19 | herewith marked as Staff 11 for |  | period to develop the average rather than a |
| 20 | identification.) | 20 | single year. |
|  | BY MR. SPEIDEL: |  | (By Mr. McCluskey) So, what Staff did was |
|  | Q. Very good. Now, Mr. McCluskey, the |  | acquire the daily prices from Emera for |
| 23 | criticism -- could you summarize the |  | those -- for the last six years. It wasn't |
| 24 | criticism of the Company? Aside from it | 24 | every year because they didn't supply gas |
|  | TNESS PANEL: McCluskey\|Arnold] Page 66 |  | PANEL: McCluskey[Arnold] Page 68 |
| 1 | being unreasonable, they made a point |  | every year. The plant dispatched only on |
| 2 | regarding the fact that Staff's calculations | 2 | relatively small number of days in the year. |
| 3 | were inaccurate. Is that a correct | 3 | So we decided to calculate the averages |
| 4 | characterization? | 4 | used in the six-year period rather than the |
| 5 | A. (By Mr. McCluskey) I believe they said that | 5 | one-year period, which we had included in |
| 6 | Staff's calculations were "not well |  | our testimony. And what you see in this |
| 7 | supported" -- | 7 | confidential exhibit are the results of this |
| 8 | Q. Very good. | 8 | six-year average. And the two periods that |
|  | A. (By Mr. McCluskey) -- was the phrase that | 9 | were modeled by Levitan were March through |
| 10 | they used. | 10 | December, and January and February. So we |
|  | Q. So, for instance, let's take a look - | 11 | used those two periods. And my counsel's |
|  | A. (By Mr. McCluskey) If I could -- it might be | 12 | instructed me not to give numbers. But you |
| 13 | useful just to give some background rather | 13 | can see what the weighted average is there |
| 14 | than delving straight into some numbers. | 14 | for 2006 through 2011. You can see the |
|  | Q. Okay. | 15 | number that Staff used in its testimony. |
|  | A. (By Mr. McCluskey) What we're talking about | 16 | And we actually had PSNH re-run the model |
| 17 | is the basis differential between natural | 17 | with the differentials based on what Staff |
| 18 | gas price at the Dracut trading point in | 18 | calculated for 2010 relative to what they |
| 19 | Massachusetts and the cost of gas purchased | 19 | had used in their initial study. And what |
| 20 | by PSNH for Newington from its supplier. So | 20 | we show, two lines from the bottom under the |
| 21 | there is -- generally, there's a difference | 21 | table, is the percentage of the weighted |
| 22 | between prices at those two points. | 22 | average to Staff for 2010. And we think |
| 23 | In the Continued Unit Operations Study, | 23 | that percentage is a pretty good percentage. |
| 24 | Levitan used basis differentials that turned | 24 | We think that percentage of 89 percent -- |


| [WITNESS PANEL: McCluskey\|Arnold] Page 69 | [WITNESS PANEL: McCluskey\|Arnold] Page 71 |
| :---: | :---: |
| 1 that's not confidential -- we think that it | 1 a record request to prepare a redacted |
| 2 shows that the number that we used for March | 2 version, that would be fine. But I would have |
| 3 through December is not an unreasonable | 3 to be very cautious about whether that's even |
| 4 estimate to use in the calculatio | 4 possible. |
| 5 Q. Okay. Now, very good, Mr. McCluskey. Could | 5 CHAIRMAN IGNATIUS: Well, why |
| 6 you just identify the column that is marked | 6 don't we make a request for any information on |
| 7 "March to December," the next to the last | 7 this Exhibit 11 that can be made public. And, |
| 8 column on the right-hand side of the table | 8 obviously, our goal is always for the most |
| 9 here that's presented in Staff Exhibit 11. | 9 information as possible to be publicly |
| 10 A. (By Mr. McCluskey) Yes. It's the average | 10 available and as least as possible to be |
| 11 prices for each year on an MMBTU basis. | 11 restricted. So we'll mark that as Staff |
| 12 Q . And you can summarize those as "summer basi | 12 Exhibit 12 for the record request. |
| 13 spreads? | 13 MR. SPEIDEL: Yes. And I can do |
| 14 A. That's correct. | 14 that. |
| 15 Q. Now, would you agree that, as you would | 15 (The document, as described, was |
| 16 characterize it, the "summer basis spreads" | 16 herewith marked as Staff 12 for |
| 17 for 2010, they don't seem to deviate very | 17 identification.) |
| 18 much from those of 2009 or 2011? Would you | 18 BY MR. SPEIDEL: |
| 19 agree with that? | 19 Q. Mr. McCluskey, you heard mention from Mr. |
| 20 A. (By Mr. McCluskey) Certainly the years 2009 | 20 Arnold earlier about certain issues related |
| 21 through 2011, I think they're actually | 21 to operating reserves by the Newington power |
| 22 higher and very close to the number that we | 22 plant. |
| 23 include in our testimony. | 23 A. (By Mr. McCluskey) I did. |
| 24 Q. Very good. | 24 Q. It was just a short, little reference. Now, |
| [WITNESS PANEL: McCluskey\|Arnold] Page 70 | [WITNESS PANEL: McCluskey\|Arnold] Page 72 |
| 1 A. (By Mr. McCluskey) March through December is | 1 Mr. Smagula had talked about that yesterday |
| 2 the critical period for the Continued Unit | 2 in general detail, not super specific |
| 3 Operations Study. | 3 detail. Would Staff like to make a comment |
| 4 Q. Okay. Now, Mr. McCluskey, we're all set | 4 about what its position is on that issue? |
| 5 with Staff Exhibit 11 for now | 5 A. (By Mr. McCluskey) Yes. In our testimony, I |
| 6 Could you provide -- | 6 don't believe we used the term "operating |
| 7 CHAIRMAN IGNATIUS: Before you | 7 reserves," but we did say that it could be |
| 8 go on, Mr. Speidel. Mr. Patch. | 8 taken as a criticism that the Levitan did |
| MR. PATCH: I have one request. | not model the actual operations of |
| 10 I took from Mr. McCluskey's testimony that | 10 Newington. They modeled economic dispat |
| 11 there was some information on that sheet that | 11 when in fact Newington was providing in the |
| 12 does not have to be kept as confidential. And | 12 majority of hours, at least for 2010, |
| 13 so I'm asking -- if that's not the case, | 13 operating reserves. So we made a statement |
| 14 fine -- could there be a redacted version | 14 in the testimony that it didn't model actual |
| 15 provided in the next exhibit? | 15 operations. I'm not sure whether we |
| 16 MR. SPEIDEL: Well, that's the | 16 actually say this in the testimony. I |
| 17 hazard of not talking to an attorney directly. | 17 haven't been able to find it, whether we |
| 18 I don't know. I don't know. That would | 18 indicated that that would have an impact on |
| 19 require some consultation with the Company, | 19 the results of the study. But that issue, I |
| 20 and I'm not prepared to do that right now. So | 20 believe, was addressed by the PSNH panel. |
| 21 maybe we can have a redacted exhibit submitted | 21 And after more research and discussion with |
| 22 as a record request. But it will take a | 22 a member of the ISO, we now believe that Mr. |
| 23 little bit of time. I'll be out of town next | 23 Smagula is correct, that the modeling of |
| 24 week, for instance. And so, if we could make | 24 economic dispatch -- or to say it another |




| [WITNESS PANEL: McCluskey\|Arnold] <br> Page 81 | [WITNESS PANEL: McCluskey\|Arnold] Page 83 |
| :---: | :---: |
| 1 A. (By Mr. McCluskey) I believe the higher heat | 1 A. (Mr. Arnold) Okay. The conclusion from the |
| 2 rate was attributable to the | 2 final backcast analysis is that the model |
| 3 operating reserves, and, as I've stated, | 3 came within 45 percent of the actual 2010 |
| 4 provision of those reserves do not imp | 4 |
| 5 the economic result. So, while there might | 5 Q. Forty-five percent |
| 6 be an implication that they use a lower he | 6 A. (By Mr. Arnold) Forty-five percent. |
| 7 rate, what I'm saying today is it should not | 7 a difference of 1.2 million or two point |
| 8 | 8 it's 45 perce |
| 9 Q. On Page 12, L | 9 Q. That was the analysis that led to the |
| 10 that over the | 10 uncovering of a few other errors in the |
| 11 costs incurred by | 11 Levitan report; rig |
| 12 exceeded the benefits received. Do I have | 12 A. (By Mr. Arnold) Well, yeah. From |
| 13 | 13 to the end, the process of building up the |
| 14 A. (By | 14 backcast and setting up the model led |
| 15 | 15 some dis |
| 16 | 16 A. (By Mr. McCluskey) The primary purpose of |
| 17 A. (By Mr. M | 17 the backcast analysis was to -- because |
| 18 the historic perio | 18 analysis period looked forward 2011 through |
| 19 analysis period. | 19 2020, we needed something to benchmark the |
| 20 BY M | 20 analysis. We didn't have final 2011 results |
| 21 Q. I | 21 from Newington at the time. So we said, |
| 22 <br> te | 22 well, based on as experience of doing these |
| 23 th | 23 kind of analyses for other models, le |
| 24 ES docket in 2009. Does that sound correct | 24 change the data, the input data that would |
| [WITNESS PANEL: McCluskey\|Arnold] Page 82 | [WITNESS PANEL: McCluskey\|Arnold] Page 84 |
| 1 to | 1 allow us to actually |
| 2 A. (By Mr. McCl | 2 backwards, determine what the model was |
| 3 from reading the Commission's order that Mr. | 3 predicting for, I believe the energy n |
| 4 Mullen had something to say in the energy | 4 revenues for 2010. And we actually ha |
| 5 service proceeding, but I never reviewed his | 5 actual net revenues for that period. An |
| 6 testimony, if he filed any. | 6 the bottom line was it was substantially |
| 7 Q. And your Exhibit 7 to your | 7 off. And one of the benefits of the |
| 8 net profit and loss in net energ | 8 analysis was we actually -- when the Company |
| 9 from 2005 to 2010. Do I have that correct? | 9 tried to explain the difference, they were |
| 10 A. (By Mr. McCluskey) | 10 able to determine that there was som |
| 11 second from the bottom I think | 11 additional errors that had not been caught |
| 12 you're referring to, the net profit or loss? | 12 in the first revision that they submitted in |
| 3 Q. That's right. And what does that show ag | 13 April 2010. |
| 14 for those years? | 14 So, not only did we find that the model |
| 15 A. (By Mr. McClu | 15 was not predicting actual results for 2010, |
| 16 through 2010, this analysis shows that the | 16 we actually found some additional errors |
| 17 Company recorded on its books losses ranging | 17 which we attempted to eliminate through our |
| 18 from a high of almost \$21 million to a low | 18 re-run, and that produced the $\$ 37$ million |
| 19 of \$3.6 million | 19 Q. On Page 23 of your original testimony, you |
| 20 Q. T | 20 had expressed a concern about the impact of |
| 21 backcasting analysis that you had reques | 21 Northern Pass; correct? |
| 22 that Levitan perform. Could you summarize | 22 A. (By Mr. McCluskey) You have a particular |
| 23 essentially what you conclude from that | 23 line number? Okay. I see it. Starting on |
| 24 analysis. | 24 Line 5. |


| [WITNESS PANEL: McCluskey\|Arnold] Page 85 | [WITNESS PANEL: McCluskey\|Arnold] Page 87 |
| :---: | :---: |
| 1 Q. Yes | 1 updated twice, if I'm correct. And that |
| 2 A. (By Mr. McCluskey) Yes. Yes, the concern is | 2 G.1, as you say here, shows that Newington |
| 3 described | 3 recorded losses on its regulatory books in |
| 4 Q . And then after the information contained in | 4 each of the six years ending in 2010 and |
| 5 the CRA study was provided in your | 5 that those losses were collected from PSNH |
| 6 supplemental testimony, you evaluated the | 6 retail customers through rates regulated by |
| 7 CRA data with regard to Newington. And | 7 the Commission. I mean, do I understand |
| 8 obviously, the CRA data sort of had it both | 8 that correctly? Is that essentially the |
| 9 ways, with and without Northern Pass. Do | testimony that you gave there? |
| 10 you recall that? | 10 MS. KNOWLTON: I'm going to |
| 11 A. (By Mr. McCluskey) That's correct. It did. | 11 object. I really just feel like this is a |
| 12 Q. And what did you conclude, based on your | 12 regurgitation of the testimony. I don't hear |
| 13 review of the CRA data | 13 Mr. McCluskey saying anything new. I don't |
| 14 A. (By Mr. McCluskey) The CRA study addressed | 14 hear that there's actually a question there |
| 15 energy not -- addressed the impact of market | 15 except for, "Did I read your testimony |
| 16 energy prices in New England as a result of | 16 correctly?" |
| 17 the Northern Pass project being completed, | 17 MR. PATCH: Well, I have another |
| 18 and so it did not -- although, I believe we | 18 question actually related to that. I was |
| 19 argue in the testimony that it would also | 19 trying to lay a foundation for that. And my |
| 20 have an impact on the capacity prices. The | 20 question basically is whether the corrections |
| 21 CRA did not address capacity prices. | 21 that were made after that, in which direction |
| 22 So what the CRA study did, it included | 22 did those corrections go, in terms of the |
| 23 cost estimates of how the -- how | 23 testimony that he has here. |
| 24 Newington -- because the work papers for the | 24 CHAIRMAN IGNATIUS: All right. |
| [WITNESS PANEL: McCluskey\|Arnold] Page 86 | [WITNESS PANEL: McCluskey\|Arnold] Page 88 |
| CRA study had information relative to | 1 You may ask |
| Newington, it was able to determine the | 2 MR. PATCH: Or whether this |
| 3 incremental impact of Northern Pass with and | 3 review -- |
| 4 without the project. And so that was the | 4 BY MR. PATCH: |
| 5 primary benefit. It showed that the | 5 Q. When you did this review, you had all of |
| 6 Northern Pass would have the downward prices | 6 those corrections before you? |
| 7 resulting from the completion of the | 7 A. (By Mr. McCluskey) The exhibit that supports |
| 8 Northern Pass, would impact the revenues | 8 the testimony on Page 11 is Staff Exhibit 7. |
| 9 and -- I believe the revenues, the net | 9 And I believe when I prepared that exhibit, |
| 10 revenues for Newington. That was a critical | 10 I already had the corrections submitted by |
| 11 result that we got from that data from | 11 PSNH. So, subject to check, the results of |
| 12 Northern -- from the CRA study. | 12 Exhibit 7 reflect those corrections. I'd |
| 13 Q. On Page 11 of your testimony -- and I'm | 13 have to check that. |
| 14 looking at Line 13 on Page 11, of your | 14 Q. But the bottom line on it is that it shows |
| 15 original testimony, not the supplemental -- | 15 that Newington had reported losses on its |
| 16 you had indicated there that even the LAI | 16 regulatory books in each of the six years |
| 17 reports indicated that Newington's recent | 17 ending in 2010; is that correct? |
| 18 financial performance has not been good; is | 18 A. (By Mr. McCluskey) That's my testimony based |
| 19 that correct? | 19 on Exhibit 7. |
| 20 A. (By Mr. McCluskey) Yes, that's the essence | 20 CHAIRMAN IGNATIUS: And just for |
| 21 of what I say in Lines 13 through 17. | 21 the sake of the record, when you say "Staff |
| 22 Q. And in reaching that conclusion, you had | 22 Exhibit 7," you mean the attachment to your |
| 23 looked at G. 1 to the original study. And I | 23 testimony which is Staff Exhibit 1? |
| 24 think that information has in fact been | 24 WITNESS McCLUSKEY: That's |


| [WITNESS PANEL: McCluskey\|Arnold] Page 89 | [WITNESS PANEL: McCluskey\|Arnold] Page 91 |
| :---: | :---: |
| 1 correct. That's one of the problems. | 1 "backing in." One of the results of the |
| 2 CHAIRMAN IGNATIUS: That's fine. | 2 economic analysis is to produce the expected |
| 3 WITNESS McCLUSKEY: We realized | 3 capacity factors for operation each year. |
| 4 that we were using the same description for | 4 So, each of the three studies that I've made |
| 5 the attachments to our testimony. | 5 reference to have produced \$152-, \$72- and |
| 6 MR. SPEIDEL: Well, yeah. It's | $6 \quad \$ 37$ million would have separate set of |
| 7 all right, Mr. McCluskey. As a matter of | 7 capacity factors associated with them. |
| 8 fact, we can say that Staff Exhibit 7 as | 8 Q. And do you recall the capacity factors that |
| 9 styled is actually on numeral Page 57 of Staff | $9 \quad$ were included in those particular charts? |
| 10 Exhibit 1. So, perhaps going forward we can | 10 Were they consistent with recent capacity |
| 11 refer to pages within Staff Exhibit 1. | 11 factors, or were they in fact higher than |
| 12 WITNESS McCLUSKEY: Okay. Thank | 12 recent capacity factors? |
| 13 you. | 13 A. (By Mr. McCluskey) Well, I actually have th |
| 14 BY MR. PATCH: | 14 exhibits. The information is actually |
| 15 Q. And maybe just to follow up on that, then, | 15 provided on Exhibit G. 17 of the initial |
| 16 on Page 57 of that exhibit, could you just | 16 study -- of the revised study. And Levitan |
| 17 quickly run through the energy net revenues | 17 \& Associates kindly produced what they |
| 18 that you have on those exhibits for the | 18 titled as "Attachment 2" that produces the |
| 19 years listed for Newington Station. | 19 similar numbers under the run that produced |
| 20 A. (By Mr. McCluskey) Yeah. | 20 the $\$ 37$ million estimate. So, as I said, |
| 21 CHAIRMAN IGNATIUS: Before we do | 21 each of those has a separate set of capacity |
| 22 that and make the court reporter's brain | 22 factors, particularly for what they call the |
| 23 almost explode, since numbers are particularly | 23 "expected value" for these benefits. |
| 24 hard, we have it in front of us. What is your | 24 Q. And do you recall whether those -- how they |
| [WITNESS PANEL: McCluskey\|Arnold] Page 90 | [WITNESS PANEL: McCluskey\|Arnold] Page 92 |
| 1 question? | 1 measure up against recent capacity |
| 2 MR. PATCH: I just want to make | 2 factors -- actual capacity factors for |
| 3 sure that the record was clear on what those | 3 Newington Station? |
| 4 numbers were. I guess that should be fine, as | 4 A. (By Mr. McCluskey) Yes. In recent years, |
| 5 long as the record's clear that that's where | 5 the capacity factor has dropped |
| 6 those numbers are located. | 6 significantly to in the range of 3 to |
| 7 BY MR. PATCH: | $7 \quad 4$ percent in the most recent years. |
| 8 Q. On Page 24 of your direct testimony, you had | 8 In the initial study, the expected |
| 9 expressed a concern about the lower level of | 9 value for the capacity factors ranged -- it |
| 10 capital expenditures that were used by | 10 was in the 16- to 17-percent range. In the |
| 11 Levitan in the model; is that fair? | 11 revised study, it was in the 8 to 9 -- |
| 12 A. (By Mr. McCluskey) You're referring to the | 12 actually, there's a figure there of 10.7. |
| 13 half-million dollars? | 13 So, 10.7 was the tops and 7 was the lowest |
| 14 Q. Yes. | 14 number. In the run that produced the |
| 15 A. (By Mr. McCluskey) Yes. | $15 \quad \$ 37$ million net benefit, the capacity factor |
| 16 Q. And you had also noted that Levitan had | 16 was typically in the high 3s to mid 4s. |
| 17 assumed that the plant capacity factor would | 17 CMSR. HARRINGTON: Excuse me |
| 18 be much higher in the future than in recent | 18 Which document are you reading from on that |
| 19 years. I'm not sure it was a direct -- if I | 19 last one? |
| 20 understand correctly, I think you may have | 20 WITNESS McCLUSKEY: The Company |
| 21 backed into those plant capacity numbers. | 21 submitted their discovery response to a |
| 22 I'm not sure they're ones you directly | 22 technical session question which provided the |
| 23 relied upon. Is that correct? | 23 results of the run that produced the \$37 |
| 24 A. (By Mr. McCluskey) I don't think I'd call it | 24 million net benefit. |


