

STATE OF NEW HAMPSHIRE

PUBLIC UTILITIES COMMISSION

April 5, 2012 - 9:10 a.m.
Concord, New Hampshire

DAY 2
MORNING SESSION ONLY

NHPUC APR23'12 PM 3:54

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

PRESENT: Chairman Amy L. Ignatius, Presiding
Commissioner Robert R. Scott
Commissioner Michael D. Harrington

Sandy Deno, Clerk

APPEARANCES: Reptg. Public Service Co. of New Hampshire:
Gerald M. Eaton, Esq.
Sarah B. Knowlton, Esq.

Reptg. TransCanada:
Douglas L. Patch, Esq. (Orr & Reno)

Reptg. Granite Ridge Energy:
Howard M. Moffett, Esq. (Orr & Reno)

Reptg. N.H. Sierra Club:
Arthur B. Cunningham, Esq.

Reptg. Conservation Law Foundation:
N. Jonathan Peress, Esq.

Court Reporter: Steven E. Patnaude, LCR No. 52

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

Reptg. Office of Energy & Planning:
Eric Steltzer

Reptg. Residential Ratepayers:
Rorie E. P. Hollenberg, Esq.
Kenneth E. Traum
Office of Consumer Advocate

Reptg. the PUC Staff:
Alexander Speidel, Esq.
George R. McCluskey, Electric Division

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P R O C E E D I N G

CHAIRMAN IGNATIUS: Let's reopen the hearing in Docket 10-261, Public Service Company of New Hampshire's 2010 Least Cost Plan. And, before we begin, I want to mention a few things about the scheduling, because we were looking at dates to continue, if we're not able to finish today. If we do need an additional day, we have thrown out yesterday the possibility of April 10th. I understand that's a conflict with one of PSNH's witnesses. Other possibilities we've come up with are April 12th, starting at 10:30, and a little rejiggering of some other things here; April 23rd, it could begin at 9:00; and May 1st that could begin at 9:00.

So, take a look, check in with your offices. And, at maybe midday, we'll check in with each other again and see if we can lock in one of those days.

So, are there any other procedural issues to undertake -- actually, should we take appearances? I always forget to do that. I'm not sure why we take appearances on the second day. It seems like a lot of time unneeded. So, I'm not going to take appearances, so make that declaration.

There is one issue, though, on appearances I did want to ask Mr. Moffett. I understand

1 that you are here kind of in two capacities. You had said
2 yesterday you were here on behalf of Granite Ridge, which
3 is a member of the New England Power Generators
4 Association. New England Power Generators Association is
5 actually the intervenor, correct?

6 MR. MOFFETT: New England Power
7 Generators Association did intervene, Madam Chair. They
8 were not represented by counsel. And, they have
9 essentially backed off their participation as of this
10 point. They are not -- they are not here this morning.
11 I'm here representing Granite Ridge Energy, for which we
12 filed a Motion to Intervene at the beginning of the
13 proceeding.

14 CHAIRMAN IGNATIUS: I'm sorry, I didn't
15 hear you. You have filed a Motion to Intervene?

16 MR. MOFFETT: Yes, ma'am.

17 CHAIRMAN IGNATIUS: All right. We'll
18 need to check our -- for some reason I'm not seeing that.
19 So, we'll double check and locate that. Assuming that has
20 not yet been ruled on, and it may have been and I've just
21 forgotten, is there any objection to Granite Ridge's
22 participation as an intervenor? I understand it's a
23 little late to be asking that question, but I assume
24 that's acceptable to all?

1 MR. EATON: Just as long as they don't
2 need all the data requests and testimonies.

3 CHAIRMAN IGNATIUS: You mean, and a new
4 round of discovery? All right. Why don't we proceed.
5 Are there any other procedural matters before we continue
6 with evidence?

7 (No verbal response)

8 CHAIRMAN IGNATIUS: If not, our next
9 witness would be, is there an agreement among the parties
10 on who's up next? Mr. Patch, would it be Mr. Hachey?

11 MR. PATCH: No, because he's only here
12 on Newington.

13 CHAIRMAN IGNATIUS: Oh, I'm sorry. Yes.

14 MR. SPEIDEL: I believe it would be Mr.
15 Sahu or Dr. Sahu.

16 CHAIRMAN IGNATIUS: All right. And, so,
17 Dr. Sahu -- Mr. Cunningham, is that correct, next?

18 MR. CUNNINGHAM: Yes, you are. That's
19 correct.

20 (Whereupon **Ranajit Sahu** was duly sworn
21 by the Court Reporter.)

22 **RANAJIT SAHU, SWORN**

23 **DIRECT EXAMINATION**

24 BY MR. CUNNINGHAM:

[WITNESS: Sahu]

1 Q. Dr. Sahu, would you be good enough to tell the
2 Commission your name and address.

3 A. Sure. Let me spell it out for you. My first name is
4 spelled R-a-n-a-j-i-t, the last name is spelled
5 S-a-h-u. I go by "Ron". My address is 311 North Story
6 Place, in Alhambra, California.

7 Q. And, you have been retained by the New Hampshire Sierra
8 Club to act as an expert witness in this least cost
9 docket, have you not?

10 A. Yes.

11 Q. And, briefly, could you advise of your background and
12 provide testimony in cases such as this.

13 A. Sure. I have a Bachelor's and a Master's in Mechanical
14 Engineering. I have a Ph.D in Mechanical Engineering/
15 Chemical Engineering, specializing in coal combustion.
16 That was many years ago, from CalTech. I worked for an
17 engineering company for about -- various engineering
18 companies for about 12 or 13 years after that. And,
19 then, for the last 12 years, I've been an individual
20 consultant. For about 20 years now, I've been doing
21 environmental work, focusing in equal parts on air
22 quality, as well as on other media, including water and
23 waste, for a broad range of clients, which includes the
24 government, some municipal clients, fair number of

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[WITNESS: Sahu]

1 industrial clients, and also public interest groups. I
2 do track all the technical issues and regulatory issues
3 in a broad area of environmental compliance of interest
4 to my clients.

5 Q. And, how are you being compensated for your testimony
6 on behalf of the Sierra Club?

7 A. I am being paid by the hour.

8 Q. All right. Now, in preparation for your testimony
9 today, Dr. Sahu, would you be good enough to tell us
10 what documents and other information you reviewed?

11 A. Well, I reviewed the Plan, I reviewed various other
12 documents, such as permits. Of course, I looked at the
13 general characteristics of -- I focused on Merrimack
14 Station, although I did look at Newington as well,
15 briefly. I looked at permits. I looked at permit
16 activity of, for example, the NPDES activity that we
17 were talking about yesterday. I looked at some
18 documents that have been produced, provided to me by
19 counsel, including prior studies that Merrimack Station
20 had conducted. I looked at emissions data. So, a
21 broad range of information pertaining to the Merrimack
22 Station and its units.

23 Q. And, do you feel that you had enough information to
24 render your expert opinion in this case?

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[WITNESS: Sahu]

1 A. I did.

2 Q. And, were there documents, as a matter of preference,
3 you would have liked to have seen that you did not see?

4 A. Yes. Early on, as when I was retained, I did assist in
5 making some data requests, to get design and other
6 information that I thought would be relevant to
7 undertaking a broader analysis of the station and its
8 applicability to potential rules. So, yes, there were
9 probably additional documents that would have further
10 assisted in the evaluation.

11 Q. And, was that particular information relating to the
12 Regional Haze BART analysis that was discussed
13 yesterday?

14 A. Yes. The document requests were in that context.

15 Q. And, you prepared a report, an Expert Report that's
16 been filed of record in this case, you have not, Dr.
17 Sahu?

18 A. Yes, I did.

19 MR. CUNNINGHAM: And, I think we
20 submitted that yesterday. I'd like to have that marked as
21 "New Hampshire Exhibit Number 4" and offer it into
22 evidence.

23 CHAIRMAN IGNATIUS: Let me ask the
24 parties, it didn't conform to any of our standards for

[WITNESS: Sahu]

1 prefiled testimony. Though, I assume that's why you're
2 presenting it, sort of it was formed to be a substitute
3 for what we would consider prefiled testimony. Is there
4 any objection to from any of the parties and Staff on
5 marking it for identification?

6 (No verbal response)

7 CHAIRMAN IGNATIUS: All right. Seeing
8 none, we will mark it as "Sierra Club Exhibit" --

9 MS. DENO: Four.

10 CHAIRMAN IGNATIUS: -- "4", thank you.

11 (The document, as described, was
12 herewith marked as **Exhibit Sierra Club 4**
13 for identification.)

14 CHAIRMAN IGNATIUS: And, Mr. Cunningham,
15 I'll just remind you, our tradition is that we do not have
16 people go through direct examination on their materials.
17 We assume everybody has read it. Commissioners have
18 certainly read it. And, so, other than a very brief
19 overview of conclusions, we move on to cross-examination.

20 MR. CUNNINGHAM: I quite agree. I do,
21 however, have -- I'm going to ask Dr. Sahu whether he has
22 any updates.

23 CHAIRMAN IGNATIUS: That's fine. And,
24 if there's information that couldn't have been addressed

[WITNESS: Sahu]

1 in his initial testimony, and has come to light through
2 other filings of the parties, that's also appropriate
3 right now.

4 BY MR. CUNNINGHAM:

5 Q. And, Dr. Sahu, since the point in time that you
6 prepared your report, it was dated June the 30th, 2011,
7 are there any changes or modifications you want to make
8 to your Expert Report?

9 A. Well, just in the general terms, that, you know, since
10 it focused on a suite of regulations that would
11 potentially apply or do apply at the station, that,
12 just with the passage of time, there has been evolution
13 in the status of some new regulations. We talked
14 about, for example, developments in the NPDES area, and
15 we've talked about developments in the MACT standard
16 that was discussed yesterday. And, so, those things,
17 simply as a matter of time, regulations have evolved to
18 later stages, if you will. That's a general update.