| [WITNESS PANEL: McCluskey\|Arnold] Page 93 | [WITNESS PANEL: McCluskey\|Arnold] Page 95 |
| :---: | :---: |
| 1 CMSR. HARRINGTON: Is that in as | 1 discussion relating to the decision by |
| 2 evidence or | 2 Levitan not to include the impact of the |
| 3 WITNESS McCLUSKEY: I believe it | 3 Northern Pass Transmission Project in its |
| 4 has | $4 \quad \mathrm{CUO}$ analysis? |
| 5 MR. SPEIDEL: Yes. As a matter | 5 A. (By Mr. McCluskey) Yes, I do. |
| 6 of fact, it was submitted as evidence quite a | 6 Q. And are you familiar with the |
| 7 while ago. I believe it was PSNH exhibit -- | 7 Levitan/Carlson rebuttal testimony that's |
| 8 just give me a sec -- 1 | 8 PSNH Exhibit 8 |
| 9 CMSR. HARRINGTON: Thank you. | 9 A. (By Mr. McCluskey) Yes, I am. |
| 10 MR. SPEIDEL: It has a cover | 10 Q. -- where on Page 17 they state that, quote, |
| 11 letter dated July the 12th. Am I right, Mr. | 11 There is no need to accelerate a retirement |
| 12 McCluskey? | 12 decision based on the uncertain prospect |
| 13 WITNESS McCLUSKEY: I'll accept | 13 that the NPT project will be operational |
| 14 your statement that it is Exhibit 11. | 14 well before the end of the study horizon? |
| 15 A. (By Mr. McCluskey) You'll find two sheets, | 15 A. (By Mr. McCluskey) What page is that? |
| 16 one of which has the figure of | 16 Q. Page 17. |
| $17 \quad \$ 36.78$ million; and the other sheet has kind | 17 CHAIRMAN IGNATIUS: And again, |
| 18 of supporting information, and that's | 18 are you using the center numbers or the Bates |
| 19 labeled "Attachment 2." The first sheet was | 19 Stamp numbers? |
| 20 labeled "Attachment 1." And it's in | 20 MR. PERESS: I am using the |
| 21 Attachment 2 that has the capacity factor | 21 center numbers |
| 22 numbers. I see Mr. -- Commissioner | 22 A. (By Mr. McCluskey) And what line? I see it. |
| 23 Harrington looking at Attachment 2. It's | 23 It's in the middle of the second Q \& A. |
| 24 the first block, "Expected Value," where I | 24 MR. SPEIDEL: Can you give a |
| [WITNESS PANEL: McCluskey\|Arnold] Page 94 | [WITNESS PANEL: McCluskey\|Arnold] Page 96 |
| 1 was reading off the capacity factor numbers. | 1 line number for the hearing room, Mr. |
| 2 CMSR. HARRINGTON: Thank you. | 2 McCluskey? |
| 3 MR. PATCH: Okay. That's all | 3 A. (By Mr. McCluskey) Starting at -- the |
| 4 the questions I have. Thank you. | 4 sentence begins at Line 21 and runs through |
| 5 CHAIRMAN IGNATIUS: Thank you. | 5 Line 26. |
| 6 Ms. Smith. | 6 BY MR. PERESS: |
| 7 MS. SMITH: No, thank you. | 7 Q. And Mr. McCluskey, you were here during the |
| 8 CHAIRMAN IGNATIUS: Mr. | 8 cross-examination of Mr. Levitan yesterday. |
| 9 Cunningham. | 9 Yes? |
| 10 MR. CUNNINGHAM: No. | 10 A. (By Mr. McCluskey's) Could I just get it -- |
| 11 CHAIRMAN IGNATIUS: Mr. | 11 are we on the same page? The line numbers I |
| 12 Steltzer. | 12 referred to, is that where your question is |
| 13 MR. STELTZER: No questions. | 13 going? |
| 14 Thank You. | 14 Q. I was just using it, actually, to establish |
| 15 CHAIRMAN IGNATIUS: Mr. Peress, | 15 a foundation for my questions. It's not |
| 16 questions? | 16 that critical. And, yes, I was starting at |
| 17 MR. PERESS: Yes, thank you, | 17 Line 18. |
| 18 Madam Chair. I'm going to direct my questions | 18 You were here during Mr. Levitan's |
| 19 primarily to Mr. McCluskey, although CLF | 19 cross-examination yesterday; correct? |
| 20 doesn't have any objection to the other | 20 A. (By Mr. McCluskey) Yes. |
| 21 witness chiming in. | 21 Q. Do you recall Mr. Levitan stating something |
| 22 CROSS-EXAMINATION | 22 to the effect that, if the Northern Pass |
| 23 BY MR. PERESS: | 23 Transmission Project becomes more certain, |
| 24 Q. Mr. McCluskey, do you recall yesterday's | 24 then the conclusions in the CUO need to be |



| [WITNESS PANEL: McCluskey\|Arnold] Page 101 | [WITNESS PANEL: McCluskey\|Arnold] Page 103 |
| :---: | :---: |
| 1 and NSTAR on a 75 -percent and 25-percent | 1 transmission services agreement. Do you |
| 2 basis, respectively.' | 2 rec |
| 3 Q. Just one more section of this docu | 3 A. (By Mr. McCluskey) Yes. |
| 4 CHAIRMAN IGNATIUS: Mr. Peress, | 4 Q. And the project would rely on PSNH's rights |
| 5 please, why are we reading documents that are | 5 of way; is that correct? |
| 6 marked for exhibits into the record? | 6 A. (By Mr. McCluskey) That's correct, in part. |
| 7 MR. PERESS: I'm just creating | 7 Q. And it would, in part, rely on PSNH's |
| 8 foundation for some of the questions relating | 8 substation in Franklin? Is that your |
| 9 to PSNH's interest in activities with respect | 9 understanding? |
| 10 to the Northern Pass Transmission Project and | 10 A. (By Mr. McCluskey) You're getting to the |
| 11 how that should have been reflected in the | 11 limits of my memory now. I couldn't say at |
| 12 Continued Unit Operations Study. | 12 this point whether that's the case. |
| 13 CHAIRMAN IGNATIUS: Ask your | 13 Q. Mr. McCluskey, do you believe Northern Pa |
| 14 question. We have the document in front of | 14 is a significant element in PSNH's least |
| 15 us | 15 cost integrated resource planning? |
| 16 BY MR. PERESS | 16 A. (By Mr. McCluskey) No, based on the fact |
| 17 Q. Mr. McCluskey, if you'd look at the second | 17 that I don't recall the Northern Pass |
| 18 paragraph of the document, does it state | 18 project being discussed in the IRP. |
| 19 that NPT expects to commence construction in | 19 MS. KNOWLTON: I'd actually like |
| 202012 or 2013, with power flowing in the | 20 to object to the question and ask that the |
| 21 second half of 2015? | 21 answer be stricken. We're here on the CUO. |
| 22 (Witness reviews document.) | 22 We're not here on the IRP. And clearly, Mr |
| 23 A. (By Mr. McCluskey) That's correct | 23 Peress is asking questions about the IRP |
| 24 Q. So, from this document, does it appear that | process. |
| [WITNESS PANEL: McCluskey\|Arnold] Page 102 | [WITNESS PANEL: McCluskey\|Arnold] Page 104 |
| 1 the expectation of one of the Northern Pass | 1 CHAIRMAN IGNATIUS: I agree with |
| 2 Transmission partners was that the project | 2 that. Is there some way this ties in to the |
| $3 \quad$ would be in service by 2015? | 3 CUO discussions? |
| 4 A. (By Mr. McCluskey) At the time this filing | 4 MR. PERESS: Yes. In the first |
| 5 was made, that's correct. | 5 instance, the CUO is part of the IRP. In |
| 6 Q. Have you reviewed the transmission services | 6 fact, the Commission, in its order, which was |
| 7 agreement that this filing refers to? | 7 Order 25,263, stated that the purpose of the |
| 8 A. (By Mr. McCluskey) Quite some time ago. I | 8 CUO study is to assess the efficacy of PSNH's |
| 9 must have had some free time on my hands and | 9 planning. |
| 10 I reviewed that document. But please don't | 10 CHAIRMAN IGNATIUS: I understand |
| 11 ask me what was in it. | 11 that. But we separated this proceeding into |
| 12 Q. Well, how about if I ask you this: Are you | 12 two pieces, one dealing with the least cost |
| 13 aware of any facts that suggests that PSNH | 13 plan itself, and the second with the CUO. So |
| 14 was substantially and meaningfully engaged | 14 if you have a tie-in between the two, I think |
| 15 in planning for the Northern Pass | 15 that's appropriate. If not, we've been |
| 16 Transmission Project prior to submitting the | 16 through the issues about the plan itself. |
| 17 CUO and LCIRP? | 17 MR. PERESS: Madam Chair, you |
| 18 A. (By Mr. McCluskey) That PSNH was engaged? | 18 unfortunately weren't here yesterday. We had |
| 19 Q. Yes. | 19 some discussion yesterday about whether the |
| 20 A. (By Mr. McCluskey) Yes. Several documents | 20 division of witnesses was preclusive with |
| 21 that I read indicated that PSNH was, if not | 21 respect to asking questions. Now, CLF's |
| 22 direct, a party involved in the development | 22 perspective is that the questions we're asking |
| 23 of the project. | 23 relate directly to whether or not the CUO |
| 24 Q. And PSNH has a very significant role in that | 24 should have addressed in detail the results of |


| [WITNESS | S PANEL: McCluskey\|Arnold] Page 105 | [WITNESS PANEL: McCluskey\|Arnold] Page 107 |
| :---: | :---: | :---: |
| 1 | the Northern Pass project. | 1 Chair. We were discussing whether an analysis |
| 2 | CHAIRMAN IGNATIUS: That's fine. | 2 of the impacts of the Northern Pass |
| 3 | You can pursue that. | 3 Transmission Project should have been included |
| 4 | MR. PERESS: I'd like to pass | 4 in the Continued Unit Operations Study. So I |
| 5 | out one more exhibit, plea | 5 have distributed to everyone here during the |
| 6 | CHAIRMAN IGNATIUS: Actually, | 6 break a document with the moniker of Concord |
| 7 | it's $3: 15$. Why don't we take a break. Is | 7 Monitor, at the top of it. So if anyone |
| 8 | that all right? Unless you're almost done. | 8 doesn't have that, could you please let me |
| 9 | MR. PERESS: No, that's fine. | 9 know. |
| 10 | CHAIRMAN IGNATIUS: And let's | 10 For identification purposes, I |
| 11 | try to keep it to 10 minutes. And we can | 11 propose that we mark this as CLF 10, please. |
| 12 | go -- we can't go much beyond 4:30 this | 12 THE CLERK: Eleven. |
| 13 | afternoon. Let's go off the order for a | 13 CHAIRMAN IGNATIUS: Eleven. |
| 14 | moment. | 14 MR. PERESS: Eleven. I'm sorry. |
| 15 | (Discussion off the record) | 15 (The document, as described, was |
| 16 | (WHEREUPON a brief recess was taken at | 16 herewith marked as CLF 11 for |
| 17 | 3:20 p.m. and the hearing resumed at | 17 identification.) |
| 18 | 3:40 p.m.) | 18 BY MR. PERESS: |
| 19 | CHAIRMAN IGNATIUS: We're back | 19 Q. Mr. McCluskey, can you focus on the fifth |
| 20 | on the record. We are back for the final | 20 paragraph down, please, that starts, "As a |
| 21 | session this afternoon. We've had some time | 21 subsidiary..." |
| 22 | working on some schedule issues. We will, at | 22 A. (By Mr. McCluskey) Okay. |
| 23 | the close of today, because we won't be | 23 Q. And can you review that paragraph, please, |
| 24 | finished, we'll reconvene tomorrow, Thursday, | 24 just so that I can ask a few questions about |
| [WITNESS | S PANEL: McCluskey\|Arnold] Page 106 | [WITNESS PANEL: McCluskey\|Arnold] Page 108 |
| 1 | at 9:00 in the morning. We've reserved space | 1 it. |
| 2 | in the hearing room, assuming we'll only be | 2 (Witness reviews document.) |
| 3 | the morning. But it's set aside until 1:00. | 3 A. (By Mr. McCluskey) Read it. |
| 4 | And we have agreed that we, at the close of | 4 Q . The document that's been marked as CLF |
| 5 | evidence -- and obviously, we've got a few | 5 Exhibit 11 appears to be an article or |
| 6 | record requests that have to come in as | 6 letter to the Concord Monitor, dated |
| 7 | well -- we will not do oral closings. We'll | 7 March 5th, 2011; is that correct? |
| 8 | move to written briefs which will be due two | 8 A. That's correct. |
| 9 | weeks after the transcript is finalized, which | 9 Q. And can you tell me who wrote this article, |
| 10 | we understand won't be until after the end of | 10 please? |
| 11 | next week. So, whatever date that transcript | 11 A. (By Mr. McCluskey) Gary Long. |
| 12 | comes, presumably a week or 10 days from now, | 12 Q. And if you go to the very end of the |
| 13 | it will be two weeks from then that briefs are | 13 article, can you tell me in what capacity |
| 14 | due. And when the transcript's in, why don't | 14 Mr. Long prepared this letter? |
| 15 | we send out a letter just giving a firm date | 15 A. (By Mr. McCluskey) He's the president and |
| 16 | so that everyone's aware. | 16 chief operating officer of PSNH. |
| 17 | Is that it? Oh, and then we | 17 Q. And he also prepared this letter, |
| 18 | talked about trying to limit briefs to no | 18 apparently, as a representative of NU |
| 19 | more than 25 pages. | 19 Transmission Ventures, which owns 75 percent |
| 20 | Any other procedural issues? | 20 of Northern Pass Transmission, LLC? |
| 21 | If not, then, Mr. Peress, we cut you off | 21 A. Yes, he did. |
| 22 | right in the middle of your | 22 Q. And in that fifth paragraph down, does |
| 23 | cross-examination. So you may resume. | 23 Mr. Long explain that the Northern Pass |
| 24 | MR. PERESS: Thank you, Madam | 24 Transmission Project is, quote, absolutely |