19 Q. And, just briefly, can you elaborate on those changes,
20 for example, on the MATS mess?

21 A. Right. I think, as was discussed, I think Mr. Smagula
22 mentioned yesterday, I mean, the fact is now we have a
23 final rule, that, of course, is subject to potential
24 challenge in the judicial area and so on, but there is

[WITNESS: Sahu]

1 a final rule. And, it wasn't there, it was in the
2 development process back in June, when I wrote the
3 report. Similarly, there is a Draft NPDES Permit that
4 was not issued when the report was written. There has
5 been further collection, I presume, of data with
6 regards to the National Ambient Air Quality standards,
7 for NOx, for SO2, as well as for fine particulate
8 matter. So, that's the type of update I'm talking
9 about.

10 Q. I'm particularly interested in your point with respect
11 to the fine particulate matter. Could you just briefly
12 elaborate on that and the implications for this
13 planning docket?

14 A. Well, I mean, in very brief terms, fine particulates
15 are a key ambient air pollutant. A lot of focus on
16 fine particulates in the last decade or so, more so
17 than before. It is a sort of active area, where we're
18 learning more about health impacts due to fine
19 particulates more so than we've ever known before. It
20 is very reasonable to expect that our degree of focus
21 on fine particulates will lead to additional
22 understanding of their impacts, and, therefore,
23 additional need to control for emission sources of fine
24 particulates and their precursors. And, those would be

[WITNESS: Sahu]

1 pollutants that are emitted by all coal-fired power
2 plants and power plants in general, and, certainly, the
3 Merrimack Station.

4 Q. And, was the issue of fine particulates a subject
5 matter in the planning document in this case?

6 A. Not *per se*. I looked at the section, I believe, that
7 discusses the Clean Air Act. And, I didn't see any
8 particular discussion on that pollutant.

9 Q. And, can you tell us what cost -- operational and
10 capital cost implications that likely or may have with
11 respect to the PSNH fossil plants?

12 A. Well, the fine particulates are emitted directly from
13 coal-fired power plants. So, there will be some degree
14 of emission modulated, I'm not going to say
15 "attenuated", but modulated by the addition now of the
16 scrubber. So, it is not -- I looked for data on fine
17 particulates, I didn't find a whole lot. There's not a
18 lot available in hard numbers from what will actually
19 be emitted. Perhaps, as testing continues with the new
20 scrubber, we might learn more.

21 Equally important, fine particulates are
22 formed in the atmosphere due to emissions of both NOx
23 and sulfur dioxide. So, there is that secondary
24 component that is equally important.

[WITNESS: Sahu]

1 So, both of these will, in my view,
2 certainly be areas that will have to be looked at by
3 relevant authorities. There are national standards for
4 these. And, it is quite likely, if experience
5 dictates, based on what has happened in other places,
6 that there will be focus back on their direct
7 emissions, as well as their precursors, such as NOx and
8 such as SO2.

9 As to direct emissions, I understand the
10 Station's particulate control device are electrostatic
11 precipitators. Original to the units, back in the
12 early '60s, and I think they were modified, but even
13 the modified precipitators are now either ten plus or
14 twenty plus years old. So, the degree to which they
15 were designed and operate to reduce fine particulates
16 is probably not part of the original design basis. So,
17 it's difficult to tell without a lot of test data, and
18 which I did not find. I think most of the permit terms
19 and so on do not currently regulate for fine
20 particulates from the units.

21 Q. And, what changes may be necessary to deal with the
22 fine particulate issue, in terms of engineering and the
23 like?

24 A. Well, anything from looking potentially at other

[WITNESS: Sahu]

1 particulate control devices, such as baghouses, to
2 running the scrubber differently, to considering
3 additional controls, such as wet electrostatic
4 precipitators. These other type of technologies that
5 others have found beneficial in terms of controlling
6 fine particulate matter. And, I'm talking "fine" as in
7 less than two and a half microns. That's the size
8 range when I'm talking about "fine particulate matter".

9 Q. And, you mentioned the "Regional Haze BART", and that
10 includes NOx, does it not?

11 A. Yes.

12 Q. Are there costs and planning implications with respect
13 to NOx control at the Merrimack Station?

14 A. Well, just to be clear, the BART rules actually apply
15 to one of the two units, just because of the way the
16 BART rule is structured. So, right now, it applies, I
17 believe, to Merrimack 2. There are other portions of
18 the broader Regional Haze Rule with relation to
19 reasonable further progress and so on down the road
20 that might apply to other -- to the whole station, to
21 Unit 1. But, again, it's a process that has not
22 completely concluded with regards to what the
23 appropriate standard will be. I think Ms. Tillotson
24 mentioned that yesterday. And, so, it's not clear

[WITNESS: Sahu]

1 where the actual NOx standard will be.

2 The Station is quite correct, in fact,
3 it is a historic station in the sense that the first
4 SCR in the country was installed at the Merrimack
5 Station in 1985, I believe. And, there have been, you
6 know, certainly, the second SCR went in a few years
7 later. But that SCRs that go in today routinely do 90
8 plus, 92, 93 percent efficiency. I think the SCRs
9 currently at the station do something in the range of
10 the mid 80s, I think, anywhere from around 85 percent
11 efficiency. So, there is certainly room for additional
12 NOx reduction, particularly given that these are
13 cyclone boilers that are known to be large NOx
14 generators. And, NOx will appear, not only in terms of
15 Regional Haze, but as a one-hour MACT standard now. It
16 certainly contributes to fine particulates, contributes
17 to a number of different aspects of air quality. And,
18 so, I don't believe that the focus on NOx is quenched,
19 if you will, just because of the presence of the
20 current SCRs at the Station, in terms of the future
21 levels. So, I'm not quite as sanguine as Mr. Smagula
22 was yesterday, that, or Ms. Tillotson, for that matter,
23 that NOx is a settled issue at the plant, at least in
24 terms of the future.

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[WITNESS: Sahu]

1 Q. And, was there any information in the planning document
2 itself with respect to the potential further reductions
3 in fine particulate matter and NOx?

4 A. I don't think there was discussion for any further
5 reduction. I think it was the Company's judgment, I
6 believe as outlined yesterday, or reiterated yesterday
7 in very clear terms, that they don't anticipate any
8 need for further capital investments, certainly, for
9 NOx, and I didn't particularly hear about particulate
10 matter, but I presume for particulate matter as well.

11 Q. And, you were here all day yesterday, Dr. Sahu, and you
12 heard the testimony from the PSNH witnesses with
13 respect to the planning process. In the course of your
14 experience, do you have -- had the occasion to review
15 planning processes for other similar public utilities?

16 MR. EATON: This seems like it's going
17 on with direct testimony, which the Chair had admonished
18 Mr. Cunningham not to do. And, this is the reason why we
19 had mentioned in the beginning why we might need to call
20 our witnesses back to rebut the new information that comes
21 in on direct. So, I wish this would be limited, and so
22 that we could proceed, and that Sierra Club follows what
23 the Chair directed.

24 CHAIRMAN IGNATIUS: I guess a couple

[WITNESS: Sahu]

1 issues there. One is, how much the opening summary is
2 going on. The second is, if you think there are issues
3 that are inappropriate, and are not responsive to things,
4 as I said, that have been filed in other testimony, it's
5 your obligation to object to those, and not have a witness
6 continue, and then say "well, now, we've got to call some
7 more people to respond to that."

8 So, please, everyone, if you feel that
9 things are opening up new areas, please, and
10 inappropriately so, please be attentive to that and notify
11 me.

12 On the -- Mr. Cunningham, we are -- seem
13 to be sort of having a discussion more than presenting any
14 updates to the report. So, if you have anything further
15 on updates or changes as a result of things that have been
16 filed in this case leading up to it, please conclude that,
17 and we'll move on to cross-examination.

18 MR. CUNNINGHAM: All right. Well, Madam
19 Chair, we heard hours of testimony yesterday with respect
20 to the planning process and PSNH's position on the
21 adequacy of their planning process. Dr. Sahu is an expert
22 on planning processes. And, I guess this is in the nature
23 of rebuttal, not new testimony. But a view, I think,
24 would be very useful to the Commission, to understand his

[WITNESS: Sahu]

1 critique of that planning process and its adequacy. He's
2 precisely the kind of witness that I think that this
3 planning docket needs, as we assess the adequacy and
4 dispute the adequacy of this planning process.

5 So, I don't consider this an expansion
6 of his Expert Report. I consider this a valuable, useful
7 addition to the ultimate issue before the Commission.

8 CHAIRMAN IGNATIUS: All right. I'll
9 allow that. But please keep it focused to where the
10 Company was and the understandings in the industry and
11 regulatory standards were in the Summer of 2010.

12 BY MR. CUNNINGHAM:

13 Q. Dr. Sahu, in response to the Chair's remarks, you are
14 familiar with the planning that other utilities do, are
15 you not?

16 A. I am. And, I absolutely agree that the information --
17 when I reviewed the document, and it was not my
18 expectation that the Company would have any more
19 insight into a future that is admittedly uncertain in
20 the regulatory arena. It's in the nature of our
21 regulatory development process to have that
22 uncertainty. It does go through a lot of changes. It
23 does go through input from different parties. It does
24 go through and preserving everybody's rights to

[WITNESS: Sahu]

1 challenge these in the judicial arena, and ultimately
2 reach finality one way or the other. Congress is not
3 always crystal clear on its intent. So, all of it
4 contributes.

5 And, having said that, what struck me,
6 both in preparation for my report, as well as what I
7 heard yesterday, was -- were a few things. First, that
8 it -- others are able to do planning, even with that
9 other same set of uncertainties. Certainly, the
10 Merrimack Station is not the only one faced with this
11 type of a set of potential future regulations, and
12 other utilities, other publicly traded utilities, other
13 utilities who are equally responsible to their
14 shareholders and their ratepayers, are able to do
15 planning. And, they, of course, have the same degree
16 of knowledge and confidence about their own operations
17 as PSNH does about its own stations. That's sort of a
18 general statement. And, this is across the board. I
19 could point to any number of utility systems that are
20 actively engaged in doing a significant degree of
21 planning.

22 The other, a second point, was it was
23 very striking, frankly, towards the end of the day, to
24 hear that the process is really of little use to PSNH.

[WITNESS: Sahu]

1 It's certainly, when I reviewed the document, it was
2 not with the idea that this had been prepared just to
3 fill a requirement in of itself, sort of an end in
4 itself. It was with the expectation there is some
5 means to an end. It could be, if not, as Mr. Large
6 said, a play book, at least, in some sense, helpful to
7 the Company. And, that is not -- that it is not viewed
8 that way by the Company was, frankly, somewhat
9 disappointing. And, I think that is not how I believe
10 other utilities treat this process. And, that's a
11 difference.

12 The third is, and I'm going back to the
13 rebuttal report that had been produced in reaction to
14 the report I put in by, I think, jointly by Mr. Smagula
15 and Ms. Tillotson, where it said "we can't plan. We
16 really have an inability to plan because of the
17 uncertainties", which we have all discussed. And, I
18 find that striking for two reasons. One is, that I am
19 aware, and I've looked at other similar planning
20 documents that the Company has done throughout the
21 2000s. There was one in 2004 by, I think, one
22 consultant; one in 2005 by a different consultant; a
23 more elaborate study in 2007 by another consultant.
24 So, planning certainly has occurred throughout the

[WITNESS: Sahu]

1 process. So, it was discordant to hear that, for some
2 reason, as part of this version of the integrated
3 planning document, that we simply "needed that full,
4 clear guarantee", and I'm quoting Ms. Tillotson, I
5 think those were her words, before one could attempt
6 planning. We certainly all would like certainty. By
7 no means am I saying that we shouldn't strive for that.
8 But it is -- the very nature of these plans is to
9 account for reasonable uncertainty and a range of
10 future outcomes by making that part of the plan. And,
11 there are very, very established ways to do it.
12 Whether through sensitivity analysis, whether through
13 the Monte Carlo analysis, whether through either simple
14 or complex methods, you can account for that
15 uncertainty in a range of outcomes, and as opposed to
16 requiring that there be a clear guarantee.

17 The fourth thing that I will sort of
18 mention here is I had time to think about the testimony
19 that was being offered yesterday, and I went back and
20 thought about it more in the evening. And, I, frankly,
21 could not reconcile what I view as an inconsistency, at
22 least in what -- if I understood correctly what
23 Mr. Smagula said and what Ms. Tillotson was saying.
24 And, what I mean by that is the following: If I heard

[WITNESS: Sahu]

1 Mr. Smagula say, and I think it was reiterated later on
2 by Mr. Large, that, because of the knowledge of the
3 Station, and its capabilities and its control systems,
4 except in one instance where it related to the cooling
5 water intake screens and so on, where there is some
6 room for perhaps a modest modification or capital, that
7 he didn't foresee any need for capital. And, the
8 reason, therefore, that there is no discussion of that
9 is because of his certainty that there would be no need
10 for any investment, capital investment, in order to
11 deal with the suite of regulations. So, that's one
12 data point. I think, if I'm not misinterpreting what
13 was said, it was very clear multiple times that he is
14 certain that there won't be any need, given his
15 experience and given his knowledge.

16 Ms. Tillotson, on the other hand, was
17 making the point, I believe, that "the future is too
18 uncertain in order to be properly accounting for
19 planning." So, here we're faced with, on the one hand,
20 having a potential range of outcomes that makes it
21 difficult to plan, while, at the same time, we're also
22 faced with "well, there is no need to plan, because
23 we're certain we won't need to put any capital." I
24 could not reconcile these two, what seem to me

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1 conflicting objectives.

2 And, frankly, if you look at the record
3 a little closely, it seems that neither may be
4 completely on point in the following way: I've given
5 an example of why I believe Ms. Tillotson's testimony
6 at least was hard for me to understand, because the
7 Company has planned and dealt with planning scenarios
8 throughout the years. And, I don't see anything
9 peculiar about this instance, with this suite of
10 regulations that are faced, why you couldn't do a
11 reasonable planning, attempt at a planning exercise,
12 that would be of meaningful use to both the Company and
13 to all the stakeholders.

14 As to Mr. Smagula's point, my difficulty
15 is, I think what he was saying may be true, and I'm
16 certain it is his belief, and I have no reason to doubt
17 that, and he is very, very experienced. But, at the
18 same time, there are at least three instances of
19 surprises where, on the cooling tower issue, on the
20 mercury baseline issue, and on how wastewater from the
21 new scrubber is going to be dealt with, these are areas
22 where clearly the Company has misread its relevant
23 regulators, at least on the first two, EPA and the DES.
24 And, I don't see how the Company can be very certain

[WITNESS: Sahu]

1 that nothing would be required, when there are examples
2 before us where the Company has had to deal with these
3 potential surprises, frankly.

4 So, I'm just troubled by that. And, I
5 don't know how to fully reconcile that, frankly.

6 Q. But you're referring --

7 CHAIRMAN IGNATIUS: One moment, Mr.
8 Cunningham. Mr. Eaton.

9 MR. EATON: I would like to move to
10 strike the last answer. Much of that could have been
11 included in the July 30th, 2011 report. He did not
12 comment or compare our planning to any other company, and
13 we could have done cross-examination on that whole bit of
14 testimony that's been offered for the first time today.
15 And, it could have been done, and I'd like the Commission
16 to strike that from the record, because it's brand new, or
17 else provide us with the opportunity to rebut it by
18 putting our witnesses back on.

19 CHAIRMAN IGNATIUS: Mr. Cunningham.

20 MR. CUNNINGHAM: This is simply
21 rebuttal, Madam Chair, to the testimony we heard
22 yesterday. And, it goes to the heart of this case, the
23 adequacy of the PSNH planning.

24 (Chairman and Commissioners conferring.)

[WITNESS: Sahu]

1 CHAIRMAN IGNATIUS: We are going to
2 allow some of the testimony and restrict some of the
3 testimony. As to Mr. Sahu -- Dr. Sahu's views about what
4 other utilities have done, that is new and seems to be
5 something that could have been presented in the initial
6 testimony, and would have lent itself to some discovery on
7 the part of the Company and other parties. And, so, we
8 will grant Mr. Eaton's request as it relates to what other
9 utilities do.

10 As to responding to the testimony that
11 was filed, the rebuttal testimony that was prefiled by the
12 Company, and the statements made in the hearing yesterday,
13 that is, I think, fair game, appropriate, and we will
14 allow that.

15 So, is that clear, Dr. Sahu?

16 WITNESS SAHU: Thank you. Yes, it is
17 clear. I certainly didn't mean to make it complicated. I
18 apologize for that.

19 CHAIRMAN IGNATIUS: That's all right.

20 BY MR. CUNNINGHAM:

21 Q. Dr. Sahu, in your testimony, with respect to the
22 testimony yesterday, you referred to other studies that
23 this company had done. And, could you identify the
24 studies you're referring to and what significance they

[WITNESS: Sahu]

1 may have had to your opinion?

2 A. There are three that I recall, frankly. And, I don't
3 recall all the specifics of each one. But, from what I
4 recall, there was at least one done by, I believe,
5 Burns & McDonnell in --

6 CHAIRMAN IGNATIUS: Well, let me stop
7 you there. Because I think that's, again, I'm not sure
8 how that's responding to other prefiled testimony or
9 testimony on the stand yesterday. So, if you can -- if
10 you can think about that, Mr. Cunningham, and why it's
11 appropriate, given where the direction I was just leading
12 at a moment ago, things that could have been explored and
13 weren't, we're not beginning again. Things that were
14 identified and discussed by other witnesses in prefiled
15 testimony, which does not include the details of prior
16 planning, or was discussed yesterday in the hearing, which
17 as I don't recall was only a glancing reference to prior
18 documents, and nothing about specific contractors and all.
19 I just -- I don't want us to go too far afield or we'll
20 never reach an end point.

21 So, Mr. Cunningham, think about that,
22 and perhaps you can refine your questions.

23 BY MR. CUNNINGHAM:

24 Q. Let's refer then specifically, you did review the study

[WITNESS: Sahu]

1 know as the "Sargent & Lundy Study", did you not?

2 A. That was one of the ones I reviewed, yes.

3 CHAIRMAN IGNATIUS: Mr. Cunningham, --

4 MR. EATON: This is the same thing you
5 just admonished Mr. Cunningham not to do, talking about
6 studies that could have been reviewed and included in his
7 testimony. The Sargent & Lundy Study was not discussed
8 yesterday, it was not part of the rebuttal testimony, or
9 the oral testimony yesterday.

10 CHAIRMAN IGNATIUS: I'm going to grant
11 the request. I assume that was a request to not go into
12 that area?

13 MR. EATON: Yes.

14 CHAIRMAN IGNATIUS: And object to the
15 question. I'll grant that. So, Mr. Cunningham, things
16 that relate to the prefiled testimony and what was
17 testified to yesterday.

18 MR. CUNNINGHAM: All right. Thank you,
19 Madam Chair.

20 BY MR. CUNNINGHAM:

21 Q. Dr. Sahu, just do you have any closing comments or
22 summaries that might lend information to the Commission
23 with respect to the planning process that you heard
24 described yesterday?

[WITNESS: Sahu]

1 CHAIRMAN IGNATIUS: And, before you
2 respond, Dr. Sahu. Mr. Eaton.

3 MR. EATON: I object. The Chairman said
4 that we do not do summaries of prefiled testimony. And,
5 we're now three-quarters of an hour into what's supposed
6 to be a very short period. I object to this question and
7 the summary, because I don't know what the witness is
8 going to say.

9 CHAIRMAN IGNATIUS: I misunderstood. I
10 thought it was just a sort of "wrap-up statement" before
11 moving to cross-examination. Were you asking for more
12 than that?

13 MR. CUNNINGHAM: That's correct, Madam
14 Chair. Just a summary of his assessment of the testimony
15 he heard yesterday about the planning process.

16 CHAIRMAN IGNATIUS: All right. So, not
17 a summary of your report, but a summary of what you heard
18 yesterday?

19 MR. CUNNINGHAM: I'm not asking about
20 the report, *per se*.

21 CHAIRMAN IGNATIUS: I guess. I feel
22 like we've probably been through it. But, if you can do
23 it very quickly, we'll allow it.