|  |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

|  | $\begin{aligned} & \text { 14:2,4;36:6;50:13; } \\ & \text { 71:12,16;81:9 } \\ & \text { 12th (1) } \\ & \text { 93:11 } \end{aligned}$ |  | 4 | $\begin{gathered} 113: 4,5,11 \\ \mathbf{8 9}(\mathbf{1}) \\ 68: 24 \\ \text { 8th (1) } \\ 17: 12 \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| \$ |  |  |  |  |
|  | $13 \text { (5) }$ | $\begin{aligned} & 22 \text { (4) } \\ & \text { 49:7,16;50:13;57:19 } \end{aligned}$ | $4(10)$ |  |
| $\begin{array}{r} \$ 152(\mathbf{1}) \\ 74: 14 \end{array}$ | $\begin{aligned} & 17: 4 ; 42: 19 ; 45: 18 \\ & 86: 14,21 \end{aligned}$ | $23 \text { (4) }$ | $\begin{aligned} & 13: 2 ; 20: 19 ; 34: 17,19, \\ & 24 ; 35: 23 ; 42: 20 ; 53: 6 ; \\ & 62: 21 ; 92: 7 \end{aligned}$ | 9 |
| \$152-(1) | $\begin{gathered} \mathbf{1 3 , 5 0 0}(\mathbf{1}) \\ 80: 19 \end{gathered}$ | $\begin{aligned} & 84: 19 \\ & \mathbf{2 4}(\mathbf{8}) \end{aligned}$ | 4.0 (4) <br> 54:18;57:23;58:10,13 | 9 (10) |
| \$21 (1) | $\begin{aligned} & 14(3) \\ & \quad \text { 6:16;51:24;98:3 } \end{aligned}$ | $\begin{aligned} & \text { 50:3;53:7,24;54:1,3,4; } \\ & 63: 10 ; 90: 8 \end{aligned}$ | 4.4 (4) $54: 19 ; 57: 20 ; 58: 8,15$ | 22:24;38:11,12,17; |
| \$3.6 (1) | 15 (2) <br> 15:1;44:18 | 25 (7) | 4:00 (1) | 80:14;92:11;99:15 |
| \$3.7 (3) | 15th (5) | 6:20;7:14;53:20;54:2, 4,8;106:19 | 4:30 (1) | 106:1;113:3,6,12,14 |
| 59:5;75:16;77:5 \$36.78(1) | $37: 18 ; 38: 13 ; 41: 22 ;$ $43: 7 ; 44: 12$ | 25,263 (1) | $40 \text { (1) }$ | A |
| 93:17 | $16 \text { (5) }$ | $\begin{array}{\|c} \text { 104:7 } \\ \text { 25-percent (1) } \end{array}$ | 50:12 |  |
| $\begin{aligned} & \$ 37(\mathbf{6}) \\ & 75: 3 ; 84: 18 ; 91: 6,20 \\ & 92: 15,23 \end{aligned}$ | 18:2,6;45:19;59:3,416-(1) | 101:1 26 (4) | 41 (1) | $\begin{aligned} & \text { ability (2) } \\ & 25: 15 ; 109: 1 \\ & \text { able (13) } \end{aligned}$ |
|  |  | 26 (4) $49: 8,17 ; 59: 6 ; 96: 5$ | 53:6 |  |
| \$4.1 (1) | 17 (7) | 27th (2) | $45(2)$ | $\begin{aligned} & \text { 9:8;12:6;15:4;28:14, } \\ & \text { 18;32:4,12,15;40:12; } \\ & \text { 41:3;72:17;84:10;86:2 } \\ & \text { Absolutely (4) } \end{aligned}$ |
| 59:4 | 59:6,8,13;86:21; | 17:16;43:3 | 4s (1) |  |
| \$72 (1) | $\begin{aligned} & \text { 95:10,16;98:3 } \\ & \text { 17-percent (1) } \end{aligned}$ | 28 (2) | 92:16 |  |
| 74:17 |  | 62:20,21 | 4th (3) 100:6,13,14 |  |
| \$72-(1) | $\begin{aligned} & 92: 10 \\ & 18(2) \end{aligned}$ | $29(2)$ | $100: 6,13,14$ | $\begin{aligned} & 17: 20 ; 22: 21 ; 27: 18 ; \\ & 108: 24 \end{aligned}$ |
| $\begin{aligned} & \text { \$9- (3) } \\ & 76: 15,19 ; 77: 3 \end{aligned}$ | $\begin{array}{r} 81: 9 ; \\ \mathbf{1 9}(\mathbf{1}) \\ 81: 9 \\ \text { 1st (1) } \\ 35: 5 \end{array}$ | $\begin{array}{\|c} \text { 2nd (1) } \\ 36: 9 \end{array}$ | 5 |  |
|  |  |  |  | 65:2 |
|  |  | 3 | $5(1)$ | accelerate (1) 95:11 |
|  |  |  | 500,000 (1) | accept (2) <br> 40:17:93.13 |
| [sic] (1) 63.8 | 2 | 3 (5) |  | $40: 17 ; 93: 13$ |
| 63:8 | 2 | $\begin{gathered} 0.10, \\ 98: 1 \\ \mathbf{3 : 1 5} \text { (1) } \end{gathered}$ | $\begin{array}{\|c\|c\|} \hline 17: 5 \end{array}$ | $\begin{array}{r} 36: 5 ; 42: 12 \\ \text { accepted (1) } \end{array}$ |
| 1 | 2 (10) |  | 57 (2) |  |
|  | 14:2,23;17:4;37:10; | $\begin{array}{r} \mathbf{3 : 1 5 ( 1 )} \\ 105: 7 \end{array}$ | 89:9,16 |  |
| 1 (30) | $\begin{aligned} & 55: 18 ; 91: 18 ; 93: 19,21, \\ & 23 ; 97: 24 \end{aligned}$ | 3:20 (1) | 5th (1) | $\begin{aligned} & \text { access (20) } \\ & 25: 11 ; 29: 3,14,19 \\ & 30: 2,3,10,16,17 ; 32: 2,7, \\ & 9 ; 40: 15,20 ; 47: 8,23,24 ; \\ & 51: 1 ; 54: 22 ; 65: 5 \end{aligned}$ |
| 6:13;13:9,13;14:2,22; |  | 3:40 (1) | 108:7 |  |
| 17:15,17;22:10,23; 23:13,19,20:24:3,3,7 | $20 \text { (2) }$ |  |  |  |
| 45:2,14;57:16,19,20,23; | $2005(2)$ | 3:52 (1) | 6 |  |
| $58: 8,10,13,15 ; 65: 13$ |  | 113:17 |  | $\begin{array}{\|c} \text { account (1) } \\ 77: 11 \end{array}$ |
| 88:23;89:10,11;93:20 | 2006 (1) | 30 (5) | $37: 10 ; 38: 15 ; 41: 9$ |  |
| 1.2 (1) | $\begin{array}{r} 68: 14 \\ \mathbf{2 0 0 9}(\mathbf{3}) \end{array}$ | $\begin{aligned} & 7: 12 ; 23: 19,24 ; 45: 14 \\ & 51: 15 \end{aligned}$ |  | $\operatorname{accuracy~}_{50 \cdot 5}(1)$ |
| 83:7 |  |  | 7 | 50:5 |
| 1:00 (1) | $\begin{aligned} & \text { 69:18,20;81:24 } \\ & \mathbf{2 0 1 0 ~ ( 1 8 ) ~} \end{aligned}$ | $\begin{aligned} & \text { 30-percent (1) } \\ & 51: 9 \end{aligned}$ |  | accurately (1) |
| 10 (16) | $\begin{aligned} & \text { 63:20;67:9;68:18,22; } \\ & \text { 69:17;72:12;81:10;82:9, } \\ & \text { 16;83:3;84:4,13,15; } \\ & \text { 87:4;88:17;100:6,13,14 } \\ & \mathbf{2 0 1 1}(\mathbf{1 7 )} \end{aligned}$ | 31st (1) | 7 (9) | acquire (1) |
| 8:20,23;38:9,14,17,20; |  | $323: 10$ | 12,19,22;89:8;92:13 | 67:22 |
| 39:3;74:14;75:2;76:22; |  | 32 (1) | 72 (3) | acted (2) |
| 99:17,19,21;105:11; |  | ${ }_{33} 52 \cdot 1$ | 6:19;74:20;75:6 | 30:7;31:1 |
| 106:12;107:11 |  | 33 (3) | 75 (1) | activated (3) |
| 10.7 (2) | $\begin{aligned} & 12: 21 ; 13: 3 ; 17: 12,16 \\ & 32: 3 ; 37: 10,18 ; 41: 9 \end{aligned}$ | $\begin{aligned} & \text { 23:19;24:3;52:13 } \\ & \mathbf{3 4} \text { (1) } \end{aligned}$ | $108: 19$ | $\begin{aligned} & 59: 24 ; 60: 7 ; 63: 2 \\ & \text { active (1) } \end{aligned}$ |
| 92:12,13 11 (18) | $\begin{aligned} & \text { 43:3;44:12,19;68:14; } \\ & \text { 69:18,21;83:18,20;108:7 } \end{aligned}$ | 52:13 | 75-percent (1) | $\begin{aligned} & 9: 5 \\ & \text { activities (2) } \end{aligned}$ |
| 11 (18) |  |  | 101:1 |  |
| 35:22;59:2;65:14,19; | $\begin{gathered} 2012(1) \\ 101: 20 \end{gathered}$ | 56 (1) | 8 | 19:12;101:9 |
| 69:9;70:5;71:7;75:1; |  | 37 (3) $73 \cdot 10 \cdot 75 \cdot 7.8$ |  | actual (12) |
| 86:13,14;88:8;93:8,14; | 2013 (1) | 73:10;75:7,8 | 8 (12) | $\begin{aligned} & 35: 15 ; 51: 15 ; 72: 9,14 ; \\ & 73: 1 ; 80: 7,10,19 ; 83: 3 ; \end{aligned}$ |
| 107:16;108:5 | 2015 (2) | 52:13 | $\begin{aligned} & 9: 13 ; 33: 23 ; 34: 3,24 ; \\ & 41: 18 ; 49: 3,13 ; 63: 9,14 ; \end{aligned}$ |  |
| 11,230 (1) |  |  | $\begin{aligned} & 41: 18 ; 49: 3,13 ; 63: 9,14 \\ & 79: 8 ; 92: 11 ; 95: 8 \end{aligned}$ | $\begin{aligned} & 84: 5,15 ; 92: 2 \\ & \text { actually (23) } \end{aligned}$ |
| 12 (7) | $\begin{array}{\|r\|r\|} \hline 101: 21 \\ \mathbf{2 0 2 0}(\mathbf{1}) \end{array}$ | $\begin{array}{\|c\|} \hline \mathbf{3 s}(\mathbf{1}) \\ 92: 16 \end{array}$ |  | 10:22;11:2;13:11; |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

| 54:18;68:16;69:21; | 9:24;27:14;28:11; | 112:15;113:14 | 6,12 | $24: 18 ; 41: 2 ; 71: 10$ |
| :---: | :---: | :---: | :---: | :---: |
| 72:16;81:11;84:1,4,8,16; | 30:9;33:15;34:9;36:17; | apparently (1) | ArnoldOkay (1) | 110:6 |
| 87:14,18;89:9;91:13,14; | 37:3,5,12;39:11,20,24; | 108:18 | 29:22 | average (9) |
| 92:12;96:14;103:19; | 40:2,18,23;42:9;44:9,11, | appear (1) | ArnoldYes (1) | 7:14;51:19;67:8,19; |
| 105:6;109:3;112:8 | 14,17,20,24;100:21; | 101:24 | 28:17 | 68:8,13,22;69:10;80:16 |
| add (1) | 102:7;103:1 | appears (4) | around (3) | averages (1) |
| 36:15 | agreements (2) | 6:11;63:21;99:24 | 14:10;38:4;59:3 | 68:3 |
| added (1) | 25:12;28:15 | 08:5 | arranged (1) | aware (2) |
| 36:16 | ahead (3) | applied (2) | 47:7 | 102:13;106:16 |
| addition (2) | 55:4;99:7,12 | 31:20;76:2 | arrive (1) | away (1) |
| 76:7,18 | Alexander (1) | applies (2) | 37:4 | 110:4 |
| additional (8) | 37:11 | 24:11;26:11 | article (3) |  |
| 53:9;57:5;61:13;73:5; | alleged (1) | approach (4) | 108:5,9,13 | B |
| 74:18;76:24;84:11,16 | 30:24 | 10:17;52:10;76:4 | artificially (2) |  |
| additionals (1) | allocated (1) | 8:19 | 19:15;20:3 | back (10) |
| 20:21 | 18:22 | appropriate (5) | aside (4) | 5:3,24;23:1;31:5; |
| additions (1) | allow (2) | 16:11;31:14;77:23; | 24:5;65:4,24;106:3 | 33:18;48:15;51:10; |
| $36: 4$ | 17:1;84:1 | 104:15;110:12 | asserted (1) | 105:19,20;113:6 |
| address (3) | allowing (1) | appropriately (1) | 30:17 | backcast (12) |
| 53:15,18;85:2 | 44:1 | 18:22 | assertions (5) | $48: 3,5,6,14,24 ; 49: 23$ |
| addressed (4) | almost (10) | approved (3) | 25:10;27:15,18,20; | $50: 8 ; 51: 21 ; 74: 18 ; 83: 2$ |
| 72:20;85:14,15; | 28:17;29:6,7;36:4; | 13:1;44:13,19 | 46:3 | 14,17 |
| 104:24 | 51:13;56:2;82:18;89:23; | approximately (4) | assess (2) | backcasting (1) |
| addresses (1) | 105:8;113:1 | 75:3,15;77:5;100:7 | 31:20;104:8 | 82:21 |
| 111:6 | alone (2) | April (1) | asset (2) | backcasts (2) |
| adequate (3) | 32:13;76:15 | 84:13 | 8:2;33: | 51:11,13 |
| 30:12;46:8;67:12 | along (1) | arbitrage (1) | assets (1) | backed (1) |
| adjourn (1) | 36:17 | 7:7 | 26:22 | 90:21 |
| 113:10 | although (2) | arbitraging (1) | associated (1) | background (4) |
| adjourned (1) | 85:18;94:19 | 11:17 | 91:7 | $48: 20 ; 53: 10 ; 59: 18$ |
| 113:17 | always (3) | archival (2) | Associates (6) | $66: 13$ |
| admitted (1) | 29:6;56:2;71:8 | 43:14;44:1 | 24:9;31:24;39:6; | backing (1) |
| 17:13 | among (2) | area (4) | 42:12;79:23;91:17 | 91:1 |
| adversely (2) | 16:23;35:20 | 8:8;21:24;22:2;23:13 | assume (2) | backstop (1) |
| 97:15;98:12 | amongst (1) | areas (1) | 6:22;11:24 | 18:17 |
| advisable (1) | 33:7 | 45:21 | assumed (1) | backwards (1) |
| 25:17 | amount (1) | arguably (1) | 90:17 | 84:2 |
| Advocate (2) | 11:20 | 9:14 | assuming (2) | bad (4) |
| 64:16;65:4 | analyses (2) | argue (1) | 75:8;106:2 | 30:8,23;31:1,5 |
| affect (3) | 77:11;83:23 | 85:19 | assumption (4) | base (2) |
| 97:15,18;98:12 | analysis (31) | argued (1) | 79:5;80:5,12,12 | 55:6;78:2 |
| affects (2) | 10:4;22:8;27:2,22; | 77:19 | assumptions (1) | based (16) |
| $62: 7 ; 97: 17$ | 32:21;41:1;46:10;47:7; | Arnold (121) | 74:22 | 6:11;14:19;51:17,19; |
| AFTERNOON (5) | 50:5;51:3;54:10;58:12; | 20:12,24;21:3,6,9,13, | attached (2) | 60:18;68:17;74:23;79:5; |
| 5:1;78:19;105:13,21; | 74:18;75:18;76:13;77:2, | 14,17,18,22;22:2,12,15, | 42:13,14 | 80:4;83:22;85:12;88:18; |
| $113: 16$ again (10) | 12;80:2;81:19;82:16,21, | 18;23:2,4,5,9;24:1; | attachment (7) | 95:12;97:11;103:16; |
| again (10) 23:22;44:15;48:10; | 24;83:2,9,17,18,20;84:8; 91:2;95:4;107:1 | 26:16,24;27:4;28:7,21; | $\begin{aligned} & 17: 15 ; 88: 22 ; 91: 18 ; \\ & 93: 19,20,21,23 \end{aligned}$ | $111: 13$ basic (2) |
| $\begin{aligned} & \text { 23:22;44:15;48:10; } \\ & \text { 56:6;59:11;82:13;95:17; } \end{aligned}$ | analyst's (1) | $\begin{aligned} & \text { 29:6,18;30:15,24;31:23; } \\ & 32: 4 ; 33: 5,11,12,16 ; \end{aligned}$ | attachments (1) | basic (2) $30: 15 ; 32: 23$ |
| 110:9;112:7;113:6 | 55:21 | 34:13,19,22;35:1,6,10, | 89:5 | basically (4) |
| against (2) | analytical (1) | 14,24;36:10,13,15,18, | attempted (1) | 52:10;53:18;55: |
| 57:1;92:1 | 17:7 | 22;37:4,15,19,20,23; | 84:17 | 87:20 |
| ago (4) | analyzed (2) | 38:6,13;39:21;40:14,20; | attended (1) | basis (19) |
| 58:12;93:7;102:8 | 26:20;111:18 | 41:7,10,14,22;42:8,13, | 9:20 | 50:24;51:21;55:8,12; |
| 110:17 | analyzing (1) | 15,24;43:2,11,13,19,21; | attendees (1) | 61:24;62:5;63:19,22; |
| agree (15) | 29:2 | 44:3,8,15,21;45:3,9,10, | 33:7 | 66:17,24;67:8,12;69:11, |
| 8:12;24:11;26:10,16; | and/or (1) | 13,17;46:19;47:3,11,16, | Attorney (2) | 12,16;74:24;98:22; |
| 37:3;38:24;41:11;50:22; | 28:15 | 20;48:4,24;49:4,6,14,18, | 27:7;70:17 | 101:2;110:2 |
| 55:23;63:24;64:7;69:15, | Anne (1) | 20,24;50:7,9,15,16,18; | attributable (1) | Bates (1) |
| 19;97:7;104:1 | 35:16 | 51:22;52:4,7,9,14;53:5, | 81:2 | 95:18 |
| agreed (4) | answered (2) | 8,12,17;54:5,12,14,17; | Atty (1) | bear (3) |
| 44:10,16;53:18;106:4 | 10:1;99:9 | 55:5;56:9,19;57:8,9; | 38:2 | 40:6,22;111:16 |
| agreement (26) | apologize (2) | 58:11;71:20;78:22;83:1, | available (4) | becomes (2) |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

8:19;96:23
begin (2) 21:6;112:14
beginning (4) 17:4;34:6;100:13; 113:7
begins (3) 50:12;51:24;96:4
behalf (2) 24:9;39:22
believes (1)
27:16
below (1) 6:19
Bench (3) 5:4;20:20;112:6
benchmark (3) 50:19;51:9;83:19
benefit (15) 19:2,4;48:18;60:20; 74:10,13;75:2,12,14,16; 78:7;80:1;86:5;92:15,24
benefits (12) 6:20;10:5;12:19; 14:13,14,15;73:10;76:8; 77:16;81:12;84:7;91:23
best (1) 97:2
beyond (3) 9:14;15:10;105:12
big (3) 15:9;52:19,24
bilateral (1) 36:23
billion (1) 19:6
bit (14) 5:13;8:9,10;9:11; 14:15;22:5,14;31:17; 32:20,21;46:2;48:19; 59:17;70:23
black (6) 73:13,14;74:2,3,7; 75:5
block (1) 93:24
Bloomberg (3) 46:20;47:9,24
body (6) 23:24;35:11;45:15; 54:2,4;100:12
books (3) 82:17;87:3;88:16
both (5) 20:14;37:5;39:20; 51:11;85:8
bottom (7) 6:18;49:21;54:3; 68:20;82:11;84:6;88:14
BP (1) 28:23
brain (2) 89:22;112:16
break (2)
105:7;107:6
brief (8)
17:1,4;50:16;52:2,2; 54:15;59:17;105:16
briefly (2) 45:19;48:5
briefs (3) 106:8,13,18
bring (2) 22:11,12
British (1) 28:23
broad-brush (1) 27:19
brought (1) 10:19
BTUs (1) 80:17
build (1) 28:2
building (3) 25:8,17;83:13
built (1) 109:3
bullet (4) 34:11;37:8,9,17
burden (1) 40:6
burned (1) 6:3
business (1) 36:20
buying (1) 11:12

| 11.12 |
| ---: |
|  |

calculate (1) 68:3
calculated (3) 63:19;67:7;68:18
calculation (2) 67:1;69:4
calculations (5) 14:8;64:3;66:2,6; 78:10
calendar (3) 12:21;13:3,16
Calibration (1) 49:23
call (6) 20:12;32:7;90:24; 91:22;97:19;112:22
called (1) 18:18
calling (1) 58:1
calls (1) 33:17
came (3) 8:10;12:16;83:3
can (56)