24 **BY THE WITNESS:**

[WITNESS: Sahu]

1 A. Okay. Without trying to make it any more
2 controversial, I mean, the summary is very simple. I
3 heard testimony that the plan may not be very useful,
4 and it was confusing at the very least. My only two
5 cents on that is I think that reflects more on how the
6 plan was developed, rather than the plan in itself not
7 being useful. That there are -- others find plans like
8 this very useful, and I think you get what you put into
9 it. And, if thought is put into how the assumptions
10 are justified, discussion is a little clearer, the aims
11 and objectives are clarified, then I think the plan
12 would be useful, and it would not simply gather dust
13 somewhere, as opposed to being a living document, as
14 opposed to something that looks, at least right now, of
15 less usefulness to the parties. That's all.

16 CHAIRMAN IGNATIUS: Thank you.

17 Cross-examination, I would propose this as an order:
18 TransCanada, Granite Ridge, Office of Energy & Planning,
19 CLF, Consumer Advocate, Staff, and then the Company. Is
20 that acceptable?

21 (No verbal response)

22 CHAIRMAN IGNATIUS: All right. Then,
23 Mr. Patch.

24 MR. PATCH: Thank you. Good morning,

[WITNESS: Sahu]

1 Dr. Sahu.

2 WITNESS SAHU: Good morning.

3 **CROSS-EXAMINATION**

4 BY MR. PATCH:

5 Q. In your Expert Report, I believe I'm looking at the
6 first page, about five lines down, you reference among
7 your qualifications years of experience dealing with
8 environmental compliance, is that correct?

9 A. Yes.

10 Q. And, then, near the bottom of the first page, I think
11 it's actually in the last line, you say, actually, that
12 some of your clients have included "power generation
13 facilities", is that right?

14 A. Yes. In the past, I have worked for large companies
15 where we had multiple power generation clients and
16 worked on those projects. That's what I was referring
17 to.

18 Q. And, then, in your testimony as well, or your Expert
19 Report, I believe it's on Page 6, you discuss a number
20 of new or upcoming federal regulations, you actually
21 have a pretty long list of proposed regulations on
22 Pages 7 and 8, I think, is that fair to say?

23 A. Right. When I wrote the report, that was what was on
24 the horizon, and substantially true today.

[WITNESS: Sahu]

1 Q. And, you have, I think, already said that you reviewed
2 the Plan itself, which has been marked as an exhibit, I
3 think it's Exhibit Number 1 in this proceeding, is that
4 fair to say?

5 A. Yes.

6 Q. And, I'm going to ask you if you are familiar with a
7 December 10th, [28th?] 2010 letter that the Commission
8 issued in this docket. I think it was referred to
9 actually in the testimony submitted by Smagula and
10 Tillotson. I don't know if you have had a chance to
11 review that letter or not. Does that sound familiar?

12 A. It does. Although, I don't recall all of it sitting
13 here.

14 MR. PATCH: Okay. I'm just -- it's
15 going to take a minute for me to get that letter out.
16 What I'd like to ask the Commission would be to mark this
17 as an exhibit, because it actually lays out a standard for
18 review of federal regulations. This is a December 28th
19 letter, 2010, in this docket, DE 10-261, from Debra
20 Howland, to the parties.

21 **BY THE WITNESS:**

22 A. Yes.

23 CHAIRMAN IGNATIUS: We'll mark this --
24 I'm sorry. We should mark this for identification as

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[WITNESS: Sahu]

1 "TransCanada 2".

2 (The document, as described, was
3 herewith marked as **Exhibit TransCanada 2**
4 for identification.)

5 MR. PATCH: Thank you.

6 CHAIRMAN IGNATIUS: Mr. Patch, this is
7 already in the docket filings, and parties should have it
8 as part of that. But, if it's helpful to keep it as an
9 exhibit, I'm not troubled. It's just it's something that
10 people have all should have received long ago.

11 MR. PATCH: No, that's right. I just
12 thought it would be important for everybody to have it in
13 front of them.

14 BY MR. PATCH:

15 Q. And, I'd like to direct your attention to Page 2 of the
16 letter.

17 A. I'm there.

18 Q. And, the paragraph that begins "As to their inability
19 to agree on the extent of PSNH's obligation, if any,
20 "to plan for compliance with environmental requirements
21 imposed or established after the date of the LCIRP's
22 initial filing", the Commission notes as a general
23 matter that a sound planning process should consider
24 reasonably foreseeable regulatory changes." Did I read

1 that correctly?

2 A. Yes.

3 Q. And, then it goes on from there, "but recognizing that
4 the threshold at which a potential change in regulatory
5 standards becomes too remote or speculative for a
6 utility to consider will depend on the particular facts
7 and circumstances of the regulatory matter at issue."

8 Did I read that correctly?

9 A. Yes.

10 Q. Does that sound like the kind of standard that should
11 be used by a utility in a planning process?

12 A. It is, and it should be. And, I believe that that is
13 proper, frankly, yes.

14 Q. And, that sounds a little different, doesn't it, than
15 the standard that I think we saw in the prefiled
16 testimony of Mr. Smagula and Ms. Tillotson, and
17 articulated yesterday, basically, to the effect that
18 they only look at regulations that have been adopted
19 and have a compliance schedule?

20 A. Yes. I believe Ms. Tillotson certainly made that point
21 about not having certainty and, therefore, inability to
22 plan. While, as I mentioned before, I heard
23 Mr. Smagula say that, regardless of the outcome of the
24 regulations, there would not be any need for planning

[WITNESS: Sahu]

1 because the Company is well situated, and would not
2 need any capital improvements. So, both views
3 certainly, in their own ways, miss the mark with
4 regards to this standard, in my opinion.

5 Q. Are you familiar with the fact that many of the parties
6 to this proceeding are, in fact, recommending that the
7 Commission order a Continuing Unit of Operations Study
8 of a number of PSNH generating facilities by an
9 independent consultant?

10 A. Yes, I'm aware of that.

11 Q. And, that includes Newington, among a number of other
12 generating facilities, is that fair to say?

13 A. Yes.

14 Q. And, as part of your review of the LCIRP, did you
15 become familiar with at least the general
16 characteristics of Newington Station?

17 A. Yes. I am familiar with general characteristics.

18 MR. EATON: This witness was not offered
19 for Newington Station. And, therefore, I don't think any
20 questions concerning the CUO and Newington Station are
21 appropriate. Therefore, I object to the questions that
22 are coming from TransCanada.

23 CHAIRMAN IGNATIUS: Mr. Patch.

24 MR. PATCH: If you'll allow me to ask

[WITNESS: Sahu]

1 the next question, it actually doesn't relate to the
2 existing CUO. And, I think I had indicated on the first
3 day, when the Company sort of outlined the method by which
4 or the process by which they wanted to divide the
5 proceeding, that I would have at least a question or two
6 related to Newington, and that's where I am right now.
7 And, it will certainly save Dr. Sahu from having to come
8 back on the next day of hearings. So, I have maybe one
9 more question related to this, and it doesn't relate
10 specifically to this study that has been done.

11 CHAIRMAN IGNATIUS: Well, let's hear the
12 question, and give everybody a chance to think about it
13 before you answer it, Dr. Sahu.

14 BY MR. PATCH:

15 Q. So, Dr. Sahu, in the event that the Commission were to
16 order such an independent study, and that study were to
17 include Newington Station, as you understand that
18 facility to be, based on the "reasonably foreseeable
19 regulatory changes" standard that's in that letter that
20 I gave to you, and based on your knowledge of proposed
21 federal regulations, are there any such regulations
22 that you think should be taken into account as part of
23 such a new independent study?

24 CHAIRMAN IGNATIUS: And, Mr. Eaton.

[WITNESS: Sahu]

1 MR. EATON: This is about the Newington
2 Station. And, it's about the CUO, the second part of this
3 proceeding. There was nothing in Mr. Sahu's prefiled
4 testimony regarding Newington. He was focusing on
5 Merrimack Station, and not Newington. And, therefore,
6 this is beyond the scope of his direct examination and not
7 proper for cross-examination. So, I object.

8 CHAIRMAN IGNATIUS: Mr. Patch.

9 MR. PATCH: Well, I think, as a matter
10 of administrative efficiency, it would make sense to allow
11 the question here today, rather than require him to come
12 back, first of all. Secondly, I think it's the kind of
13 question that, you know, relates more to the issue of
14 whether or not the Commission ought to order an
15 independent study, because I'm asking him if he thinks
16 there would be anything, as part of that study, that would
17 be valuable. He may answer "no", in which case, you know,
18 I'm not sure how he'll answer that question. And, so, I
19 just think it would be very useful information for the
20 Commission to have on this one particular issue.

21 CHAIRMAN IGNATIUS: I'm going to grant
22 Mr. Eaton's request that we not go there. He did not
23 testify to that on direct, it's not in response to -- on
24 the issues that he is here on. It may be issues that come

[WITNESS: Sahu]

1 up in the second phase of this. I don't think we're
2 recalling Dr. Sahu to address it, so your "administrative
3 efficiency" argument doesn't make sense to me, because he
4 hasn't been proffered for these issues. So, let's move
5 on.

6 MR. PATCH: Okay. That's all the
7 questions I have. Thank you.

8 CHAIRMAN IGNATIUS: Mr. Moffett?

9 MR. MOFFETT: No questions. Thank you.

10 CHAIRMAN IGNATIUS: All right. Mr.
11 Steltzer, questions?

12 MR. STELTZER: OEP has no questions.

13 CHAIRMAN IGNATIUS: I guess then, Mr.
14 Peress.

15 MR. PERESS: Thank you, Madam Chair.

16 The Conservation Law Foundation does have a few questions.

17 BY MR. PERESS:

18 Q. Dr. Sahu, you've reviewed the rebuttal testimony that
19 was provided by Ms. Tillotson and Mr. Smagula in this
20 docket, is that correct?

21 A. Yes.

22 Q. And, I'm just going to refer to that testimony. Do you
23 have it in front of you by chance?

24 A. I do not, sitting here.

[WITNESS: Sahu]

1 Q. Okay. This won't be extensive, so I'll just read a
2 couple of provisions, if I may. In that rebuttal
3 testimony, the PSNH witnesses were asked "do you think
4 it would have been prudent for the Company to begin
5 planning for any of those regulations, as OCA, the
6 Sierra Club, and CLF argued should have occurred?" Do
7 you recall seeing that in the rebuttal testimony?