6:12;7:22;9:22;19:16;
21:13;22:10;25:19,21;
26:5;27:1,7;28:19;29:9;
31:4;32:14,22;34:11,20,
23;35:2,11;37:17;39:21;
41:7,19;42:4;44:15;
46:1;47:18;48:20;51:20;
57:12,24;59:10;60:10;
68:13,14;69:12;70:21;
71:7,13;73:18;77:21;
89:8,10;95:24;97:21;
98:3;105:3,11;107:19,
23,24;108:9,13;112:10
cancer-causing (1)
60:5
capacity (28)
6:20,23;8:15,21;10:6; 11:1,15,17,22;12:6;
85:20,21;90:17,21;91:3,
7,8,10,12,21;92:1,2,5,9,
15;93:21;94:1;108:13
Cape (2)
9:4;19:24
capital (4)
26:22;59:23;76:24; 90:10
carbon (2) 41:8;63:2
carbon-injection (2)
60:1,7
careful (1) 64:6
Carlson (2)
48:13;50:21
Carlson's (1) 49:2
carve-out (2)
39:10;40:1
case (11)
11:8;19:3;26:2;27:19;
30:13;44:6;46:11;58:10;
70:13;103:12;110:4
cases (6)
10:23;28:17;29:11,12;
44:3,5
catch (1) 59:11
caught (1)
84:11
causes (1) 61:9
caution (1)
65:3
cautioned (1)
21:1
cautious (1)
71:3
center (2)
95:18,21
certain (7)
25:10;28:1;44:21;
56:11;67:8;71:20;96:23
Certainly (3)

69:20;74:9;109:18
cetera (1) 33:4
Chair (6) 94:18;99:13;104:17; 107:1;111:4;112:1
CHAIRMAN (73) 5:2;12:12;15:16;16:7, 24;17:24;18:4;20:7,22; 22:13;25:20;26:4;27:5, 23;30:19;31:10;33:21; 34:1;41:24;45:20;46:12; 48:7,22;49:10;53:23; 57:24;58:16,22;61:1,10; 62:12;64:18,23;65:6,9, 16;70:7;71:5;78:15; 87:24;88:20;89:2,21; 94:5,8,11,15;95:17; 98:20,24;99:6,12,16,18; 101:4,13;104:1,10; 105:2,6,10,19;107:13; 110:8,15,23;112:2,5,13, 19;113:1,5,13
chance (1) 56:20
change (6)
57:23;59:18;61:5,9;
79:15;83:24
changed (2) 60:13;79:18
changes (6) 14:7;15:11;57:15,17; 74:21,22
changing (3) 58:17;61:6,19
characterization (3) 31:2;60:15;66:4
characterize (1) 69:16
charts (1) 91:9
check (3) 88:11,13;109:21
Chicago (1) 21:15
chief (1) 108:16
chiming (1) 94:21
chronological (1) 33:20
cite (1) 23:22
claimed (1) 67:11
claiming (1) 74:4
clarified (1) 16:14
clean (1) 109:5
clear (10)
8:11;11:16;16:16,20;

25:18;28:3;31:8;57:4; 90:3,5
clearly (2)
98:5;103:22
clears (1)
7:16
CLERK (2)
18:3;107:12
CLF (9)
94:19;99:14,17,19,21;
107:11,16;108:4;110:7
CLF's (1) 104:21
client (3) 40:5;43:22;44:6
clients (4) 27:3;28:15,19;43:24
client's (1) 32:15
close (5) 32:19;36:19;69:22; 105:23;106:4
closings (1) 106:7
CMSR (13) 5:8;12:10,14,15; 15:15;23:21;62:22; 67:16;92:17;93:1,9; 94:2;113:4
colleagues (1) 39:7
collected (1) 87:5
collection (1) 45:4
column (2) 69:6,8
commence (1) 101:19
comment (3) 72:3;73:11;74:8
comments (4) 13:23;25:4;43:8;56:11
Commission (16) 15:24;16:4,18;17:18, 22;20:15;21:21;39:7; 40:7;41:4;48:18;77:22; 87:7;100:2;104:6; 109:16
Commissioner (5) 5:6;12:12;74:10; 93:22;112:6
Commissioners (6) 16:23;20:11;25:9; 26:8;35:20;64:15
Commission's (1) 82:3
commonly (1) 29:17
communicating (1) 45:7
communications (1) 34:15

| companies (1) | 25:12 | corporate (2) | 94:9,10 | delving (2) |
| :---: | :---: | :---: | :---: | :---: |
| 77:10 | confirm (1) | 36:19,24 | CUO (17) | 8:8;66:14 |
| Company (25) | 41:7 | correction (1) | 14:5;23:18;24:10; | demonstrating (1) |
| 24:10;25:11,13;30:22; | confirmed (1) | 58:2 | 47:22;56:13;95:4;96:24; | 40:6 |
| 31:1,7;36:3;42:18;43:9; | 98:10 | corrections (7) | 102:17;103:21;104:3,5, | depending (1) |
| 46:7,21;47:2;56:12; | connection (1) | 17:11;25:3;87:20,22; | 8,13,23;111:3,10,18 | 76:23 |
| 61:21;62:6;64:1,15,21; | 100:22 | 88:6,10,12 | current (2) | depreciated (1) |
| 65:24;70:19;74:19;76:6; | ConocoPhillips (1) | correctly (4) | 55:10,11 | 76:24 |
| 82:17;84:8;92:20 | 28:24 | 13:24;87:8,16;90:20 | curves (2) | depreciation (2) |
| Company's (4) | consider (3) | cost (6) | 55:14,15 | 76:9,19 |
| 60:20;61:23;73:23; | 21:24;23:10;109:17 | 5:23,23;66:19;85:23; | customer (1) | derated (1) |
| 74:11 | considered (3) | 103:15;104:12 | 73:9 | 11:14 |
| compared (3) | 10:14;30:2;54:13 | costs (13) | customers (12) | derivation (1) |
| 30:16;52:16;67:5 | consistent (2) | 7:18,19;8:2;18:21; | 19:10;75:2,12,14; | 29:8 |
| competition (3) | 81:21;91:10 | $19: 3,5,7,15,20,23 ; 20: 4$ | $76: 14,20 ; 77: 3,16 ; 78: 7$ | describe (1) |
| 18:11,15,20 | constructing (1) | 75:22;81:11 | 81:11;87:6;109:8 | 16:10 |
| competitive (2) | 76:17 | counsel's (1) | cut (1) | described (8) |
| 18:14;20:2 | construction (2) | 68:11 | 106:21 | 18:5;34:2;38:16; |
| completed (2) | 19:21;101:19 | count (3) |  | 65:18;71:15;85:3;99:20; |
| 85:17;98:12 | Consultancy (2) | 13:24;14:2,4 | D | 107:15 |
| completely (1) | 21:14;56:7 | counterintuitive (2) |  | description (3) |
| 17:7 | consultant (8) | c | daily (5) | 33:8;89:4;111:1 |
| 86:7 | $30: 14 ; 35: 9 ; 40: 14,17$ | 5:9;9:12;28:19 | data (31) | $73: 8,21 ; 74: 5$ |
| complex (3) | 41:15 | course (1) | 13:4,9,11,15;18:5; | detail (4) |
| 29:3;48:1;57:1 | consultation (1) | 50:21 | 42:21;46:5,6,20;47:1,9, | 7:11;72:2,3;104:24 |
| component (1) | 70:19 | Court (2) | 9,18,19,24;51:2,5;64:1, | determine (3) |
| 41:5 | Consulting (1) | 21:1;89:22 | 19,21,22;65:5;67:2; | 84:2,10;86:2 |
| composite (2) | 35:17 | cover (1) | 83:24,24;85:7,8,13; | determined (3) |
| 56:1,6 | Consumer (2) | 93:10 | 86:11;98:5,10 | 9:10;11:21;40:16 |
| compressed (2) | 64:16;65:4 | CRA (10) | date (10) | develop (1) |
| 56:14,17 | contained (1) | 85:5,7,8,13,14,21,22; | $41: 20,22 ; 58: 4,7,19$ | 67:19 |
| concept (1) | 85:4 | 86:1,12;97:12 | 62:8;100:4,8;106:11,15 | developed (2) |
| 7:5 | content (1) | CRA's (1) | dated (3) | 58:14;73:3 |
| concern (3) | 26:18 | 98:7 | 17:12;93:11;108:6 | development (2) |
| 84:20;85:2;90:9 | context (2) | create (1) | dawned (1) | 43:18;102:22 |
| concerned (1) | 8:5;43:23 | 19:9 | 10:23 | deviate (1) |
| 56:22 | contexts (1) | creating (1) | day (1) | 69:17 |
| concerns (1) | 7:24 | 101:7 | 14:19 | difference (6) |
| 39:8 | continue (4) | creation (1) | days (4) | 52:19,22,24;66:21; |
| conclude (2) | 25:19;31:8;32:11; | 64:8 | 6:1;68:2;100:7;106:12 | 83:7:84:9 |
| 82:23;85:12 | 62:16 | creator (1) | deal (2) | different (5) |
| concludes (1) | Continued (11) | 47:6 | 18:22;32:8 | 7:24,24;73:19;80:18; |
| 97:14 | 31:21;66:23;70:2; | critical (6) | dealing (2) | 110:16 |
| conclusion (6) | 74:11;78:8;98:16; | 27:18;29:4,15;70:2 | 30:8;104:12 | differential (1) |
| 13:18;17:5;41:12; | 101:12;107:4;110:11, | 86:10;96:16 | dealings (1) | 66:17 |
| 83:1;86:22;112:11 | 21;111:23 | criticism (19) | 31:6 | differentials (4) |
| conclusions (3) | continues (1) | 50:10,17,19;51:6,23; | December (4) | 66:24;67:9,13;68:17 |
| 23:16;24:6;96:24 | 52:1 | 52:2,3,12,15;53:3,10,13, | 68:10;69:3,7;70:1 | difficult (1) |
| Concord (2) | continuing (5) | 14;55:3,5;65:23,24; | decided (1) | 31:6 |
| 107:6;108:6 | 10:3,24;39:8;40:8; | 72:8;80:3 | 68:3 | difficulties (1) |
| conditions (1) | 74:13 | criticisms (6) | decides (1) | 28:9 |
| 33:2 | control (2) | 50:4;51:5;54:9,16 | 77:23 | direct (14) |
| conduit (1) | 59:23;61:14 | 73:21;74:5 | decision (3) | 20:14;21:7;24:22; |
| 39:15 | convention (1) | cross (1) | 7:1;95:1,12 | 25:1;32:9;42:4;73:6; |
| confidence (1) | 5:24 | 110:7 | deemed (1) | 78:14;79:2,14;90:8,19; |
| 56:23 | conveyed (1) | cross-examination (8) | 78:1 | 94:18;102:22 |
| confident (2) | 34:12 | 20:15;24:19;78:17; | default (1) | directed (1) |
| 73:8,12 | copied (1) | 94:22;96:8,19;106:23; | 18:13 | 48:2 |
| confidential (7) | 41:23 | 113:7 | define (1) | direction (1) |
| 64:12,19,20;65:14; | copy (7) | CSO (1) | 48:1 | 87:21 |
| 68:7;69:1;70:12 | $20: 19 ; 34: 17,20 ; 41: 9$ | $10: 18$ | de-list (1) | directly (5) |
| confidentiality (1) | 43:15;44:1;49:5 | Cunningham (2) | 12:1 | 45:7;46:13;70:17; |


| 90:22;104:23 | 73:8;86:6 | 63:13 | 59:22 | 9:18 |
| :---: | :---: | :---: | :---: | :---: |
| disagree (1) | DPA (1) | either (2) | equipment (3) | exemptions (2) |
| 52:15 | 32:8 | 5:22;25:22 | 59:24;61:14,17 | 9:15,23 |
| discern (1) | DR (4) | element (1) | errors (8) | exercising (1) |
| 47:21 | 11:10;48:13;49:1; | 103:14 | 33:4;57:5;74:15,18, | 28:10 |
| discovery (4) | 50:20 | elemental (1) | 21;83:10;84:11,16 | Exhibit (67) |
| 62:6,7;83:15;92:21 | Dracut (8) | 13:14 | ES (5) | 6:16;17:15,17;20:19; |
| discussed (11) | 54:22,22,24;55:1,18; | Eleven (3) | 18:9,16;19:8,9;81:24 | 22:10,23,24;23:19;24:2, |
| 10:7;35:15;36:1;39:2, | 64:2;66:18;67:6 | 107:12,13,14 | essence (2) | 7;33:23;34:17,19,24; |
| 3;57:6;74:24;79:2; | drafted (1) | eliminate (2) | 50:18;86:20 | 35:23;38:9,11,12,14,20; |
| 103:18;110:16;111:18 | 14:20 | 74:21;84:17 | essential (1) | 41:17,18;42:14,19,19; |
| discussing (1) | driving (1) | else (4) | 109:1 | 45:2,14;49:3,11,13; |
| 107:1 | 62:11 | 5:5;9:21;19:7;113:9 | essentially (5) | 57:16;63:9,12,14;64:12; |
| discussion (8) | dropped (3) | e-mail (16) | 60:12;75:11;79:3; | 65:13,14,15;68:7;69:9; |
| 5:13;16:23;72:21 | 74:16;75:1;92:5 | 35:4,7,8,12,15;36:8; | 82:23;87:8 | 70:5,15,21;71:7,12;75:1; |
| 73:7;82:20;95:1;104:19; | Due (4) | 37:11,14,20,22;38:12, | establish (2) | 82:7; $88: 7,8,9,12,19,22$, |
| 105:15 | 74:15;97:1;106:8,14 | 14;41:21;42:8;43:6; | 27:13;96:14 | 23;89:8,10,11,16;91:15; |
| discussions (2) | duly (1) | 44:12 | establishes (1) | 93:7,14;95:8;97:24; |
| 33:17;104:3 | 20:24 | e-mails (2) | 9:14 | 98:19;99:15;105:5; |
| dispatch (2) | duplicate (1) | 33:17;45:4 | estimate (3) | 108:5 |
| $72: 10,24$ | $29: 10$ | Emera (3) | 69:4;80:22;91:20 | exhibits (4) |
| dispatched (4) | during (5) | 64:21;67:4,22 | estimated (1) | 42:1;89:18;91:14; |
| 6:9;68:1;79:6;80:5 | $25: 23 ; 32: 2 ; 96: 7,18$ | Emera's (1) | 80:15 | 101:6 |
| distribute (3) | 107:5 | 63:24 | estimates (1) | Exibit (1) |
| $33: 6 ; 37: 24 ; 64: 11$ | E | emergent (1) | 85:23 | 23:13 |
| distributed (2) $64: 24: 107: 5$ | E |  | et (1) | $\begin{array}{r} \text { exist (1) } \\ 56: 22 \end{array}$ |
| distributes (2) | earlier (3) | 59:9;60:2;61:15 | evaluated (2) | expect (1) |
| 38:2;65:11 | 52:17;71:20;81:22 | employment (1) | 51:12;85:6 | 47:5 |
| distributing (1) | earn (1) | 21:12 | even (6) | expectation (1) |
| 33:9 | 8:7 | enable (1) | 9:9;10:7,11;43:16; | $102: 1$ |
| distributions (1) | Eaton (3) | 35:19 | 71:3;86:16 | expected (7) |
| 26:13 | 36:3;37:20;42:10 | end (11) | event-based (1) | $32: 10 ; 51: 19 ; 75: 2$ |
| diversity (2) | economic (13) | 12:2;20:14;42:22; | 22:6 | 91:2,23;92:8;93:24 |
| 109:11,22 | 5:16;24:13;26:14,22; | 59:8;83:13;95:14;97:4; | events (2) | expects (1) |
| division (1) | 72:10,24;73:2;77:6; | 106:10;108:12;109:1,11 | 24:12;56:6 | 101:19 |
| $104: 20$ | 79:7,21;80:6;81:5;91:2 | ending (3) | everyone (3) | expenditures (3) |
| docket (7) | economically (1) | 81:10;87:4;88:17 | $20: 19 ; 107: 5 ; 113: 15$ | 59:23;77:1;90:10 |
| 14:10,11;15:13;16:1, | 6:10 | ends (2) | everyone's (2) | expensive (2) |
| 5;40:11;81:24 | Ed (3) | 50:13;59:9 | 106:16;113:2 | 61:13,17 |
| document (30) | 35:14;36:18;37:20 | energy (14) | evidence (3) | experience (5) |
| 6:13;14:7;22:9,17,23; | Ed/Jacobs (1) | 12:19;13:2;14:12 | 93:2,6;106:5 | 43:21;47:5;50:24; |
| 23:3;33:6,9,11,13;34:2, | 35:17 | 52:18;79:21;82:4,8; | exactly (3) | 51:10;83:22 |
| 21;42:17;65:11,18; | edits (2) | 84:3;85:15,16;89:17; | 7:20;8:24;16:17 | expertise (3) |
| 71:15;81:16;92:18;99:8, | 57:15;62:18 | 100:17,18;109:6 | EXAMINATION (4) | 22:1,2;23:14 |
| 20;101:3,14,18,22,24; | EDWARD (3) | engage (1) | 15:20;21:7;24:17;25:1 | explain (7) |
| 102:10;107:6,15;108:2,4 | 20:24;21:3,13 | 20:13 | example (2) | 7:22;14:21;15:4,8,10; |
| documents (6) | effect (6) | engaged (6) | 8:20;13:15 | 84:9;108:23 |
| 35:15;37:24;38:2,16; | 7:19;8:18;9:17;18:19; | 24:21;27:2;47:21; | examples (2) | explaining (1) |
| 101:5;102:20 | 96:22;97:9 | 64:3;102:14,18 | 27:1;28:13 | 48:14 |
| dollar (1) | effectiveness (1) | England (2) | exceeded (1) | explanation (1) |
| 64:14 | 47:22 | 14:17;85:16 | 81:12 | 111:13 |
| dollars (2) | efficacy (1) | enough (1) | except (2) | explode (1) |
| 19:6;90:13 | 104:8 | 111:9 | 26:16;87:15 | 89:23 |
| done (5) | efficiencies (1) | ensuring (1) | Exchange (1) | explore (1) |
| 10:4;17:23;80:23; | 14:16 | 109:10 | 100:1 | 98:14 |
| 105:8;111:2 | efficient (2) | entail (1) | Excuse (2) | expressed (2) |
| down (13) | 19:18;20:2 | 29:20 | 92:17;112:17 | 84:20;90:9 |
| 8:22,22;9:18;10:16; | effort (2) | enter (2) | excused (1) | extensive (1) |
| 11:6,21;19:3;37:9,18; | 43:8;50:8 | 9:2;35:17 | 20:8 | 30:1 |
| 74:17;97:2;107:20; | efforts (3) | entered (2) | execution (2) | extent (1) |
| 108:22 | 29:2;30:11;47:21 | 42:18;100:20 | 44:13,20 | 25:4 |
| downward (2) | Eight (1) | EPA's (1) | exemption (1) | extremely (2) |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