8 A. I do.

9 Q. And, Mr. Patch just placed on the record and raised the
10 standard that the Commission has set forth in this
11 docket with respect to "foreseeable environmental
12 regulations", is that correct?

13 A. Yes.

14 Q. The rebuttal testimony states that "At the time the
15 Company prepared this LCIRP, it could not, in good
16 faith and with prudence, commit Company resources for
17 planning for any potential future compliance with any
18 of those proposed regulations." Do you agree with that
19 statement?

20 A. I do not. I do not see how it comports with the
21 standard that the Commission has ordered as well.

22 Q. They went on to say, "To do so would require us to make
23 judgments with certainty about the final outcome of
24 those regulations, which we are not capable of doing

1 given all the potential intervening variables that
2 could change the course of those regulations between
3 the time of filing our LCIRP and any final date for
4 commencing compliance with them." Do you agree with
5 that statement?

6 A. Well, I don't agree with that statement. I did hear
7 the statement reiterated by Ms. Tillotson yesterday.
8 And, as I've said multiple times, I heard exactly the
9 opposite from Mr. Smagula yesterday, which is actually
10 certainty on his part that there would not be any need
11 for capital investment regardless of the outcome of
12 these regulations.

13 Q. And, that's what I wanted to ask you about. Thank you.
14 Yesterday you heard extensive testimony during the
15 Commission's cross-examination, whereby PSNH
16 representatives expressed confidence that upgrades that
17 they have made at their facilities provide a means for
18 them to comply with recent and upcoming air
19 regulations. Do you recall hearing that testimony?

20 A. Yes.

21 Q. Do you think that's a fair characterization of it?

22 A. Well, I don't. And, if it was limited to air
23 regulations, I may have missed that. But I took it
24 broader, as the whole suite of regulations; air, water,

[WITNESS: Sahu]

1 and potentially waste regulations. But, even for air
2 regulations, I have a disagreement with that statement.

3 Q. So, let me just try to understand that a little bit
4 better. For example, Mr. Smagula mentioned "SNCR",
5 which is "Selective Non-Catalytic Reduction" technology
6 that has been installed on some of their units, he was
7 referring to Schiller, and low NOx burners at Schiller,
8 as providing a means for them to comply with these air
9 regulations. Do you recall that?

10 A. Yes. He mentioned that that's what those units have,
11 right.

12 Q. In your experience, what sort of emission controls --
13 well, strike that. Do you have the Plan in front of
14 you by chance?

15 A. I do have the Plan, yes.

16 Q. Can you please turn to Page 136 of the Plan?

17 A. Okay. I'm there.

18 Q. In the section entitled "Section D. PSNH's Initiatives
19 and Emissions Policy Conclusions", --

20 A. Yes.

21 Q. Do you see any reference to the "SNCR" and/or "low NOx
22 burners at Schiller" as providing a means to comply
23 with these regulations?

24 A. I do not.

[WITNESS: Sahu]

1 Q. In your experience, what sort of emissions control
2 technologies will be required at coal-fired units that
3 are subject to the MATS rule, that is the standards for
4 air toxics that have recently been adopted by EPA?

5 CHAIRMAN IGNATIUS: And, before you
6 answer, Mr. Eaton?

7 MR. EATON: Could I ask that CLF ask
8 questions concerning the regulations that were in effect
9 during the Summer of 2010, when the Least Cost Plan was
10 initiated and when it was prepared. To talk about things
11 that have happened since, which could not be predicted by
12 our witnesses, and were not in effect until recently, as
13 Attorney Peress has said, should not be part of this,
14 because you're looking at our planning process during the
15 Summer of 2010.

16 CHAIRMAN IGNATIUS: Mr. Peress, any
17 response?

18 MR. PERESS: Yes. Thank you. During
19 the Commission's cross-examination yesterday of the PSNH
20 witnesses, PSNH extensively discussed the planning that
21 they have undertaken with respect to compliance with
22 regulatory requirements that many parties here suggest are
23 foreseeable under the standard laid out by the Commission.
24 What was most noteworthy about that discussion is that

[WITNESS: Sahu]

1 virtually none of the elements or content of the
2 discussion and testimony provided by PSNH witnesses are
3 found in the Plan that was submitted in this docket.

4 CHAIRMAN IGNATIUS: All right. Well,
5 can you focus your questions on the Plan, what was in
6 place in 2010, and whether -- I take it your point is,
7 whether one could have predicted certain developments,
8 correct, rather than starting from where we are with
9 recent enactments?

10 MR. PERESS: That wasn't exactly my
11 point, but I understand your direction.

12 CHAIRMAN IGNATIUS: All right. Well, I
13 apologize if I got it wrong. But let's try to keep -- if
14 you have an issue as to what is in the Plan or is not in
15 the Plan, and what the Company did or should have done in
16 2010, that is our focus and would be helpful.

17 BY MR. PERESS:

18 Q. Dr. Sahu, what sorts of emission controls would you
19 have expected to see discussed in this Plan with
20 respect to compliance with the Utility Air Toxics Rule?

21 A. Well, you know, even when the Plan was in preparation,
22 so focusing on the information that would have been
23 available to PSNH and through their participation in
24 industry organizations, through its extensive resource

[WITNESS: Sahu]

1 base dealing with anticipating these regulations,
2 interactions with the agencies and all that, and
3 excluding things that are too remote or speculative,
4 that -- I'm setting that aside. Because that -- we're
5 not talking about "black swan" events that one can
6 reasonably plan for.

7 I believe that the MATS rule in its
8 outline, or even its previous incarnations, was fairly
9 broadly anticipated to contain controls for mercury,
10 contain controls for a suite of acid gases, and contain
11 controls for non-mercury metals. At some point,
12 related rules were considering even things like
13 organics and dioxins, there are a whole set of other
14 rules for other boilers. And, so, PSNH might even have
15 had reason to believe that those pollutants may have
16 needed control at that point in time.

17 Looking at that potential suite, they
18 would have had to consider (a) whether their
19 particulate control devices, the electrostatic
20 precipitators, for example, were adequate or not.
21 Whether they needed to be upgraded, whether they needed
22 to be replaced by bag houses, that would have been a
23 reasonable discussion as to the range of possibilities.

24 With regards to acid gases, although

[WITNESS: Sahu]

1 some of the acid gases can certainly be controlled by,
2 let's say, a scrubber that's at Merrimack. Not all of
3 them are controlled, and not all of them are controlled
4 effectively to what the rule might require. There's
5 still an open question today. We have not seen any
6 data for hydrochloric acid, for example, post scrubber.
7 And, it may well be that it is doing a great job with
8 the type of coal they're burning now, but not sure how
9 it might be with the range of coals that they might
10 burn in the future. And, people have considered
11 sorbent injection, for example, to deal with acid gases
12 as being more effective for them. So, that's another
13 type of control that they may have considered or might
14 have wanted to discuss in the plans.

15 What -- my bottom line is, even if
16 Mr. Smagula is correct, that it is a judgment based on
17 his understanding and knowledge, that he feels like
18 what they have for each of the stations is proper, it
19 would have benefited everybody to have seen that
20 discussion in the Plan as to why he felt that way. If
21 he could have articulated "well, these are the
22 controls, these are the expected range of standards we
23 expect, this is the kind of efficiency we get or will
24 get from our system", so we could have all had a better

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[WITNESS: Sahu]

1 insight into, not just point (a) and point (b), point
2 (a) being "we know what we have" and point (b) being
3 "well, something is coming in the future", but how he's
4 connecting the dots between the two, that would have
5 been useful. Whether or not we agreed or disagreed
6 with him, the thought process to lay out would have
7 been useful. And, I could not reasonably discern that
8 that was the Company's position looking at the rebuttal
9 report, frankly. Which was, "we simply can't plan
10 because of the uncertainty in what might come out of
11 the regulations." That is the problem.

12 MR. PERESS: Thank you. I have no
13 further questions.

14 CHAIRMAN IGNATIUS: All right. Thank
15 you. Ms. Hollenberg?

16 MS. HOLLENBERG: No questions. Thank
17 you.

18 CHAIRMAN IGNATIUS: Mr. Speidel?

19 MR. SPEIDEL: Yes, I have one general
20 question.

21 BY MR. SPEIDEL:

22 Q. Dr. Sahu, is it fair to say that pollution control
23 retrofits on fossil fuel fired power plants are a
24 fairly capital-intensive business?

[WITNESS: Sahu]

1 A. Yes, they are.

2 Q. With costs usually running in the millions of dollars?

3 A. Well, for some type of controls. In the example I gave
4 you, if you, for example, had to replace electrostatic
5 precipitators and bag houses, that would be an
6 expensive proposition; millions of dollars, several
7 tens of millions of dollars, in that range. If, on the
8 other hand, you're looking at sorbent injection, that
9 might be modest, maybe a few millions of dollars on the
10 capital side, not tens of millions of dollars. If you
11 were thinking about putting in a wet electrostatic
12 precipitator at some point because you have fine
13 particulate problems, that might be, again, tens of
14 millions of dollars. So, it depends on the control,
15 but they will be capital-intensive, in general, yes.

16 Q. And, do you have much knowledge related to thermal
17 pollution controls?

18 A. I have some knowledge with regards to thermal pollution
19 controls.

20 Q. And, would you agree that thermal pollution control
21 retrofits are also fairly expensive?

22 A. Yes. Particularly going from what is essentially an
23 open loop cooling system, to a closed loop or that type
24 of system will definitely be capital-intensive.

[WITNESS: Sahu]

1 MR. SPEIDEL: Thank you very much. No
2 further questions.

3 CHAIRMAN IGNATIUS: All right. Mr.
4 Eaton.

5 MR. EATON: Thank you.

6 BY MR. EATON:

7 Q. Could you please turn back to the document that
8 Attorney Patch gave you, which was TransCanada 2.

9 A. Is that the December 8th, 2010 letter, counsel?

10 Q. Yes. December 28, 2010 letter.

11 A. December 28th. Yes, I have that.

12 Q. Okay. And, I'm going to read the beginning of the next
13 to the last paragraph. "As to their inability to agree
14 on the extent of PSNH's obligations, if any, to plan
15 for compliance with environmental requirements imposed
16 or established after the date of the LCIRP's initial
17 filing". Did I read that correctly?