| 30:5;31:6 | filings (1) | forward (10) | Gary (1) |  |
| :---: | :---: | :---: | :---: | :---: |
| F | 13:12 | $7: 18 ; 37: 8 ; 54: 9 ; 55: 20$ | 108:11 | H |
|  | 23:6;83:2,20;105:20 | 83:18;89:10 | 5:17;6:9;55:17;63:19; | Ha |
| facility (3) | finalized (1) | found (6) | 64:2;66:18,19;67:24; | $5: 11 ; 12: 16 ; 15: 22$ |
| 5:12;6:21;11:5 | 106:9 | 28:11;29:3,14;56:1; | 74:23 | 18:8;20:8 |
| fact (21) | financial (1) | 74:19;84:16 | gave (5) | half (2) |
| 6:4;10:24;11:9;19:3, | 86:18 | foundation (3) | 30:4;31:17;35:16; | 13:9;101:21 |
| 16;20:11;46:20;52:6; | find (8) | 87:19;96:15;101:8 | 81:23;87:9 | half-million (1) |
| 66:2;72:11;79:3,23; | 13:10;17:19;19:14; | four (7) | general (4) | $90: 13$ |
| 80:8;86:24;89:8;91:11; | 27:18;72:17;79:11; | 14:1,5;50:4;52:5; 57:17:62:24 | $27: 1 ; 51: 8 ; 64: 13 ; 72: 2$ | Hampshire (2) |
| 93:6;103:16;104:6; | 84:14,93:15 | 57:17;62:24;100:7 | generally (2) | $18: 14 ; 21: 20$ |
| 110:22;111:5 | fine (11) | fourth (3) | 55:20;66:21 | hand (1) |
| factor (5) | 29:1;46:17;70:14; | 53:3,12,14 | generation (1) | $52: 21$ |
| 90:17;92:5,15;93:21; | 71:2;78:24;89:2;90:4; | frame (2) | $60: 4$ | hands (1) |
| 94:1 factors (11) | 105:2,9;110:23;112:9 | 56:12,18 | generators (1) | 102:9 |
| factors (11) | finish (2) | Franklin (1) | $11: 12$ GEOPGE (8) | handy (4) |
| 26:13;91:3, $7,8,11,12$, | 112:12,15 | 103:8 | GEORGE (8) | 20:19,20;34:18;49:5 |
| 22;92:2,2,9;109:15 | finished (1) | free (2) | 20:23;21:2;23:7; | happening (2) |
| facts (1) $102: 13$ | 105:24 | 33:3;102:9 freeing (1) | 29:13;32:6;35:7,14;45:6 | $11: 9 ; 61: 11$ |
| $\begin{aligned} & 102: 13 \\ & \text { fair }(7) \end{aligned}$ | firm (2) | freeing (1) | given (4) | happy (2) |
| fair (7) ${ }^{31 \cdot 2 \cdot 50 \cdot 1 \cdot 54: 7 \cdot 60 \cdot 15 .}$ | $17: 7 ; 106: 15$ first (18) | $11: 14$ freely (1) | 25:24;26:1;29:16; | 16:19;112:11 |
| $\begin{aligned} & 31: 2 ; 50: 1 ; 54: 7 ; 60: 15 \\ & 90: 11 ; 110: 9 ; 111: 3 \end{aligned}$ | first (18) | freely (1) 17:13 | 48:13 | hard (2) |
| fairly (2) | 32:16;34:11;38:20; | freshening (1) | 34:21 | $\begin{gathered} \text { 57:3;89 } \\ \text { harm (1) } \end{gathered}$ |
| 50:12;56:13 | 50:10;51:4;54:16,17; | 61:22 | giving (1) | 61:23 |
| faith (5) | 57:18;74:9;84:12;93:19, | Friday (1) | 106:15 | Harrington (14) |
| 30:8,24;31:1,5;43:7 | 24;100:11;104:4 | 40:5 | go-ahead (1) | 5:6,8,10;12:10;23:21; |
| familiar (3) | five (1) | front (3) | $35: 16$ | $62: 22 ; 67: 16 ; 92: 17 ; 93: 1$ |
| 49:1;95:6;109:15 | 76:13 | 37:16;89:24;101:14 | goal (1) | 9,23;94:2;112:6;113:4 |
| far (2) | floor (4) | fuel (2) | 71:8 | hazard (1) |
| ${ }_{\text {fast }} \mathbf{3 1 : 3 ; 6 2 : 8}$ | 8:13,14,19,21 | 54:10;55:18 | goals (1) | 70:17 |
| fast (1) | flow (1) | Fuels (1) | 109:6 | heading (3) |
| $14: 21$ FCA | 75:14 | $53: 22$ fulfill (1) | go-between (1) | $53: 22,24 ; 54: 3$ |
| FCA (6) ${ }_{7}$ | flowing (1) | fulfill (1) | 42:10 | hear (4) |
| 7:1,7;8:12,13;9:7,13 FCM (1) | 101:20 | 109:4 | goes (2) | 21:13;87:12,14; |
| FCM (1) 9:22 | focus (4) | fulfilled (1) | 48:15;110:18 | 113:11 |
| 9:22 Februar | 25:21;31:11,13; | 13:4 | oing-forward (2) | heard (7) |
| 68:10 | focused (1) | 21:11;77:22 | $\boldsymbol{g o o d}(32)$ | 28:1,7;31:11;43:4; |
| feel (1) | 27:21 | fully (1) | 16:16;18:1;21:4;22:9, | hearing (7) |
| 87:11 | follow (2) | 10:1 | 22;23:10;24:5;28:5; | $27: 16 ; 38: 1 ; 45: 24$ |
| fell (1) | 16:3;89:15 | fundamentally (1) | 31:15;33:5;35:22;36:15, | 96:1;105:17;106:2; |
| 51:14 | follows (1) | 52:15 | 21;37:7,16;42:6,16; | 113:17 |
| FERC (5) | 39:1 | further (4) | $43: 7 ; 47: 20 ; 53: 17,20$ | hearings (1) |
| 6:13;9:13,16;13:9,13 | forced (1) | 34:14;39:17;60:2; | 56:9;57:9;63:7;65:22; | 25:23 |
| few (8) | 59:22 | 78:13 | 66:8;68:23;69:5,24; | heat (5) |
| 30:15;35:12;56:4; | forecast (12) | future (15) | 73:4;78:19;86:18 | 80:16,19,24;81:1,6 |
| 62:18;78:21;83:10; $106 \cdot 5 \cdot 107 \cdot 24$ | 51:12;53:22;55:6,10 | 11:23;15:2;24:13,13; | granular (1) | help (2) |
| 106:5;107:24 fifth (2) | 11,18,22,24,24;56:1,6; $73: 17$ | 26:21;33:2;56:2,4 | 40:19 | 22:6;109:5 |
| 107:19;108:22 | forecasts (1) | 90:18;97:4;98:8 | 19:9 | helpful (3) $17: 23 ; 27: 24 ; 38: 22$ |
| figure (2) | 56:3 | futures (3) | ground (1) | helps (1) |
| 92:12;93:16 | foreseeable (1) | 55:14,15,19 | 25:14 | 8:9 |
| $\begin{gathered} \text { figures (1) } \\ 64: 14 \end{gathered}$ | 73:14 <br> forget (1) | G | group (2) | hence (1) |
| filed (8) | 75:20 |  | guarantee (1) | $\begin{gathered} \text { 60:5 } \\ \text { Henry (2) } \end{gathered}$ |
| 23:12;31:12;43:3; | Form (4) | G1 (2) | 19:16 | $54: 23 ; 55: 16$ |
| 49:2;57:16;75:6;82:6; | 13:9,13;23:6;37:5 | 86:23;87:2 | guess (6) | herewith (7) |
| 100:8 | forth (3) | G17 (1) | $16: 2 ; 17: 21 ; 24: 24$ | 18:6;34:3;38:17; |
| filing (6) | 5:15;9:4;50:4 | 91:15 | 57:12;61:11;90:4 | $65: 19 ; 71: 16 ; 99: 21$ |
| 58:19;99:24;100:4,12; | Forty-five (2) | gain (1) | guidance (1) | 107:16 |
| 102:4,7 | 83:5,6 | 62:9 | 39:17 | high (2) |


| 82:18;92:16 | 105:2,6,10,19;107:13; | independently (2) | 14:10;15:13;35:17;42:2; | keep (6) |
| :---: | :---: | :---: | :---: | :---: |
| higher (8) | 110:8,15,23;112:2,5,13, | 29:15;40:12 | 48:20;50:11,21;66:14; | 18:21;19:2;25:21; |
| 5:18;9:11;19:5;69:22; | 19;113:1,5,13 | indicate (2) | 77:11;90:21;100:20; | 31:13;40:3;105:11 |
| 80:24;81:1;90:18;91:11 | Illinois (1) | 81:9;98:6 | 101:6;104:11;111:9 | kept (2) |
| historic (1) | 21:15 | indicated (8) | introduced (2) | 45:11;70:12 |
| 81:18 | illustration (1) | 13:22;72:18;73:20; | 21:5;57:12 | key (1) |
| historical (1) | 28:20 | 79:11;80:15;86:16,17; | investment (3) | 45:10 |
| 14:13 | impact (11) | 102:21 | 76:10,11,23 | kilowatt (1) |
| history (2) | 72:18;73:2;80:11; | indication (1) | investments (1) | 80:17 |
| 14:24;15:3 | 81:4;84:20;85:15,20; | 77:6 | 61:14 | kind (7) |
| holding (1) | 86:3,8;95:2;97:12 | indirect (1) | involved (4) | 6:7;7:10;37:22;49:19; |
| 22:10 | impacted (1) | 100:18 | 14:8;37:11;44:4; | 75:18;83:23;93:17 |
| Hollenberg (2) | 80:22 | indirectly (1) | 102:22 | kindly (1) |
| 112:3,4 | impacts (4) | 100:24 | IRP (5) | 91:17 |
| hopeless (1) | 98:15;107:2;111:17, | industry (1) | 103:18,22,23;104:5 | Knowlton (21) |
| 6:6 | 22 | 26:23 | 110:3 | 15:22;17:10;18:8; |
| hopes (1) | impasse (1) | influenced (1) | irrelevant (2) | 24:15,23;27:6,7;29:23; |
| 39:14 | 39:5 | 56:5 | 7:20;8:2 | 30:20,21;48:8,9;60:10; |
| horizon (1) | implicate (1) | info (1) | ISO (2) | 61:4;62:3;87:10;103:19; |
| 95:14 | 40:21 | 35:20 | 9:10;72:22 | 110:1;112:8,17,24 |
| hour (1) | implication (1) | inform (1) | issue (11) | Knowlton's (1) |
| 80:17 | 81:6 | 26:14 | 30:2;40:10;41:3; | 16:13 |
| hours (1) | implications (5) | information (18) | 44:23;46:5;48:10;60:13; | knows (1) |
| 72:12 | 18:10,24;56:15;62:10; | 25:22;28:4;31:19; | 72:4,19;79:22;110:10 | 16:18 |
| HQ (1) | 97:3 | 40:15,24;43:17;52:11; | issues (7) |  |
| 100:16 | implied (1) | 60:18;61:22;62:2;70:11; | 56:21,22;57:3;71:20; | L |
| Hub (2) | 30:8 | 71:6,9;85:4;86:1,24; | 104:16;105:22;106:20 |  |
| 54:23;55:16 | implying | 91:14;93:18 | Item (3) | labeled (2) |
| Hydro (2) | 5:15 | information-retention (1) | 45:18;55:10,13 | 93:19,20 |
| 100:16,17 | importance (2) | 39:15 |  | LAI (4) |
| Hydro-Quebec (1) | 12:18;111:14 | initial (5) | J | 23:6;43:3;55:15;86:16 |
| 100:19 | important (3) | 54:18;68:19;74:11 |  | Laidlaw (1) |
|  | 43:20;77:10;78:6 | 91:15;92:8 | Jacobs (26) | 9:3 |
| I | importantly (1) | injection (2) | 21:14,16,18;25:13; | LAI's (1) |
|  | 76:10 | 63:2,5 | 27:13;28:9;31:24;34:12; | 98:8 |
| ICR (2) | impressiv | input (3) | 36:24;39:5,9,18;40:1,18; | language (1) |
| 8:15,21 | 50:21 | 46:4,5;83:2 | 42:11,12;43:4,7,14;44:2, | 9:19 |
| idea (1) | inaccurate (1) | installing (1) | 12,13,18,19;47:6,8 | large (2) |
| 18:16 | 66:3 | 60:7 | Jacobs' (3) | 52:23;63:21 |
| identification (12) | inappropriate (1) | instance (5) | 33:14;40:24;43:23 | largely (1) |
| 18:7;33:23;34:4; | 80:6 | 19:17;41:13;66:11 | Jacobs/Ed (3) | 8:2 |
| 38:18;65:17,20;71:17; | Inc (1) | 70:24;104:5 | 39:21;40:14,20 | last (7) |
| 99:14,19,22;107:10,17 | 100:17 | instances (2) | January (1) | 12:5;18:17,18;67:23; |
| identify (3) | include (6) | 19:14;28:12 | 68:10 | 69:7;92:19;110:16 |
| 23:3;33:22;69:6 | 14:2;69:23;95:2; | instructed (1) | Jerry (5) | latest (1) |
| identifying (1) | 109:9;110:20;111:21 | 68:12 | 35:19;36:15;37:20; | 37:21 |
| 45:21 | included (5) | integrated (1) | 41:23;42:10 | lay (1) |
| IE (1) | 19:8;68:5;85:22;91:9; | 103:15 | joint (2) | 87:19 |
| 10:7 | 107:3 | interest (4) | 45:1;100:23 | LCIRP (4) |
| IGNATIUS (74) | includes (1) | 20:3;61:24;101:9; | July (10) | 100:8;102:17;109:17; |
| 5:2;12:12;15:16;16:7, | 109:22 | 110:7 | 17:12,16;37:18;38:13; | 111:1 |
| 24;17:24;18:4;20:7,22; | including (2) | interested (2) | 41:22;43:3,7;44:12,18; | least (4) |
| 22:13;25:20;26:4;27:5, | 23:11;59:14 | 19:19,22 | 93:11 | 71:10;72:12;103:14; |
| 23;30:19;31:10;33:21; | incorrect (1) | internal (2) | jumping (1) | 104:12 |
| 34:1;41:24;45:20;46:12; | 61:7 | 35:8;55:10 | 59:3 | leave (1) |
| 48:7,22;49:10;53:23; | incremental (2) | INTERROGATORIES (2) | June (5) | 17:21 |
| 57:24;58:16,22;61:1,10; | 75:22;86:3 | 5:10;12:15 | 35:5;36:9;37:10; | Leaving (1) |
| 62:12;64:18,23;65:6,9, | incurred (2) | Interrogatory (2) | 38:15;41:9 | 24:5 |
| 16;70:7;71:5;74:10; | 77:1;81:11 | 14:22,23 | jurisdictions (1) | led (2) |
| 78:15;87:24;88:20;89:2, | indeed (1) | intervention (1) | 77:24 | 83:9,14 |
| 21;94:5,8,11,15;95:17; | 97:14 | 30:11 |  | legal (2) |
| 98:20,24;99:6,12,16,18; | independent (3) | into (18) | K | 39:6;43:15 |
| 101:4,13;104:1,10; | 17:8;47:7;99:1 | 7:10;8:8;10:9;11:23; |  | legislature (1) |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

| 109:16 | 7:10;14:15;22:14; | 43:14 | 24;63:1,7,12,15,17,23; | methods (1) |
| :---: | :---: | :---: | :---: | :---: |
| letter (6) | 31:17;32:20,21;33:8; | majority (1) | 64:5,9;65:22;66:5,9,12, | 40:10 |
| 93:11;106:15;108:6, | 41:19;42:22;46:2;48:19; | 72:12 | 16;67:18,21;69:5,10,20; | metric (3) |
| 14,17;111:15 | 56:22;59:17;70:23; | makes (1) | 70:1,4;71:19,23;72:5; | 51:16,17,18 |
| level (3) | 71:24;113:2 | 113:8 | 73:18;78:22;79:1,17; | Microsoft (1) |
| 32:1,7;90:9 | lived (2) | making (4) | 80:8;81:1,14,17;82:2,10, | 28:24 |
| leveled (1) | 47:4;56:24 | 11:5;15:6;43:7;61:13 | 15;83:16;84:22;85:2,11, | mid (1) |
| 73:22 | LLC (2) | management (1) | 14;86:20;87:13;88:7,18, | 92:16 |
| levels (1) | 100:15;108:20 | 15:7 | 24;89:3,7,12,20;90:12, | middle (2) |
| 40:20 | located (1) | manager (1) | 15,24;91:13;92:4,20; | 95:23;106:22 |
| Levitan (60) | 90:6 | 21:18 | 93:3,12,13,15;94:19,24; | might (8) |
| 10:14,19;24:9;27:10; | location (1) | many (5) | 95:5,9,15,22;96:2,3,7, | 24:20;28:12;53:14,17; |
| 28:8;29:21;30:4,6,10,17; | 55:17 | 14:7;15:11;19:14; | 20;97:5,11,17;98:1,5,10; | 56:14,16;66:12;81:5 |
| 31:7,17;32:2;33:14; | logistics (1) | 26:24;44:5 | 99:4,24;100:3,6,10,14; | million (27) |
| 34:8;37:1;39:6,19;40:4, | 22:7 | March (5) | 101:17,23;102:4,8,18, | 6:20;7:12,13;15:2; |
| 5,19;41:5;42:11;44:10, | long (6) | 68:9;69:2,7;70:1 | 20;103:3,6,10,13,16; | 59:4,5;73:10;74:15,17, |
| 16;45:7;46:4,7,22;47:2; | 18:21;19:7;90:5 | 108:7 | 107:19,22;108:3,11,15; | 20;75:3,7,8,16;76:16,20; |
| 48:13;49:1,8;50:2,5,20; | 108:11,14,23 | marching | 109:3,13,18;110:5; | 77:4,5;82:18,19;83:7; |
| 51:23;53:21;54:8,13; | Long's (1) | 17:3 | 111:19 | 84:18;91:6,20;92:15,24; |
| 56:11;63:9;66:24;67:10; | 111:13 | margin (1) | McCluskey's (4) | 93:17 |
| 68:9;72:8;73:3,7,19; | long-term (3) | 19:9 | 53:11,16;70:10;96:10 | mind (4) |
| 79:23;80:4,15;82:22; | 55:11,21;109:5 | mark (4) | mean (9) | 36:11;40:4,22;100:11 |
| 83:11;90:11,16;91:16; | look (7) | 71:11;99:14,18; | 7:14;47:16;50:18; | minimum (3) |
| 95:2;96:8,21 | 14:23;19:12;34:16; | 107:11 | 60:12;62:5,7;77:17; | 9:6,9,15 |
| Levitan/Carlson (1) | 38:6;66:11;78:9;101:17 | marked (13) | 87:7;88:22 | minus (1) |
| 95:7 | looked (9) | 34:3;38:10,11,17; | meaningful (1) | 51:14 |
| Levitan's (5) | 6:5;10:15;14:11,13, | 65:13,16,19;69:6;71:16; | 111:9 | minute (2) |
| 26:10;47:22;48:1; | 14;37:15;55:9;83:18; | 99:21;101:6;107:16; | meaningfully (1) | 10:21;112:18 |
| 79:4;96:18 | 86:23 | 108:4 | 102:14 | minutes (1) |
| license (1) | looking (14) | market (16) | meant (1) | 105:11 |
| 47:8 | 6:17;8:1,3;12:18; | 5:18,23;6:5,7;7:4,8 | 74:3 | missing (1) |
| light (4) | 13:10;14:10;19:17;20:1; | 9:2;10:9;11:1;18:14; | measure (1) | 6:17 |
| 14:19;39:8,16;46:20 | 38:20;75:12,15,22; | 19:11;55:15;85:15; | 92:1 | misunderstanding (1) |
| liked (1) | 86:14;93:23 | 97:16,20;98:13 | median (1) | 24:21 |
| 54:24 | loss (2) | markets (2) | 51:18 | MMBTU (1) |
| likely (2) | 82:8,12 | 19:18;20:2 | median-based (1) | 69:11 |
| 10:10;41:3 | losses (4) | mark-ups (1) | 51:18 | model (42) |
| limit (1) | 82:17;87:3,5;88:15 | 14:3 | meet (2) | 12:3;23:6;24:8,11; |
| 106:18 | $\boldsymbol{\operatorname { l o t }}(5)$ | Massachusetts (2) | 109:2,5 | 26:11,12,19;29:7,9,16, |
| limited (2) | 9:22;11:10;15:12; | 19:24;66:19 | meeting (1) | 20,20;31:20;32:14,17; |
| 11:19;25:7 | 32:8;78:20 | material (2) | 40:5 | 46:22;47:6,23;49:22; |
| limits (1) | low (1) | 33:4;54:2 | meetings (1) | 50:6;51:1,2,11;54:13; |
| 103:11 | 82:18 | materials (1) | 9:20 | 56:21;57:1,6;68:16; |
| Line (44) | lower (5) | 45:5 | MEH (2) | 72:9,14;74:20;79:4,24; |
| 6:19;17:5;25:9,18; | 8:19;10:10;81:6;90:9; | mathematical (1) | 17:14,17 | 80:4,9,15;83:2,14;84:1, |
| 31:14;34:7;46:11;49:8, | 98:7 | 26:11 | member (1) | 2,14;90:11 |
| 17;50:3,12,13;51:24; | lowest (1) | matter (7) | 72:22 | modeled (2) |
| 52:1;54:9;57:14,19; | 92:13 | 18:21;20:11;28:20; | memory (1) | 68:9;72:10 |
| 59:2,3,6,8,13;62:18,20, | M | $52: 6 ; 58: 11 ; 89: 7 ; 93: 5$ | $103: 11$ | modeling (6) |
| $\begin{aligned} & \text { 21,23;63:4;79:9;82:10; } \\ & \text { 84:6,23,24;86:14;88:14; } \end{aligned}$ | M | matters (3) 23:10;26:7;38:12 | mention | $\begin{aligned} & 22: 4,6 ; 48: 2 ; 72: 2 \\ & 73: 22 ; 74: 7 \end{aligned}$ |
| 95:22;96:1,4,5,11,17; | MACT (1) | may (16) | mentioned (3) | models (11) |
| 98:11;100:23;110:2,6 | 59:22 | 8:5;13:1,12;19:18 | 9:3;34:7;46:14 | 25:12;26:21;29:3,4,5, |
| lines (12) | Madam (6) | 29:23;34:10;38:1;56:22; | merchant (3) | 14;43:23;44:4;51:21; |
| 6:17;23:19;24:3; | 94:18;99:13;104:17; | 73:10;88:1;90:20;98:19, | 8:1;76:3,5 | 56:24;83:23 |
| 45:18;49:14,16;52:13; | 106:24;111:4;112:1 | 20,24;106:23;110:13 | mercury (4) | modifications (1) |
| 53:6;68:20;81:9;86:21; | magic (1) | maybe (3) | 60:1,4;61:15,18 | 35:19 |
| 98:3 | 22:14 | 6:16;70:21;89:15 | Merrimack (1) | modified (1) |
| list (1) | magnitude (1) | McCluskey (122) | 19:6 | 60:4 |
| 28:19 | 53:2 | 20:9,12,23;21:2,5; | method (3) | moment (8) |
| listed (1) | main (3) | $23: 12 ; 35: 8 ; 57: 10,14$ | 11:17;76:1,2 | $24: 7 ; 59: 21 ; 61: 2$ |
| 89:19 | 22:2;23:24;45:15 | 58:9,20,24;59:2,12,19, | methodology (4) | 64:11;75:21;81:15; |
| little (16) | maintain (1) | 20;60:23;62:15,16,20, | 40:13,16;41:1,5 | 105:14;110:17 |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

| moments (1) | necessarily (2) | Northeast (1) | 35:21 | Operations (13) |
| :---: | :---: | :---: | :---: | :---: |
| 58:12 | 25:14;62:4 | 100:24 | occasions (1) | 31:21;66:23;70:3; |
| Monday (2) | need (12) | Northern (30) | 56:4 | 72:9,15;74:12;76:8; |
| 38:15;41:9 | 29:11;39:9,19,22; | 84:21;85:9,17;86:3,6, | occur (1) | 80:7;101:12;107:4; |
| money (2) | 40:15,17;60:6;61:17; | 8,12;95:3;96:22;97:8, | 56:17 | 110:11,21;111:23 |
| 10:11;11:5 | 79:18;95:11;96:24; | 15;98:11,15;99:7; | occurring (1) | opinion (2) |
| moniker (1) | 110:20 | 100:15,22;101:10;102:1, | 24:12 | 14:6;111:16 |
| 107:6 | needed (4) | 15;103:13,17;105:1; | October (3) | opportunity (1) |
| Monitor (2) | 13:5;31:20;40:24; | 107:2;108:20,23;110:10, | 100:6,13,14 | 25:6 |
| 107:7;108:6 | 83:19 | 19;111:14,17,22 | off (7) | opposed (3) |
| month (1) | needs (4) | note (1) | 10:11;11:11;84:7; | 19:24;46:14;81:18 |
| 13:19 | 16:13;32:12;109:2 | 30:22 | 94:1;105:13,15;106:21 | optimize (1) |
| months (3) | 111:7 | noted (1) | offer (5) | 22:7 |
| 55:6,9,12 | negatives (3) | 90:16 | 9:7,9,15;25:5;27:8 | option (1) |
| month's (1) | 14:23;15:3,8 | NPT (4) | Office (2) | 22:5 |
| 13:19 | negotiations (6) | 95:13;100:16,23 | 64:16;65:4 | options (2) |
| more (19) | 9:7;33:14,16;36:23; | 101:19 | officer (2) | 11:19;77:21 |
| 5:16,17;7:11;8:15,20; | 37:13;44:24 | NSTAR (2) | 36:19;108:16 | oral (1) |
| 10:9;14:24;40:19;42:17; | net (22) | 100:1;101:1 | officers (1) | 106:7 |
| 48:17;56:22;62:18; | 12:19;14:12;52:18; | NU (1) | 36:24 | ordeal (1) |
| 72:21;78:9;96:23;101:3; | 73:9;74:6,13;75:2,12,16; | 108:18 | Off-the-record (1) | 27:11 |
| 105:5;106:19;111:24 | 76:7;77:16,17;80:1; | number (13) | 16:23 | order (9) |
| morning (4) | 82:8,8,12;84:3,5;86:9; | 7:12;9:20;17:10; | often (1) | 9:13;12:8;33:20; |
| 106:1,3;113:6,15 | 89:17;92:15,24 | 49:11;51:9;68:2,15; | 15:6 | 40:10;76:16;82:3;104:6, |
| most (4) | new (12) | 69:2,22;75:11;84:23; | oil (14) | 7;105:13 |
| 29:11;47:11;71:8;92:7 | 9:2;14:16;18:14; | 92:14;96:1 | 5:12,17,19,21,22;6:1, | orders (1) |
| mostly (1) | 21:20;25:5,14;27:9; | numbers (23) | 3,3,4,8,13;55:16,17,18 | 17:3 |
| 78:21 | 28:3;45:22;60:18;85:16; | 13:3;17:18;49:21; | once (1) | organizations (2) |
| move (3) | 87:13 | 52:16,17,19,23;53:1; | 11:20 | 47:11;56:8 |
| 16:19;62:13;106:8 | Newington (35) | 66:14;68:12;75:10; | one (36) | organized (1) |
| moved (1) | 5:12;6:23;16:1;23:8, | 80:20;89:23;90:4,6,21; | 8:7;10:24;12:17; | $112: 23$ |
| 110:4 | 18;24:10,14;26:14; | 91:19;93:22;94:1;95:18, | 15:11;18:10,24;22:18; | original (3) |
| movement (1) | 31:21;40:7,13;41:2,6; | 19,21;96:11 | 42:4,16,21;44:1,6,7,18; | 84:19;86:15,23 |
| 9:5 | 46:23;56:13;66:20; | numeral (1) | 52:9;53:3,15;54:21; | otherwise (1) |
| much (7) | 71:21;72:10,11;73:13; | 89:9 | 57:18;59:2,6,21;61:1; | $25: 7$ |
| 14:24;34:1;47:17; | 74:2;76:15;80:16;83:21; | numerous (1) | 65:1;70:9;74:22;84:7; | ourselves (1) |
| 57:9;69:18;90:18; | 85:7,24;86:2,10;87:2; | 109:19 | 89:1;91:1;92:19;93:16; | 35:20 |
| 105:12 | 88:15;89:19;92:3;97:3, |  | 101:3;102:1;104:12; | out (16) |
| Mullen (2) | 9,13 | 0 | 105:5;112:18 | 12:4;21:14;25:22 |
| 81:23;82:4 | Newington's (1) |  | ones (2) | 29:8;38:23;54:20;67:1; |
| multiple (1) | 86:17 | object (6) | 28:22;90:22 | 70:23;76:12;77:3;78:5; |
| 13:23 | newly (1) | 24:16;48:10;61:21; | one-year (1) | 80:18;98:19;99:8;105:5; |
| must (3) | 25:22 | 87:11;103:20;110:2 | 68:5 | 106:15 |
| 17:6;78:9;102:9 | Next (8) | objected (3) | ongoing (1) | outcome (1) |
|  | 59:2,6;69:7;70:15,23; | $43: 24 ; 44: 6 ; 62: 4$ | $75: 19$ | $77: 24$ |
| $10: 20 ; 15: 5 ; 35: 7$ | $98: 9,23 ; 106: 11$ | objection (5) | only (10) | outlined (1) |
| 36:14;38:14 | $\begin{array}{\|c\|} \hline \text { nickel (1) } \\ 60: 5 \end{array}$ | $\begin{aligned} & \text { 29:24;61:2;62:1;65:7; } \\ & 94: 20 \end{aligned}$ | $\begin{aligned} & 11: 19 ; 45: 21 ; 47: 16 \\ & 55: 6 ; 64: 12 ; 68: 1 ; 75: 21 \end{aligned}$ | $\begin{gathered} 39: 8 \\ \text { outset (1) } \end{gathered}$ |
| N | Nine (1) | obligation (6) | 79:20;84:14;106:2 | 20:17 |
|  | 113:13 | 6:24;7:3;10:6;11:18, | open (2) | outside (1) |
| name (2) | non-disclose (1) | 23;12:6 | 20:15;22:19 | 56:8 |
| 21:11;28:23 | 35:18 | obligations (1) | operate (1) | over (8) |
| natural (5) | non-disclosure (16) | $11: 11$ | $74: 14$ | $33: 18 ; 74: 14 ; 75: 2,16$ |
| 6:9;63:19;64:2;66:17; | 27:14;28:11,14;30:9; | obtainable (1) | operating (16) | $76: 12 ; 77: 1,12 ; 81: 10$ |
| 74:23 | 33:15;34:9;37:2;39:5, | 13:21 | 10:3,8;71:21;72:6,13; | own (4) |
| nature (1) | 11,19,24;40:18;42:9; | obtained (2) | 73:1;74:13;76:17,17; | 31:8;42:17;43:15; |
| 61:5 | 44:11,17,24 | 6:24;12:5 | 79:3,10,19,21,24;81:3; | 73:23 |
| NDA (3) | none (1) | obtaining (1) | 108:16 | owned (2) |
| 37:21;43:5,10 | 65:3 | 11:22 | Operation (5) | 77:15;100:24 |
| near (1) | non-proprietary (1) | obviously (5) | 40:8;78:8;80:10;91:3; | owner (1) |
| 51:15 | 47:18 | 71:8;76:9;85:8;106:5; | 98:17 | 76:4 |
| near-term (2) | non-starter (1) | 112:14 | operational (1) | owns (1) |
| 51:15;56:5 | 46:5 | OCA (1) | 95:13 | 108:19 |

## DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012

DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan

| P | $\begin{aligned} & \text { passed (1) } \\ & 38: 4 \\ & \text { passing (1) } \end{aligned}$ | $\begin{gathered} 28: 23 \\ \text { phone (1) } \\ 33: 17 \end{gathered}$ | $\begin{array}{\|c} \text { possibility (1) } \\ \text { 10:16 } \\ \text { possible (5) } \end{array}$ | $\begin{gathered} \text { 47:9,24;64:22 } \\ \text { primarily (2) } \\ 6: 12 ; 94: 19 \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |
| Page | 99:8 | ph | 11:9;40:21;71:4,9,1 | primary (3) |
| 6:18,19;7:10,12;17:4; | p | 24;48:11;58:3 | possibly (7) | 60:3;83:16;86:5 |
| 33:19;34:23,24;35:22; | 28:12 | 63:1;66:9 | 12:4;59:8,13,14,14,24; | principal (1) |
| 36:6;37:10;45:14;49:7, | Patch (21) | piec | 61:13 | 17:5 |
| 16,21;50:3,13,13;51:24; | 8,19, | 04: | potential | prio |
| 52:8,13;53:7,20,24;54:2, | :9,21;20:5;59:10; | place | 46:24;57: | 5:5;13:19;76:13 |
| 4,8;57:19;59:2,6;62:21; | 70:8,9;78:16,18;81:20; 87:17:88:2,4:89:14; | $21: 11$ | power (11) | 102:16 |
| $\begin{aligned} & 63: 10,15 ; 79: 8 ; 80: 14 \\ & 81: 9 ; 84: 19 ; 86: 13,14 \end{aligned}$ | $\begin{aligned} & 87: 17 ; 88: 2,4 ; 89: 14 ; \\ & 90: 2,7 ; 94: 3 ; 113: 11 \end{aligned}$ | $\begin{aligned} & \text { plan (3) } \\ & 9: 4 ; 104: 13,16 \end{aligned}$ | 6:5,7;14:16;19:10; <br> 71:21;76:3,5,18;78:10; | $\begin{gathered} \text { private (1) } \\ 26: 23 \end{gathered}$ |
| 88:8;89:9,16;90:8; |  | planning (4) | 0;109:10 | pro (2) |
| 95:10,15,16;96:11; | 76:21 | 98:17;102:15;103:15 | practice (2) | 8:18,22 |
| 97:21;98:1;100:5 | paymen | 4:9 | 26:2;43:1 | probabilistic ( |
| Pages (4) | $8: 22$ peer |  | preclusive | 26:21;29:16;48 |
| $\begin{aligned} & 23: 18,23 ; \\ & 106: 19 \end{aligned}$ | $\begin{gathered} \text { peer (1) } \\ 57: 2 \end{gathered}$ | $\begin{aligned} & \text { 5:16;10:8,16;11:20; } \\ & \text { 68:1;71:22;74:14;76:1, } \end{aligned}$ | $\begin{gathered} 104: 20 \\ \text { predict (2) } \end{gathered}$ | $\begin{aligned} & \text { probabilities (1) } \\ & 24: 12 \end{aligned}$ |
| paid (6) | people (4) | 5,5,10,15,18;77:7,19; | 24:13;26:21 | probability (1) |
| 5:19;10 | 22:7;29:13;47:17;56:7 | 78:8,10;79:6;80:5; | predicting (2) | $26: 12$ |
| 77:12,17;78:3 | people's (1) <br> 19:23 | 90:17,21;98:7 <br> plants (2) | $84: 3,15$ | $\begin{gathered} \text { probably (4) } \\ 7: 23 ; 45: 3 ; 7 \end{gathered}$ |
| 13:22;20:13;72:20; | per (1) | 76:3;78: | 55:20 | problem (2) |
| 78:14 | 80:17 | plants' (1) | prefiled (3) | 52:24;76:4 |
| paper (1) | $\begin{aligned} & \text { percent (10) } \\ & 8: 20.23: 51: 15: 68: 24 \end{aligned}$ | $14: 16$ | $45: 14 ; 46: 15 ; 48: 1$ | problems (2) |
| 99:1 | $\begin{aligned} & 8: 20,23 ; 51: 15 ; 68: 24 ; \\ & 83: 3,5,6,8 ; 92: 7 ; 108: 19 \end{aligned}$ | $\begin{array}{r} \text { plant's (2) } \\ 97: 16 ; 98 \end{array}$ | prepare (2) 33:11;71: | 47:1;89:1 procedural |
| papers <br> 85:24 | percentage (5) | play (1) | prepared (9) | 106:20 |
| paragrap | 52:20;68:21,23,23,2 | 32:13 | 17:14;24:9;33:13; | proceeding (4) |
| 101:18;107:20,23 | $\begin{array}{r} \text { Peress (29) } \\ 94: 15,17, \end{array}$ | please (23) | $\begin{aligned} & \text { 40:9;47:13;70:20;88:9; } \\ & 108: 14,17 \end{aligned}$ | $\begin{aligned} & 57: 7 ; 81: 23 ; 82 \text { : } \\ & 104: 11 \end{aligned}$ |
| 108:22 | 96:6;98:2,18,22;99:10, | $40: 22 ; 41: 21 ; 45: 9,13,18$ | preparing (1) | PROCEEDINGS |
| paraphr | 13,17,23;101:4,7,16; | 49:11;97:22;98:4,19; | 56:13 | 5:1 |
| paraphrasing (1) | 103:23;104:4,17;105:4, | 99:15;100:12;101:5; | prerequisite (1) | process (2) |
| 73:11 | 9;106:21,24;107:14,18; | 102:10;105:5;107:8,11, | 40:19 | 83:13;103:2 |
| parentheses (3) | 110:13,18;111:4,12,24 | 20,23;108:10;112:18 | present (5) | produce (2) |
| $100: 16,17,21$ | perfectly (1) | plus (2) | 9:7;33:6;73:9;74:12; | 26:12;91:2 |
| part (12) | 46:8 <br> perform (1) | $\begin{aligned} & \text { 45:4;51:14 } \\ & \text { pm (3) } \end{aligned}$ | 75:11 <br> presentation (2) | produced (9) <br> 74:12,20;75:18;84:18; |
| $\begin{aligned} & 9: 24 ; 13: 13 ; 22: 23 ; \\ & 23: 12: 27: 20: 46: 22 \end{aligned}$ | $\begin{array}{\|c} \text { perform } \\ 82: 22 \end{array}$ | $\begin{aligned} & \text { pm (3) } \\ & 105: 17,18 ; 113: 18 \end{aligned}$ | $\begin{array}{\|c} \text { presentation (2) } \\ 15: 6 ; 27: 20 \end{array}$ | $\begin{aligned} & 74: 12,20 ; 75: 18 ; 84: 18 ; \\ & 91: 5,17,19 ; 92: 14,23 \end{aligned}$ |
| 47:20;54:13;103:6,7 | performance (4) | point (14) | presented (7) | produces (3) |
| 104:5;111:2 | 24:14;26:15,22;86:18 | 5:3;30:18;34:11; $36 \cdot 21 \cdot 37 \cdot 9 \cdot 48 \cdot 19 \cdot 50 \cdot 2$. | $43: 22 ; 44: 11,17 ; 45: 1$ | 76:1;78:11;91:18 |
| participate (1) | $\begin{gathered} \text { performed (1 } \\ 51: 14 \end{gathered}$ | $\begin{aligned} & 36: 21 ; 37: 9 ; 48: 19 ; 50: 2 \\ & 53: 4 ; 66: 1,18 ; 76: 12 \end{aligned}$ | 46:23;52:18;69:9 <br> president (1) | $\begin{gathered} \text { producing (1) } \\ 77: 16 \end{gathered}$ |
| 78:23 | perhaps | $\begin{aligned} & \text { 53:4;66:1,18;76:12; } \\ & 78: 5 ; 83: 7 ; 103: 12 \end{aligned}$ | $\begin{array}{\|c} \text { president (1) } \\ 108: 15 \end{array}$ | product (8) |
| 42:5;8 | 53:9;89:10 | pointed (1) | presumably (1) | 39:10;43: |
| particularly (3) | period (12) | 80:18 | 106:12 | 44:2,23;45:10;55:17 |
| 8:6;89:23;91:22 | 67:14,19;68:4,5;70:2 | points (3) | pretty (2) | professional (2) |
| parties (8) | $\begin{aligned} & 75: 17 ; 76: 13 ; 77: 13 ; \\ & 81: 18,19 ; 83: 18 ; 84: 5 \end{aligned}$ | $\begin{aligned} & \text { 31:8;37:9;66:2 } \\ & \text { pollutant (1) } \end{aligned}$ | $\begin{array}{r} 25: 18 ; 68: 23 \\ \text { previously (1) } \end{array}$ | profit (3) |
| $\begin{aligned} & 11: 12 ; 28: 16 ; 37: 5,11 ; \\ & 39: 21 ; 45: 5 ; 64: 24 ; 65: 3 \end{aligned}$ | periods (2) | $60: 3$ | $110: 5$ | profit (3) $7: 6 ; 82: 8,12$ |
| partners (1) | 68:8, | portfolio | price (14) | project (20) |
| $102: 2$ | permanent $12: 1$ | 11:14 <br> portion (3) | $\begin{aligned} & 7: 7,14 ; 8: 18,19,22 ; 9: 6 \\ & \text { 8,10,15;10:10;53:22; } \end{aligned}$ | $\begin{aligned} & \text { 85:17;86:4;95:3,13; } \\ & \text { 96:23;97:8;98:16; } \end{aligned}$ |
| $\begin{aligned} & \text { party (2) } \\ & 43: 22 ; 102: 2 \end{aligned}$ | $\begin{array}{\|c\|} 12: 1 \\ \text { personal (1) } \end{array}$ | $\begin{aligned} & \text { portion (3) } \\ & 79: 16,17 ; 110 \end{aligned}$ | $\begin{aligned} & 8,10,15 ; 10: 10 ; 53: 22 \\ & 64: 1 ; 66: 18 ; 109: 11 \end{aligned}$ | $\begin{aligned} & 96: 23 ; 97: 8 ; 98: 16 ; \\ & 101: 10 ; 102: 2,16,23 ; \end{aligned}$ |
| Pass (31) | 32:9 | position (8) | priced (1) | 103:4,18;105:1;107:3 |
| 84:21;85:9,17;86:3,6, | $\begin{array}{\|c} \text { personally (1) } \\ 32: 14 \end{array}$ |  | $\begin{gathered} 5: 22 \\ \text { prices (21) } \end{gathered}$ | 108:24;110:20;111:6,14 |
| 8;95:3;96:22;97:8,15; $98: 11,15,19 ; 99: 7$ | $\begin{gathered} 32: 14 \\ \text { perspective (1) } \end{gathered}$ | $\begin{aligned} & \text { 60:13,14;61:6;72:4; } \\ & 111: 20 \end{aligned}$ | prices (21) | $\begin{aligned} & 22 \\ & \text { projected (1) } \end{aligned}$ |
| 100:15,22;101:10;102:1 | 104:22 | positive | , | 14:14 |
| 15;103:13,17;105:1,4; | pe |  | 67:4,6,6,7,22;69:11; | proof (1) |
| 107:2;108:20,23;110:10, | 50:23 <br> Petroleum (1) | $\begin{gathered} \text { possibilities (2) } \\ 39: 2,4 \end{gathered}$ | $\begin{aligned} & \text { 74:23;85:16,20,21;86:6 } \\ & \text { pricing }(\mathbf{3}) \end{aligned}$ | $\begin{gathered} \text { 27:8 } \\ \text { properly (1) } \end{gathered}$ |
| 19;111:14,17,22 | Petroleum (1) |  | pricing (3) | properly (1) |


| 31:20 | 19:15 | 45:18;46:15;50:11;58:7, | 7:3,8;10:9;11:18 | relate (1) |
| :---: | :---: | :---: | :---: | :---: |
| property (1) | pushing (3) | 8,10;63:3;81:8;87:15; | reconvene (1) | 104:23 |
| 8:4 | 19:19,22;20:3 | 98:3;102:21;108:3; | 105:24 | related (4) |
| proportions (1) | put (5) | 109:18 | Record (17) | 17:11;51:6;71:20; |
| 27:12 | 11:24;15:5;29:19; | readily (1) | 13:2;16:16;30:1; | 87:18 |
| proposal (1) | 50:3;54:9 | 13:21 | 33:22;42:2,2,3;50:11; | relates (3) |
| 34:9 |  | reading | 70:22;71:1,12;88:21; | 28:3;79:4;110:3 |
| propose (1) | Q | 36:11;37:18;42:1; | 90:3;101:6;105:15,20; | relating (3) |
| 107:11 |  | 53:22;82:3;92:18;94:1; | 106:6 | 25:11;95:1;101:8 |
| proposed (4) | qualify (2) | 100:11;101:5 | recorded (2) | relationship (2) |
| 43:5,9;46:6;47:2 | 24:17;25:2 | reads (1) | 82:17;87:3 | 18:12;21:19 |
| proposition (1) | quality (1) | 37:10 | record's (1) | relative (4) |
| 97:7 | 56:16 | real (1) | 90:5 | 9:13;14:16;68:18;86:1 |
| proprietary (8) | quantitative (1) | 22:4 | recovered (1) | relatively (2) |
| 26:11,17,18;29:2,4; | 22:8 | realized (3) | 6:14 | 52:16;68:2 |
| 43:17,23;44:4 | quickly (4) | 6:21;75:13;89:3 | redacted (3) | relevant (1) |
| prospect (1) | 26:5;29:10;38:23 | really (8) | 70:14,21;71:1 | 8:6 |
| 95:12 | 89:17 | 13:15;48:15;50:23,24; | redirect (3) | reliable (1) |
| provide (8) | quite (7) | 51:2,20;73:16;87:11 | 15:17,20;16:11 | 109:7 |
| 13:4;27:1;47:8;53:9; | 5:13;8:9,10;9:10;22:5; | reason (2) | redone (1) | relied (2) |
| $59: 17 ; 70: 6 ; 79: 20 ; 111: 8$ | 93:6;102:8 | 16:22;58:14 | 17:6 | 43:16;90:23 |
| provided (8) | quits (1) | reasonable (5) | redound (1) | rely (3) |
| 9:16;25:6;46:21;67:2; | 112:22 | 39:20;40:2;52:20; | $60: 19$ | $55: 23 ; 103: 4,7$ |
| 70:15;85:5;91:15;92:22 | quotations (1) | 73:17;111:21 | reduce (3) | relying (1) |
| provides (1) | 29:20 | rebut (1) | 60:1;61:15,16 | 55:21 |
| 111:6 | quote (10) | 27:17 | reduced (2) | remains (2) |
| providing (3) | 73:14;95:10;97:2,4,6; | rebuttal (13) | 77:21;78:4 | 61:17;78:4 |
| 62:1;72:11;109:7 | 108:24;109:1,10,12,19 | 25:10,23;26:7;28:4; | refer (3) | remember (2) |
| $\begin{aligned} & \text { provision (6) } \\ & 44: 1 ; 73: 1 ; 79: 19 ; 81: 2 \end{aligned}$ | R | $\begin{aligned} & 30: 6 ; 45: 23 ; 46: 7 ; 49: 8 \\ & 50: 2 ; 53: 21: 54: 8: 67: 10 \end{aligned}$ | $49: 9 ; 64: 13 ; 89: 11$ | $13: 1,24$ |
| $4 ; 109: 22$ | R | $95: 7$ | $41: 17 ; 46: 3 ; 48: 24$ | $78: 2$ |
| proxy (1) | range (3) | rebutting (1) | 60:6;61:18;71:24;79:9, | Renewable (2) |
| 47:19 | 76:22;92:6,10 | 27:15 | 19;91:5 | 100:16,18 |
| PSNH (39) | ranged (1) | recall (15) | referred (3) | renewables (1) |
| 13:12;14:2,2,2,4;17:8; | 92:9 | 15:22;31:22;36:8,22; | 47:10;81:22;96:12 | 9:6 |
| 18:10,15;40:4,6;42:10, | ranging (1) | 37:13,21;63:22;82:2; | referring (9) | repeat (1) |
| 19;49:3,12;59:22;61:12; | $82: 17$ | 85:10;91:8,24;94:24; | 6:22;8:17;51:4;58:18; | 23:22 |
| $63: 8,14 ; 66: 20 ; 67: 2,2$ | rare (1) | 96:21;103:2,17 | 75:5,9;81:17;82:12; | replace (1) |
| 68:16;72:20;75:15;76:4, | 29:11 | receive (1) | 90:12 | $63: 1$ |
| 14,14,21;87:5;88:11; | rate (12) | 32:1 | refers (2) | replaced (1) |
| 93:7;95:8;102:13,18,21, | $13: 2 ; 18: 9,13,17 ; 19: 8,$ | received (4) | 57:19;102:7 | 59:4 |
| 24;108:16;109:1;113:7 | 9;78:2;80:16,19,24;81:2, | 35:4;62:8;67:5;81:12 | reflect (3) | replacement (1) |
| PSNH's (9) | $7$ | receives (3) | 80:7,9;88:12 | $5: 23$ |
| 19:19;30:11;37:1; | rated (2) | $76: 7,9,19$ | reflected (2) | reply (1) |
| 98:17;101:9;103:4,7,14, | 8:18,22 | receiving (2) | 98:16;101:11 | 43:4 |
| 104:8 | rates (1) | 36:8;77:4 | regard (2) | report (4) |
| Public (2) | 87:6 | recent (7) | 25:5;85:7 | 14:18;23:11;45:11; |
| 21:20;71:7 | rather (4) | 86:17;90:18;91:10,12; | regarded (1) | 83:11 |
| publicly (1) | 61:14;66:13;67:19; | 92:1,4,7 | 12:18 | reported (1) |
| 71:9 | 68:4 | recently (1) | regarding (7) | 88:15 |
| purchased (1) | ratio (3) | $37: 15$ | 18:9;23:17;25:10; | Reporter (1) |
| 66:19 | 54:23;57:20;58:13 | recess (1) | 39:9;61:12;66:2;111:16 | $21: 1$ |
| purchasing (1) | RE (1) | 105:16 | regards (1) | reporter's (1) |
| 8:3 | 37:12 | recognize (2) | 8:6 | 89:22 |
| purpose (4) | reach (3) | 22:9,17 | regulated (6) | reports (1) |
| $24: 17 ; 83: 16 ; 104: 7$ $111: 10$ | $28: 14 ; 30: 9 ; 44: 8$ reached (3) | $\underset{60: 3}{\text { recognizes (1) }}$ | $\begin{aligned} & \text { 6:1;8:5;76:6;77:7,10; } \\ & 87: 6 \end{aligned}$ | $\begin{gathered} 86: 17 \\ \text { represent (1) } \end{gathered}$ |
| $111: 10$ <br> purposes (5) | reached (3) $8: 15: 40: 23: 41: 12$ | $60: 3$ <br> recommendation (6) | $\begin{gathered} \text { 87:6 } \\ \text { regulatory (2) } \end{gathered}$ | represent (1) |
| 8:4;30:12;42:17; | reaching (1) | 15:24;16:4,17,21; | 87:3;88:16 | representative (1) |
| 43:16;107:10 | 86:22 | 40:11;41:4 | regurgitation (1) | 108:18 |
| pursue (1) | read (20) | recommendations (1) | $87: 12$ | representatives (1) |
| 105:3 | $35: 11 ; 38: 22 ; 39: 1$ | $16: 11$ | reiterate (1) | $37: 1$ |
| push (1) | $41: 19,21 ; 42: 1 ; 43: 1$ | reconfiguration (4) | 36:2 | represents (1) |


| 33:1 | 81:5;85:16;86:11;97:17 | 24:5,23;25:20;27:17; | $\boldsymbol{\operatorname { s e c }}$ (1) | settlements (2) |
| :---: | :---: | :---: | :---: | :---: |
| Request (8) | resulted (1) | 28:22;30:14;31:9;34:13, | 93:8 | 13:16,18 |
| 13:2;18:5;70:9,22; | 73:24 | 22;35:2,11;37:4,24; | second (17) | Several (2) |
| 71:1,6,12;75:8 | resulting (2) | 41:16;42:15;44:8;48:20; | 37:18;38:5;51:6,22; | 73:19;102:20 |
| requested (4) | 56:15;86:7 | 49:7;52:7,12,14;53:5,8; | 52:4,5,5,9;54:21;55:2,3, | share (1) |
| 51:5;67:3;73:24;82:21 | results (13) | 57:13;58:16,24;61:10, | 5;82:11;95:23;101:17, | 35:20 |
| requests (1) | 32:18;68:7;72:19 | 19,20;62:15;65:9;70:20; | 21;104:13 | sheet (3) |
| 106:6 | 80:11;83:20;84:15; | 82:13;83:11;87:24;89:7; | seconds (1) | 70:11;93:17,19 |
| require (1) | 88:11;91:1;92:23;97:12, | 93:11;105:8;106:22; | 25:19 | sheets (1) |
| 70:19 | 18,19;104:24 | 109:14;112:20 | secrets (1) | 93:15 |
| required (2) | resume (1) | right-hand (1) | 40:21 | shelling (1) |
| 32:7;46:9 | 106:23 | 69:8 | section (1) | 77:3 |
| requires (1) | resumed (1) | rights (1) | 101:3 | shield (1) |
| 109:16 | 105:17 | 103:4 | Securities (1) | 9:6 |
| re-run (5) | retail (1) | risk (1) | 100:1 | short (3) |
| 68:16;73:24;74:19; | 87:6 | 22:8 | seem (1) | 42:4;49:9;71:24 |
| 75:1;84:18 | retained (1) | robust (1) | 69:17 | show (4) |
| research (2) | 44:2 | 40:9 | seemed (1) | 42:16;68:20;82:13; |
| 60:2;72:21 | retention (1) | role (1) | 19:1 | 110:19 |
| reserve (1) | 39:9 | 102:24 | seems (1) | showed (1) |
| 18:1 | retire (2) | room (5) | 7:20 | 86:5 |
| reserved (2) | 7:2;16:1 | 27:16;33:7;38:1;96:1; | sell (6) | showing (2) |
| 18:6;106:1 | retired (2) | 106:2 | 6:1,8;7:3;10:8,10; | 74:1;77:2 |
| reserves (11) | 6:21;11:21 | Ross (1) | 19:10 | shows (5) |
| 71:21;72:7,13;73:2; | retirement (1) | 35:16 | selling (3) | 69:2;82:7,16;87:2; |
| 79:3,10,20,22,24;81:3,4 | 95:11 | Round (2) | 5:17;10:17;11:11 | 88:14 |
| resort (1) | retraction (2) | 42:20;75:9 | send (2) | shut (3) |
| 18:18 | 60:14,17 | row (1) | 36:17;106:1 | 10:16;11:5,21 |
| resource (1) | return (15) | 82:10 | sending (3) | shutdown (1) |
| 103:15 | 8:7;42:8;76:11,14,19; | rule (2) | 37:13,22;43:6 | $10: 21$ |
| resources (3) | 77:4,5,12,17,21,22,22; | 9:15;59:22 | sends (1) | side (2) |
| 11:10;77:14;109:23 | 78:3,3,4 | ruling (1) | 37:20 | 47:12;69:8 |
| respect (3) | revenue (3) | 110:14 | sense (3) | sign (2) |
| 101:9;104:21;110:20 | $10: 24 ; 52: 18 ; 82: 8$ | run (11) | $11: 4 ; 60: 22 ; 113: 8$ | $37: 2,6$ |
| respectively (1) | revenues (7) | 5:16;6:9;48:6;51:2; | sensitivity (1) | signal (1) |
| 101:2 | 75:23;84:4,5;86:8,9, | 73:13,14;84:1;89:17; | 32:21 | 14:21 |
| respond (4) | 10;89:17 | 91:19;92:14,23 | sent (5) | significant (4) |
| 27:6;43:8;60:23; | reverse (1) | runs (1) | 35:16;38:13,14;41:8; | 97:3,9;102:24;103:14 |
| 110:13 | 33:19 | 96:4 | 45:5 | significantly (2) |
| $\begin{gathered} \text { responding (1) } \\ 31: 12 \end{gathered}$ | review (8) 23:5,7;46:22:57:3; | S | $\begin{array}{\|l\|} \hline \text { sentence (4) } \\ 42: 22 ; 59: 9 ; 96: 4 ; 98 \end{array}$ | $\begin{aligned} & \text { 56:5;92:6 } \\ & \text { signs (1) } \end{aligned}$ |
| response (14) | 23:5,7,46.22,57.3, $85: 13 ; 88: 3,5 ; 107: 23$ | S | sentences (2) | $36: 19$ |
| 17:1;25:24;26:1;36:2; | reviewed (4) | sake (2) | 35:12;100:12 | similar (4) |
| 42:20;45:22;50:16;52:3; | 17:14;82:5;102:6,10 | 33:22;88:21 | separate (2) | 26:20;51:11;53:1; |
| 65:8;73:15,20;79:1,14; | reviewing (1) | same (7) | 91:6,21 | 91:19 |
| 92:21 | 109:17 | 7:21;32:17,18;48:10; | separated (1) | similar-type (1) |
| responses (3) | reviews (3) | 89:4;96:11;111:7 | 104:11 | 51:21 |
| 42:21;54:15;62:8 | 81:16;101:22;108:2 | saw (1) | September (1) | simple (1) |
| responsibilities (4) | revised (7) | 14:11 | 58:6 | 29:8 |
| 109:4,6,9;111:7 | 17:18;36:17;42:20; | saying (9) | service (8) | simplified (1) |
| responsible (2) | 57:22;74:16;91:16; | 30:13;31:18;36:3; | 13:2;18:13,18;82:5; | 80:12 |
| 36:18;111:8 | 92:11 | 46:10;77:9;79:14;80:10; | 100:20;102:3;109:2,7 | simulation (1) |
| responsive (3) | revision (3) | 81:7;87:13 | services (2) | 22:6 |
| 27:9;30:3,6 | 73:23,23;84:12 | schedule (1) | 102:6;103:1 | single (5) |
| rest (1) | revisions (3) | 105:22 | session (3) | 25:15;55:21,24;67:11, |
| 13:14 | 14:1,5;73:9 | scientific (1) | 92:22;105:21;113:16 | 20 |
| restating (1) | revisited (1) | 40:9 | Set (6) | site (1) |
| 46:14 | 97:1 | Scott (4) | 14:22;29:17;70:4; | 32:15 |
| restricted (1) | RFO (2) | 12:13,14,15;15:15 | 91:6,21;106:3 | sitting (2) |
| 71:11 | 54:23;55:18 | scrubber (1) | setting (1) | 15:1;109:20 |
| result (13) | right (50) | 19:21 | 83:14 | situated (1) |
| $56: 17 ; 73: 2 ; 74: 6,16$ | $5: 4 ; 9: 5 ; 10: 13 ; 11: 7,7$ | seasons (1) | settlement (1) | $21: 9$ |
| 17;75:7,19;79:24;80:11; | 12:2;14:12;15:4;16:24; | 67:8 | $13: 20$ | six (5) |