18 A. Yes.

19 Q. Now, the word "compliance" is in that sentence,
20 correct?

21 A. Yes. Modified by "to plan for", correct.

22 Q. And, so, the planning should be compliance planning?

23 A. Yes.

24 Q. Because that's the standard that's laid out?

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1 A. Yes. You're deciding how to comply in the future, and
2 that the plan as in that you may have to do so that you
3 will have to meet a future compliance obligation.
4 That's the way I understand it.

5 Q. Okay. And, your report mentions some of the problems
6 you had in analyzing what was going on. Could you look
7 at Page 4 of your report.

8 A. Actually, I need a copy of my report. I apologize. I
9 didn't bring it with me. And, if counsel could give me
10 a copy.

11 CHAIRMAN IGNATIUS: I have a duplicate
12 here I can give you.

13 WITNESS SAHU: Oh.

14 (Atty. Cunningham handing document to
15 Witness Sahu.)

16 WITNESS SAHU: My apologies. "Page 4"
17 did you say, counsel?

18 MR. EATON: Yes.

19 WITNESS SAHU: Okay. And, what am I
20 looking at?

21 BY MR. EATON:

22 Q. I'm looking at the last paragraph on Page 4. And, you
23 listed several reasons why the discussion is "general".

24 A. Yes.

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1 Q. And, first -- on the fourth line down, you say "First,
2 not all of the regulations" --

3 A. There's a typo there, obviously, but, yes.

4 Q. So, I'll read it with the correction. "Not all of the
5 regulations are final, as noted."

6 A. Correct.

7 Q. And, that was filed on June 30th, 2011?

8 A. Yes.

9 Q. So, that's almost a year after PSNH was complying with
10 or was preparing their Least Cost Plan filing for this
11 case, correct?

12 A. Yes. My understanding, based on testimony, was the
13 plan that was filed was substantially complete around
14 June of 2010, correct.

15 Q. So that there is no more finality to the regulations in
16 2010 than there was when you submitted your report?

17 A. I will agree with that, yes.

18 Q. And, you also state that "current air dispersion
19 modeling", I'm looking a few lines down from the one I
20 just read, "air dispersion modeling, using proper
21 protocols to assess the impacts of emissions from the
22 station on ambient air quality has either not been
23 completed or is not available for public review." Is
24 that correct?

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1 A. That's what I stated, yes.

2 Q. Yes. So, out of the -- does that apply to Public
3 Service Company as well? Do they -- do they collect
4 the ambient air quality data or is that done by a state
5 agency?

6 A. I've seen it done both ways, counsel. There are state
7 agencies, of course, collect ambient air quality data,
8 but it is not uncommon for large sources, such as power
9 plants, to also collect ambient air data. And, not
10 just power plants, I mean, others, steel mills, cement
11 plants, refineries. Lots of large sources do collect
12 ambient data. So, I've seen it done both ways.

13 Q. So, there are two things that made it difficult, among
14 the others, that made it difficult for you to talk in
15 anything more than general terms, correct?

16 A. Well, I took the position that I can only gain an
17 understanding from what is happening at particular
18 stations or particularly at Merrimack based on
19 documents I can review and documents that are available
20 to me. And, we made attempts to get documents, and we
21 were not successful in many instances. So, yes, I was
22 not going to put myself in a position of making
23 specific statements, when I did not have the documents
24 that I had requested that would have allowed me to do

1 so.

2 Q. Can you go back to Page -- of the Least Cost Plan that
3 you were reading from earlier? I'm looking at
4 Page 137.

5 A. Oh. Okay.

6 Q. And, I'm looking at the first sentence of the last
7 paragraph, and I'll read it: "A subgroup of PSNH's
8 Generation management team meets at least annually to
9 comprehensively analyze PSNH's position and to set
10 strategic direction for PSNH Generation." Did I read
11 that correctly?

12 A. You read that correctly, yes. That's what I have here.

13 Q. So, strategic planning appears to be going on and was
14 discussed in the Plan?

15 A. How do you mean "discussed in the Plan"?

16 Q. It's mentioned there.

17 A. It's mentioned, but "discussed" is different than
18 "mentioned".

19 Q. Okay. But "compliance planning" was not mentioned, you
20 said?

21 A. Yes. Compliance planning, as to what will be done -- I
22 mean, counsel, and maybe I'm just misreading this. I
23 mean, the title of the Plan is "Least Cost Integrated
24 Resource Plan". And, I can only judge what is here

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1 based on that desire, and, of course, I believe is the
2 378.39 governing requirement that, as I understand it,
3 in addition to these orders. And, yes, compliance
4 planning which would be specific enough for somebody to
5 understand at least the assumptions that the Company is
6 making. But I completely agree that we might not all
7 agree on all the assumptions, but, to look at the Plan
8 as a self-consistent document, as in "is it consistent
9 with its own assumptions?" That's what I was looking
10 for. And, I don't see -- I don't see how that is an
11 unreasonable request. I don't see that here.

12 "Strategic plan" might mean a lot of different things.
13 I just don't see that as a compliance plan for
14 potential future regulations, excluding these extreme
15 type of outcomes from those regulations that one cannot
16 reasonably foresee.

17 Q. Are you familiar with the equipment at Merrimack
18 Station for controlling particulate matter?

19 A. Yes. And, my understanding is, they're two
20 electrostatic precipitators in series, is my
21 understanding. That's the primary particulate matter
22 control. Once the scrubber is installed, it may
23 control certain size fraction of particulates as well,
24 and it may even emit other particulates, perhaps in

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1 different size fractions. That's what scrubbers do.

2 Q. Do you -- are you familiar with the controls that are
3 currently in place or the controls that were in place
4 in 2010, before the scrubber?

5 A. Yes. I referred to the -- you mentioned the
6 "particulate controls", right, just to be sure?

7 Q. Yes.

8 A. I believe those were the electrostatic precipitators.

9 Q. And, are you familiar with what they can -- what they
10 can do? How much they can -- how much they can remove
11 from the flue gas?

12 A. Yes. I've taught about electrostatic particulate
13 controls for twenty years, so you'll have to be a
14 little more specific. Of course, I can. They can do a
15 wide range of removal efficiencies. The key is, the
16 efficiency does depend on size fractions. Particulates
17 are not all the same size. So, you get a whole range
18 of sizes coming in from the boiler into the
19 electrostatic precipitator, the first of the two.
20 Depending on how it's energized, how it's operated, how
21 many links -- how many fields are in operation. It's
22 the electrical properties that are imposed on the
23 electrostatic precipitator, the flow distribution, you
24 will get a certain removal efficiency that will vary by

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1 size. And, then, you move onto the second one, the
2 same thing will happen there. Absolutely, if you can
3 maybe help me understand which part of this you want me
4 to address, I'll be happy to do that.

5 Q. Have you visited the plants or studied the plants and
6 what they can actually do or are you just speaking from
7 your general knowledge of what electrostatic
8 precipitators can do?

9 A. I've been to about 50 different power plants. I can
10 tell you with certainty, standing in front of an
11 electrostatic precipitator will tell you nothing about
12 what it can do. You look at the design, the operation,
13 the operating characteristics, and you look at test
14 data, and that's what you go by. Merely visiting a
15 plant tells you absolutely nothing about how its
16 performance is going to be.

17 Q. So, you have no information about PSNH plants
18 specifically?

19 A. I have, all of that is publicly available. I mentioned
20 that time and again. I collected everything I could
21 publicly, including design details that are publicly
22 available, permits, permit applications, some test data
23 that I got back in the '99/2000 time frame from --
24 compiled by the DES. But, in addition to additional

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1 data that I requested based on data requests, I did not
2 get anything. So I got what I could gather, yes.

3 Q. So, you can't tell me -- you can't tell me how the --
4 based upon that investigation, you can't tell me what
5 is -- what the current equipment can do?

6 A. I don't think the Company can tell you what the current
7 equipment can do, they don't have test data that is
8 available, certainly not to the public, and not that
9 anybody can look at. We talked to the DES, and they
10 gave us what they had, but it was fairly meager. I
11 mentioned "fine particulates", I don't think the
12 electrostatic precipitators for PM 2.5.

13 Q. What does the permit contain?

14 A. You'll have to show that to me, I don't have it
15 memorized. It certainly has limits on total suspended
16 particulates, filterable total suspended particulates,
17 I believe. That much I remember.

18 Q. Could you please turn to your testimony, to Page 7.

19 A. Yes.

20 Q. With relation to Items [A] and [B], --

21 A. Yes.

22 Q. -- is this a regional issue?

23 A. Yes. Those are ambient standards. They are standards
24 that have to be met in ambient air quality. So, I

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1 don't know, what do you mean by "regional standards",
2 but I view them as "ambient air quality standards".

3 Q. And, what does that mean, "ambient"?

4 A. That means they have to be met in -- you know, the
5 Clean Air Act defines what "ambient air" is, and they
6 have to be met anywhere where the public is exposed,
7 anybody can breathe that air.

8 Q. And, is that a state standard or something that the
9 state puts together?

10 A. No, those two, [A] and [B], are national standards.
11 So, they apply throughout the country.

12 Q. And, when you state "published February 2nd, [9th?]
13 2010" and "published June 22nd, 2010", what does that
14 mean? Does that mean the rule has been -- what does
15 that mean?

16 A. That means those standards, those national standards
17 were finalized on those dates, February 9th and
18 June 22nd.

19 Q. They were effective on those dates?

20 A. Correct.

21 Q. With relation to Item [C] and [D], --

22 A. Yes.

23 Q. -- do those relate to existing facilities or to
24 modifications of existing facilities and new

1 facilities?

2 A. [C] would relate to modification. [C] is a PSD rule
3 that is triggered if an existing facility is modified,
4 or it could apply to new as well. So, it applies to
5 both. [D] has to do with some reporting obligations,
6 and that I believe was applicable to existing
7 facilities as well.

8 Q. So, in listing [C] and [D], as current or future
9 standards to be addressed by the station, those don't
10 really require compliance planning unless the Company
11 proposes a major addition under Item [C]?

12 A. Yes. Item [C] would be triggered upon changes. I
13 mean, I don't want to get into what a "major addition"
14 is or so on. Those are defined terms. So, yes, you
15 would have to evaluate based on changes of whether [C]
16 would apply or not, but it is an applicable regulation
17 that way. And, I mention it, because it does address
18 this fine particulate that it was talking about. And,
19 in an area where one really doesn't know the profile of
20 the stations, in terms of test data, what their fine
21 particulate emissions are. So, we're completely blind
22 on that issue.

23 Q. But it wouldn't be brought into question unless they
24 proposed a "major addition", whatever the definition of

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1 that is to Merrimack Station?

2 A. If they make changes, correct. And, my understanding
3 is, power plants routinely and otherwise consider
4 changes and projects. So, it's not unusual for changes
5 to be contemplated at power plants.

6 Q. Item [G], --

7 A. Yes.

8 Q. -- "Reconsideration of National Ambient Air Quality
9 Standards for ground low" -- "ground-level ozone", that
10 was proposed in January of 2010, correct?

11 A. Correct. When I wrote that report, yes. Correct.

12 Q. And, by bringing it up in your report, you're listing
13 regulations that currently apply or will apply at the
14 station, right?

15 A. Well, I'm -- that will apply, correct. Exactly. At
16 the station, yes. It ultimately will apply.

17 Q. If it was proposed on January 19th, 2010, --

18 A. Right.

19 Q. -- how could Mr. Smagula and Ms. Tillotson have
20 described their compliance plan for that, when it
21 wouldn't be published for another six months?

22 A. In the following way: Ozone standards have
23 periodically been revised, as I'm absolutely sure both
24 Ms. Tillotson and Ms. Smagula can -- Mr. Smagula can

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1 tell you. The Clean Air Act requires the EPA to
2 revisit ozone standards on a particular time frame.
3 They have been doing so. And, what will happen, in
4 terms of connection to the station, is NOx is a
5 precursor for ozone formation. So, if the ozone
6 standard is ratcheted down, where EPA has been focusing
7 a lot of its attention, then it will translate to
8 likely reductions, not just for Merrimack, but over the
9 regional area, for all types of NOx sources to
10 reconsider reducing NOx emissions. And, that's the
11 connection. A lot of people have had to make NOx
12 reductions at their individual facilities in order to
13 meet this regional or ambient ozone standard. It's
14 been a driver for NOx reduction in the last two decades
15 for power plants in this country, especially in the
16 Northeast. And, so, that's the connection in terms of
17 planning for a regulation that might reduce ozone.

18 It may well be that, based on studies,
19 that the Company could have discussed, it could have
20 concluded saying "we've done our modeling, we've done
21 our assessments. We can show that, even if the EPA
22 drops the standard down to here or here", and those, by
23 the way, are fairly well known, because the Science
24 Advisory Board actually recommends standards that EPA

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1 selects from, typically. So, those studies were done,
2 those studies are out there. The policy issues of
3 where the standard should be were being debated,
4 continue to be debated. The Company could have simply
5 said "we have insulated ourselves from whatever the
6 standard could be", sort of Mr. Smagula's point, "and
7 here's the proof of that. We've done these studies.
8 And, the EPA could drop it down to, you know, 75 parts
9 per billion, 70 parts per billion, 65 parts per
10 billion, we're okay." And, that would be the end of
11 that. That connection of dots that would have enabled
12 anybody to say "Merrimack Station is -- really doesn't
13 have anything to worry about, and we can cross that off
14 the list in terms of a prudent planning scenario."
15 That's what I was visualizing.

16 Q. But they would have to guess at what the standard would
17 be, and do studies to see whether their plant can
18 comply or what types of additions would need to be done
19 in order to comply with all those different potential
20 levels that they couldn't know about in the Summer of
21 2010?

22 A. Well, I'm making two separate points. That I don't
23 agree with your statement, because I said "you could
24 prudently have guessed the standards", if "guess" is

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1 the word, because they were being discussed, they're
2 recommendations. EPA doesn't just make them up. The
3 proposal to discuss the various levels that EPA could,
4 and EPA is inviting comment on "Should we set it here?
5 Should we set it here? Should we set it here?", as to
6 the range of potential standards EPA would select from
7 what is discussed in the proposal. So, it's not a
8 matter of guessing. And, my familiarity, counsel, with
9 planning like this is, you look at future outcomes
10 based on a reasonable set of anticipated inputs. And,
11 here, that is what we're talking about. If the
12 standard could be in a certain range, how does that
13 affect the station?

14 The precise usefulness of the plan would
15 have been to say "well, if EPA did set it at 65 parts
16 per billion, my gosh, we're looking at \$40 million of
17 upgrades. However, if EPA did set it at 75/billion,
18 we've got to do nothing, we have to do nothing. That
19 is precisely the type of thing that this plan should
20 discuss, is a sense of the assessment for need for
21 capital or O&M, given a range of outcomes. And, the
22 ozone standard is a great example, which you have
23 brought up, where they could have done that. Or, if
24 they have done that already, that they could have

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1 shared that and addressed this issue.

2 But the premise being, "how could they
3 have guessed this?", I think is a little disingenuous.
4 The standard was actively being discussed, if you're
5 familiar with this at all, the ozone standard, as I
6 said, periodically gets ratcheted. Nobody has ever
7 suggested it would drop below 65 parts per billion.
8 So, they're, in fact, bounded. Just like the planning
9 document talks about, you know, all kinds of other
10 things, like was mentioned yesterday, where future gas
11 prices may or may not be, and which is missing here,
12 but those sort of things. You make a reasonable set of
13 assumptions and go back and translate it to your
14 impact. And, I believe that could have been done here.

15 Q. And, you do that to comply?

16 A. You do that to comply, because you would have the
17 obligation, being a large NOx generator or source, when
18 regionally everybody has to reduce NOx, everybody would
19 have to reduce NOx. Exactly.

20 Q. Was Item [G] stayed by the President?

21 A. Yes. Item [G] is subject to all kinds of political
22 forces. Absolutely.

23 Q. So, they would -- you're saying the Company would need
24 to spend resources to do that sort of planning, for

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1 something that they didn't know about in the summer,
2 and has since been stayed by the President. Does that
3 make sense?

4 A. Well, it's a multipart question. If you want to break
5 it up for me as to which part of your question makes
6 sense, I can try to attempt that. But, overall, it
7 does make sense in the following way: I've mentioned
8 right from the outcome [sic] that there are
9 uncertainties. Where the President stays it, it was an
10 election year, or whether something else is going on,
11 those secular factors are there in any planning
12 exercise. You could have simply demonstrated in the
13 Plan Mr. Smagula's contention that, "regardless of the
14 outcome of the ozone standard, we don't need any
15 capital", that would have been justifying the certainty
16 that he indicated yesterday.

17 Or, he could have said -- or, you could
18 have said that "yes, if the standard drops below what
19 it is right now, we have a potential investment,
20 capital investment." But that's what planning
21 documents talk about. They talk about the need for
22 potential investment. You might even attach
23 probabilities to those. You might say, "but, yes, it's
24 our judgment that, even though \$40 million might be

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1 needed, we think that's an unlikely event or it's a
2 2 percent event or it's a 10 percent event." I've seen
3 planning documents that do a fairly good job, counsel,
4 of trying to capture their sense of their needs and the
5 probabilities that attach to those needs in the future.
6 That is not an unreasonable request.

7 Q. Are you aware that the Company files a capital plan out
8 five years with the Commission describing what their
9 capital projects plan to be?

10 A. I have -- I'm aware of that. I guess I was focusing on
11 the integrated nature of this Plan, which has, in its
12 title, the word "integrated", so you would have in one
13 place this exercise I'm talking about. I am familiar
14 with capital plans. I have, I think, seen many of
15 them. I can't recall whether I've seen your particular
16 one, but certainly I've seen plans where it talks about
17 upgrades at the plant equipment level. In other words,
18 we need to replace aging equipment, we need to do --
19 most capital planning that I have seen, and I believe
20 even the ones for the stations here, have to do with
21 operational capital planning, not so much for future
22 environmental compliance. That's my sense. A lot of
23 line items dealing with replacement of equipment and so
24 on, yes.

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1 Q. But, certainly, if a capital investment was necessary
2 to comply with a regulation, that should be included in
3 the in a capital budget that looks out a few years and
4 tells the Commission that these are the projects we're
5 going to be doing?

6 A. I've seen that exactly done. Mr. -- I think
7 Commissioner Harrington yesterday, I think, raised an
8 issue where it's in the rolling nature of these plans,
9 as these plans change, you keep constantly upgrading
10 your rolling five-year outlook, if you will. And, you
11 might have a capital plan that says "these are
12 absolutely things that have to be done," there's no --
13 even no regulatory driver or there are other needs
14 beside regulations that you need to do. And, these
15 are, as you get into out years, if they're driven by
16 regulations, there are some probabilities attached to
17 them. And, six months later your probabilities might
18 change, in terms of becoming more or less certain.
19 That's the nature of that capital planning.
20 Absolutely.

21 Q. Item [F].

22 A. Yes.

23 Q. That was originally known as the "Clean Air Interstate
24 Rule", correct?

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1 A. Yes. I think that rule has had more names than I care
2 to remember. It has undergone multiple incarnation of
3 names, I believe, and some version today it's called
4 "Casper" [sic-CSAPR], but that's yet another name.

5 Q. The "friendly ghost".

6 A. Or unfriendly. It's ghostly, I agree, yes.

7 Q. Now, that was proposed in the Summer of 2010, according
8 to your testimony, correct?

9 A. Yes.

10 Q. And, you list it as a item that the Plan should have
11 addressed, and there should have been some kind of
12 compliance planning included in the Plan for that rule,
13 correct?

14 A. Well, I mention that rule because these regional --
15 that rule has, at various times, included and excluded
16 various states. Frankly, as EPA has done its modeling
17 and so on, they have, at times, included certain states
18 and imposed NOx budgets and so on, and other times they
19 have dropped things out. Sometimes they have done --
20 included states for ozone season only and taken them
21 out for ozone season for other states. So, because of
22 that, I mention that because clearly it had the
23 potential for affecting emissions from the unit.
24 Especially, if the state was brought into some version

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1 of the plan, whether it became seasonal or annual, it
2 was something to keep an eye on. That's why I listed
3 that there.

4 Q. And, that rule doesn't apply to New England, right?

5 A. In its current form, I believe not.

6 Q. So, many of these things we've talked about don't apply
7 or weren't in existence in the Summer of 2010, correct?

8 A. Well, I don't know. That's a general statement, I
9 don't know. We have talked specifically, and we've
10 discussed which ones apply, and I've given you my sense
11 as to why I thought it was useful and might apply. So,
12 I'll stick with my prior answers.

13 MR. EATON: I have nothing further.

14 CHAIRMAN IGNATIUS: All right.

15 Commissioner Harrington, any questions?

16 CMSR. HARRINGTON: I have no questions
17 at this time.

18 CHAIRMAN IGNATIUS: Commissioner Scott?

19 CMSR. SCOTT: I'll be quick. Thank you.

20 BY CMSR. SCOTT:

21 Q. Somewhat of the discussion you were just having.
22 Yesterday, it was stated that, among other reasons,
23 some of the environmental regulations really weren't
24 detailed, as far as planning in here, because of the

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1 cost to ratepayers to look at that, if I could
2 paraphrase the Company. Along those kind of lines, do
3 you have any idea what the type of planning that you
4 were talking about would cost?

5 A. Yes. I do, just based on, again, going back to support
6 planning that's being done in my knowledge of that in
7 other instances. The good news is, these regulations
8 are being looked at and reviewed by lots of different
9 entities. And, I'll give you a short listing of them
10 off the top of my head.

11 Just looking at the electric utility
12 industry, clearly, they have the Electric Power
13 Research Institute, EPRI, looks at regulations, advises
14 its members on impacts, and all kinds of technical
15 assessments. Several major law firms that deal with
16 utility issues certainly put out membership
17 assessments. The Utility Air Resources Group, the
18 Utility Water Resources Group, they all do assessments.
19 I know of at least four major aid firms and consulting
20 firms that have done assessments, broadly and narrowly
21 for the industry as to how these rules might affect.
22 And, now, the investor community, several large
23 consulting companies that are mainly focused on the
24 investment, sort of Wall Street types, have also done

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1 fairly detailed analysis and projections and scenario
2 analysis of these rules.

3 Before you can even get to -- and, some
4 of these are fairly specific, either regional specific
5 or equipment or unit type specific, and so you can get
6 a fair degree of detail. Of course, the vendor
7 community is putting out information all the time as to
8 potential costs and outcomes.

9 The point is, you can get a lot done
10 even without having to begin to expend resources that
11 you might think would need to be expended, such as you
12 hire a consulting firm and then sort of let them loose.
13 I'm not going to speak to previous testimony, but that
14 has certainly been done by this company in the past,
15 and, presumably, with some resources, not with zero
16 resources. And, then, it has been done quite widely,
17 the particular study whose name I cannot mention, has
18 looked at 25 different scenarios, including two with
19 cooling towers, back in 2007. Which we heard yesterday
20 was so remote that you could never be required. The
21 Company had looked at that very scenario in 2007 and
22 prior. So, it's not -- it was not remote to consider
23 then, I don't know why it has become remote now.

24 In any case, so, yes. The resources

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1 would be, yes, probably in the same type of, you know,
2 "you get what you pay for". In other words, a 50, and
3 \$100,000 type of resource give you a very good
4 assessment. You can get a lot of very, very good
5 analysis from vendors, who potentially have an interest
6 in equipment sales and so on to you.

7 Q. Thank you for that. Similarly, just to make sure I
8 understand your view of things, you already mentioned
9 the ozone standard, you had that discussion.

10 A. Yes, sir.

11 Q. And, if I thought I heard you right, you mentioned
12 different proposals, and that's what they perhaps could
13 have used for bounding?

14 A. Right. Yes. In the sense that, because we don't know
15 the future, it is standard forecasting technique to do
16 bounding assessments. We do them all the time. You
17 look at a probabilistic or you look at a --

18 (Court reporter interruption.)

19 **BY THE WITNESS:**

20 A. Deterministic. In the ozone standard, it was
21 relatively simple, because EPA was considering a
22 defined sort of set of future potential standards.
23 And, you could -- you didn't really have to guess,
24 because EPA -- it was not on their proposal to, let's

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1 say, drop down the ozone standard to 30 parts per
2 billion or something ridiculously low. It was easy
3 enough to, even if you were guessing, to incorporate
4 that in your planning process.

5 BY CMSR. SCOTT:

6 Q. So, you probably answered this in that statement. But,
7 as you well know, I'm sure, that the National Ambient
8 Air Quality Standards are looked at in some capacity
9 every five years by the federal government?

10 A. Correct.

11 Q. But you're not suggesting that be included?

12 A. No. I'm saying, although they're required to do that,
13 as you know, they have not always done that. So, when
14 they go through an assessment of a PM2.5 or an ozone,
15 which have been the big drivers regionally in the last
16 few years, I think EPA has telegraphed where it is
17 going very well. Of course, you don't know what the
18 final standard will be until it is proposed,
19 potentially litigated and nailed down. But, as to
20 where they're headed, I think it's no secret, in terms
21 of what options they're considering. Those proposals
22 are exhaustively justified, in terms of Option A, B, or
23 C. It is driven -- every one of them is driven by
24 Science Advisory Board drivers, where they make

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1 recommendations. So, for a utility to really say, and
2 with a straight face, that "we could not have guessed
3 even the range of outcomes" is a little hard to
4 believe.

5 Still I was struck yesterday by a
6 statement in a different context about the cooling
7 tower guidance rule that Mr. Smagula said "how could we
8 have possibly seen an EPA guidance?" These very groups
9 that I mentioned before, they routinely put out alerts
10 to their members, it's, you know, on websites. I think
11 EPA does a pretty good job of communicating. And, it's
12 all their obligation who put out emissions to know what
13 the guidance is. So, I just find that somewhat --
14 somewhat disappointing, actually.

15 CMSR. SCOTT: Thank you. That's all.

16 CHAIRMAN IGNATIUS: All right. Mr.
17 Cunningham, any redirect?

18 MR. CUNNINGHAM: No. Thank you.

19 CHAIRMAN IGNATIUS: All right. Then,
20 thank you. Dr. Sahu, you're excused.

21 WITNESS SAHU: Thank you.

22 CHAIRMAN IGNATIUS: This is a good
23 opportunity for a break. We'll resume at 11:00. And, is
24 Mr. Hurley our next witness?

[WITNESS: Sahu]

1 MR. PERESS: I believe so.

2 CHAIRMAN IGNATIUS: All right. And,
3 feel free to get settled before we return. Thank you.

4 (Whereupon a recess was taken at 10:46
5 a.m. and the hearing resumed at 11:04
6 a.m.)

7 CHAIRMAN IGNATIUS: Before we begin with
8 Mr. Hurley, I do want to put on the record a mistake I
9 made and correct it. Mr. Moffett, yes, there is a Motion
10 to Intervene in the file, and I apologize for not noting
11 that.

12 MR. MOFFETT: Madam Chair, I had
13 actually asked for the office to send over copies of
14 everything.

15 CHAIRMAN IGNATIUS: Well, you can know
16 that it's all official, and nothing further needed. And,
17 for the rest of the morning, our plan is to go until 12:30
18 or little before, wherever there's a good breaking point,
19 and then take a lunch break. All right? Anything further
20 before Mr. Hurley testifies?

21 (No verbal response)

22 CHAIRMAN IGNATIUS: If not, Mr. Peress.
23 Oh, actually, if you can swear the witness please.

24 (Whereupon **Douglas Hurley** was duly sworn

[WITNESS: Hurley]

1 by the Court Reporter.)

2 CHAIRMAN IGNATIUS: Mr. Peress.

3 MR. PERESS: Thank you, madam Chair.

4 **DOUGLAS HURLEY, SWORN**

5 **DIRECT EXAMINATION**

6 BY MR. PERESS:

7 Q. Would you please state your name and address for the
8 record.

9 A. Certainly. My name is Douglas Hurley. And, I work at
10 485 Massachusetts Avenue, in Cambridge.

11 Q. And, can you state your employer and your job title
12 please?

13 A. Certainly. I'm a Senior Associate with Synapse Energy
14 Economics.

15 Q. Can you briefly discuss your responsibilities at
16 Synapse Energy Economics and your relevant experience
17 with respect to your responsibilities?

18 A. Yes. The primary work that I do with Synapse Energy
19 Economics on behalf of our clients is to represent our
20 consumer advocates and our environmental advocates, and
21 providers of energy efficiency, distributed generation,
22 and renewable generation, in all matters regarding the
23 wholesale markets in New England and, to some degree,
24 also in PJM. So, two to three days a week I spend in

[WITNESS: Hurley]

1 meetings with the ISO-New England staff and other
2 NEPOOL market participants, discussing the rules of all
3 of the various wholesale markets.

4 Q. And, in addition to the rules, are you also engaged
5 with respect to the operation of the actual markets
6 themselves?

7 A. Yes, I am. A number of our clients are direct market
8 participants, specifically energy efficiency clients.
9 And, I participate directly in the forward capacity
10 auctions on behalf of one of them.

11 Q. I'm holding in my hand a document entitled "Prefiled
12 Testimony of Douglas Hurley on behalf of the
13 Conservation Law Foundation", dated "July 27th, 2011".
14 Included in that prefiled testimony, as Exhibit 1, is
15 your *curriculum vitae*, and, as Exhibit 2, is a report
16 entitled the "Economic Analysis of Schiller Station
17 Coal Units". Was this document prepared by you or
18 under your direct supervision?

19 A. Yes, it was.

20 Q. And, were you engaged by the Conservation Law
21 Foundation to prepare this document and to participate
22 in this docket?

23 A. Yes. I was, and I am.

24 Q. Are there any revisions that you would like to make to

[WITNESS: Hurley]

1 your testimony?

2 A. I do have one simple one, yes. In Exhibit DH-2, on
3 Page 4, there's a table near the top of the page
4 labeled "Exhibit 1". And, there's one minor correction
5 I'd like to make to that table. You can see the first
6 column in that table is labeled "Case". It's where we
7 describe how we treated environmental regulations and
8 the cost thereof in the various cases that we ran.
9 And, you can see that in that first row it's -- we
10 indicate that the "Newington Market Prices