| 56:7;67:23;81:10; | spent (1) | statements (2) | styled (4) | 66:20;67:4 |
| :---: | :---: | :---: | :---: | :---: |
| 87:4;88:16 | 19:5 | 12:17;46:16 | 22:24;38:9,10;89:9 | suppliers (1) |
| six-year (5) | spite (1) | states (3) | subject (2) | 64:22 |
| 67:14,16,18;68:4,8 | 73:12 | 19:13;63:18;111:5 | 88:11;109:21 | supply (9) |
| Smagula (2) | spot (1) | stating (3) | submitted (8) | 6:23;10:6;11:13,18, |
| 72:1,23 | 55:22 | 40:11;58:5;96:21 | 34:10;47:6;58:5; | 22;12:6;67:24;109:11, |
| small (3) | spread (1) | Station (7) | 70:21;84:12;88:10; | 23 |
| 52:16;57:17;68:2 | 63:22 | 16:1;19:6;23:8;24:14; | 92:21;93:6 | support (3) |
| smaller (1) | spreads (6) | 89:19;92:3;97:10 | submitting (1) | 23:16;67:3,12 |
| 76:23 | 55:17;63:19;64:4; | Station's (1) | 102:16 | supportable (1) |
| Smith (2) | 69:13,16;74:24 | 26:14 | subsequently (1) | 39:16 |
| 94:6,7 | spring (1) | statistics (1) | 74:16 | supported (4) |
| so-called (2) | 32:3 | 50:22 | subsidiary (2) | 19:20;63:20;66:7;67:1 |
| 46:4;48:3 | stability (1) | status (1) | 100:19;107:21 | supporting (1) |
| solutions (2) | 109:11 | 37:12 | substance (1) | 93:18 |
| 39:2,4 | Staff (80) | statute (2) | 36:7 | supports (2) |
| somebody (2) | 20:13,18;21:19,23; | 109:17;111:8 | substances (1) | 88:7;111:19 |
| 32:11;45:8 | 22:10,23,24;23:12,19; | Steltzer (2) | 60:5 | suppose (1) |
| somehow (1) | 24:2,6;27:12,16;28:9; | 94:12,13 | substantially (3) | 73:5 |
| 19:1 | 30:1,7,12;31:19;32:1,5; | still (8) | 5:18;84:6;102:14 | Sure (18) |
| sometimes (4) | 33:23;34:3,10,17,19,24; | 23:16;38:24;41:11; | substantiveness (1) | 6:11;7:23;16:6,20; |
| 22:4;29:7;78:1,3 | 35:9,23;38:7,9,11,13,17, | 56:20;58:18;61:12;74:1; | 110:19 | 23:23;26:18;32:22; |
| somewhat (1) | 20;39:3,14,22;40:4,10, | 75:4 | substation (1) | 36:18;42:1;55:4;58:17; |
| 8:19 | 12,14,16,24;41:2,13,16, | stochastic (1) | 103:8 | 60:11;72:15;75:5;79:13; |
| sorry (8) | 18;42:14,20;43:2;45:2, | 22:3 | substitute (2) | 90:3,19,22 |
| 39:17;52:2;53:23; | 14;46:9;57:16;59:21; | stock (1) | 46:9;47:1 | surplus (2) |
| 54:2;59:3;62:20;65:14; | 60:2;63:20;64:2;65:5, | 39:12 | substitutes (1) | 8:14;11:13 |
| 107:14 | 13,14,19;67:3,21;68:15, | straight (1) | 46:6 | swirl (1) |
| sort (8) | 17,22;69:9;70:5;71:11, | 66:14 | suddenly (1) | 9:21 |
| 8:5;9:24;18:17;28:10; | 16;72:3;74:24;88:8,21, | straightened (1) | 15:9 | sworn (3) |
| $37: 2,14 ; 85: 8 ; 97: 5$ | 23;89:8,9,11;97:24 | 54:19 | suggest (1) | 20:24;21:2,3 |
| sorts (1) | Staff's (11) | stress (1) | 80:24 | system (3) |
| 19:22 | 20:12;30:12;38:24; | 32:20 | suggested (1) | 60:1,8;63:3 |
| sound (1) | 39:23;45:1;48:16;60:13; | stricken (2) | 40:1 | systems (1) |
| 81:24 | 66:2,6;73:24;75:7 | 59:15;103:21 | suggesting (1) | 22:7 |
| Sounded (1) | Stamp (1) | strike (3) | 111:5 |  |
| 22:13 | 95:19 | 59:7;60:6;63:4 | suggests (2) | T |
| sounds (1) | stand (3) | strikes (1) | 102:13;111:8 |  |
| 24:19 | 12:17;39:12;80:3 | 16:8 | sum (2) | table (3) |
| space (1) | standard (3) | strips (2) | 13:15,17 | 47:13;68:21;69:8 |
| 106:1 | 76:3;77:20;78:9 | 56:3,4 | summarize (3) | takers (1) |
| specific (10) | standards (1) | striving (1) | 65:23;69:12;82:22 | 9:9 |
| 16:12;28:13;34:15; | 29:17 | 75:24 | summarized (1) | talk (4) |
| 48:12;49:16;53:15; | standpoint (1) | strongly (1) | 23:18 | 6:19;9:1,23;51:8 |
| 61:18;64:7,14;72:2 | 77:7 | 27:16 | summary (4) | talked (3) |
| specified (1) | stands (1) | structure (1) | 33:13,16;41:19;64:8 | 10:5;72:1;106:18 |
| 33:3 | 58:3 | 26:12 | summer (3) | talking (11) |
| specify (1) | start (3) | studies (1) | 63:21;69:12,16 | 5:11;7:21,23;49:20; |
| 74:3 | 34:6;57:10;83:12 | 91:4 | Suncorp (1) | 51:10;52:22;53:12; |
| SPEIDEL (65) | starting (8) | study (45) | 28:23 | 55:13;66:16;70:17; |
| 20:10;21:4,8;22:16; | 49:19;50:1;54:16; | 10:14,19;14:12;17:6; | super (1) | 75:10 |
| 23:23;24:2,4,20;25:8; | 59:12;84:23;96:3,16; | 24:10;31:22;32:17;40:8, | 72:2 | talks (1) |
| 26:3,6,9;27:8,10;28:5,6; | 113:14 | 13;41:2,6;46:23;47:23; | superior (1) | 33:17 |
| 30:5;31:4,15,16;33:9,10, | starts (1) | 55:19;56:13;66:23; | 56:2 | $\boldsymbol{\operatorname { t a x }}$ (1) |
| 24;34:5,21;37:12;38:2,3, | 107:20 | 68:19;70:3;72:19;74:1, | superiors (1) | 8:4 |
| 8,19;42:6,7;46:1,17,18; | state (6) | 12;80:11,23;85:5,14,22; | 39:17 | technical (4) |
| 48:11,17,23;49:12,15; | 19:13;29:24;95:10; | 86:1,12,23;91:16,16; | supervisors (1) | 50:4,12;54:10;92:22 |
| 54:1,6;58:23;59:16; | 101:18;109:5,10 | 92:8,11;95:14;97:12,18, | 39:18 | techniques (2) |
| 60:16,21;61:20;62:14; | stated (4) | 19;98:17;101:12;104:8; | supplemental (3) | 22:4,5 |
| 63:6;64:20;65:2,10,11, | 10:3;59:21;81:3;104:7 | 107:4;110:11,21;111:3, | 85:6;86:15;97:21 | Ten (1) |
| 12,21;70:8,16;71:13,18; | statement (7) | 23 | supplied (4) | 99:16 |
| 78:13;89:6;93:5,10; | 28:2;48:12;54:18; | study's (1) | 30:10;64:1,21,22 | ten-year (1) |
| 95:24;97:23 | 61:12,16;72:13;93:14 | 56:16 | supplier (2) | 75:17 |


| term (3) | 113:10 | 66:24 | 11:14;16:3,16;19:16,20, | 74:15;109:2 |
| :---: | :---: | :---: | :---: | :---: |
| 43:20;72:6;75:20 | today's (1) | turning (1) | 23;20:4;22:10,11,12,19; | vary (1) |
| terms (3) | 58:4 | 6:15 | 25:17;29:17;34:23; | 77:21 |
| 48:12;64:13;87:22 | together (3) | turns (1) | 45:22;46:2;83:13,14 | vein (1) |
| testified (1) | 32:1;55:9,16 | 29:7 | 89:15;92:1;109:20 | 58:24 |
| 110:6 | told (2) | Twenty-four (1) | update (3) | venture (1) |
| testify (1) | 35:18;40:4 | 63:16 | 17:17;58:1;60:18 | 100:23 |
| 28:1 | tomorrow (2) | twice (1) | updated (1) | Ventures (1) |
| testimony (83) | 105:24;112:23 | 87:1 | 87:1 | 108:19 |
| 6:15;10:4;16:9,19; | took (1) | two (19) | updates (1) | verbal (1) |
| 17:16;22:20,20;23:11, | 70:10 | 7:23,24;37:24;38:12; | 59:1 | 65:8 |
| 17,24;24:6;25:3,5,11; | top (5) | 51:4;52:22;53:1;66:22; | updating (1) | verifiable (1) |
| 27:9;30:1,4,7;31:3,12, | 7:11;35:3;37:9;100:5; | 68:8,11,20;74:21;83:7; | 58:4 | 40:9 |
| 18;43:3;45:2,15,16,23; | 107:7 | 93:15;100:11;104:12, | upon (2) | verify (3) |
| 46:8;48:13,15;49:2,8; | topic (1) | 14;106:8,13 | 15:7;90:23 | 25:2;32:16;40:12 |
| 50:2,3;51:23;53:6,11,21; | 62:6 | type (2) | up-to-the-minute (1) | verifying (2) |
| 54:8;57:15;58:6,14,19; | tops (1) | 32:4;51:3 | 62:2 | 29:15;41:5 |
| 59:21;63:8,9,11;67:10; | 92:13 | types (2) | use (15) | version (7) |
| 68:6,15;69:23;70:10; | town (1) | 32:9;77:11 | 28:22;47:18;51:20; | 37:21;39:23;42:9; |
| 72:5,14,16;79:8,12,16, | 70:23 | typically (7) | 52:10;54:21,24;55:7,14, | 44:10,16;70:14;71:2 |
| 18;80:14;81:22;82:6,7; | trade (1) | 22:3;45:11;47:13; | 15,19;56:6;67:14;69:4; | versus (2) |
| 84:19;85:3,6,19;86:13, | 40:21 | 67:14;76:2;77:13;92:16 | 79:5;81:6 | 54:19;60:17 |
| 15;87:9,12,15,23;88:8, | trading (2) |  | used (20) | view (6) |
| 18,23;89:5;90:8;95:7; | 66:18;67:7 | $\mathbf{U}$ | 26:21;29:21;30:23 | 31:19,24;39:23;98:7, |
| 97:6,14,22;110:5;111:21 testing (1) | TransCanada (4) |  | 7;41:1;51:2;55:6,8, | 8;99:1 |
| testing (1) | 6:16;18:2,6,11 | ultimately (2) | 11;58:13;66:10,24;68:4, | virtually (1) |
| 32:20 | TransCanada's (2) | 32:6;34:12 | 11,15,19;69:2;72:6; | 19:16 |
| Therefore (2) | 19:2,4 | unable (1) | 77:19;90:10 | virtue (2) |
| 39:18;79:15 | transcript (2) | 51:7 | useful (5) | 11:13;13:8 |
| thinking (1) | 106:9,11 | uncertain (1) | 13:23;17:19;40:3; | visits (1) |
| 11:3 | transcript's (1) | 95:12 | 66:13;77:20 | 32:2 |
| third (5) | 106:14 | uncovering (1) | using (13) |  |
| 28:15;43:22;52:12,14; | Transmission (17) | 83:10 | 22:3,4;29:17;39:14; | W |
| 55:13 | 95:3;96:23;97:8; | undepreciated (1) | 40:9;50:8;63:24;67:11; |  |
| though (4) | 98:11,15;100:15,20,23; | 76:11 | 80:24;89:4;95:18,20; | wait (1) |
| 9:9;10:7;47:23;98:21 | 101:10;102:2,6,16; | under (6) | 96:14 | 10:20 |
| thought (4) | 103:1;107:3;108:19,20, | 33:2;39:10;68:20; | usual (1) | walk (1) |
| 16:15;18:16;24:16; | 24 | 91:19;98:7,8 | 43:13 | 31:4 |
| 61:11 | transpired (1) | unearthed (1) | Usually (1) | way (9) |
| three (11) | 45:24 | 10:20 | 29:18 | 5:24;13:10;14:19; |
| 12:4;25:19;37:9;52:4; | Traum (1) | uneconomic (1) | Utilities (2) | $73: 1,19 ; 77: 20 ; 81: 8$ |
| $54: 9 ; 55: 6,9,12 ; 56: 8$ | 7:21 | $78: 2$ | $21: 20 ; 100: 24$ | 103:5;104:2 |
| 57:17;91:4 | trick (1) | unfortunately (1) | utility (5) | ways (1) |
| Thursday (2) | 22:14 | 104:18 | 5:24;59:22;77:8,14,18 | 85:9 |
| 36:9;105:24 | tried (3) | unheard-of (1) |  | weary (1) |
| tie-in (2) | 12:3;14:21;84:9 | 27:12 | V | 113:2 |
| 104:14;110:9 | troubled (1) | Unit (13) |  | Wednesday (1) |
| ties (1) | 15:12 | 31:21;40:8;66:23; | valid (1) | 35:4 |
| 104:2 | try (7) | 70:2;74:11;77:15,15; | 50:20 | week (4) |
| tighten (1) | 24:13;31:10;37:2,4; | 98:17;101:12;107:4; | valuation (2) | 13:20;70:24;106:11, |
| 46:2 | 47:17,17;105:11 | 110:11,21;111:23 | 22:3;97:20 | 12 |
| timeline (3) | trying (10) | Unless (1) | value (20) | weeks (2) |
| 37:8,17;41:18 | 10:22;19:15;27:13; | 105:8 | 5:14,18,21;6:2,4,6,13; | 106:9,13 |
| times (5) | 30:9;61:4,8;62:4,9; | unreasonable (2) | 51:19;73:9;74:4,12; | weighted (2) |
| 13:23;26:24;73:19; | 87:19;106:18 | 66:1;69:3 | 75:11,24;91:23;92:9; | 68:13,21 |
| 78:4;109:19 | TSA (1) | unregulated (1) | 93:24;97:9,16;98:6,13 | Welcome (1) |
| title (1) | 100:21 | 8:1 | values (2) | 5:2 |
| 49:18 | turn (12) | unsupportable (1) | 51:16;83:4 | weren't (1) |
| titled (1) | 22:22;33:18;34:23; | 80:1 | valuing (1) | 104:18 |
| 91:18 | 35:22;36:6;37:16;41:16; | unusually (1) | 8:3 | what's (9) |
| today (7) | 45:9,13;49:7;53:20; | 63:21 | varied (2) | 15:7;31:11;38:9,10; |
| $\begin{aligned} & 36: 20 ; 81: 7 ; 97: 6 ; \\ & 105: 23 ; 112: 12,22 \end{aligned}$ | $\begin{gathered} 97: 21 \\ \text { turned (1) } \end{gathered}$ | up (24) $7: 16: 8: 10: 10: 19$ | $\begin{aligned} & \text { 76:15;77:24 } \\ & \text { various (2) } \end{aligned}$ | $\begin{aligned} & 42: 4 ; 49: 18 ; 62: 10 ; 63: 12 \\ & 112: 15 \end{aligned}$ |
| 105:23;112:12,22; | turned (1) | 7:16;8:10;10:19; | various (2) |  |

DAY 4 - AFTERNOON SESSION ONLY - May 9, 2012
DE 10-261 PUBLIC SERVICE COMPANY OF N.H. Least Cost Integrated Resource Plan


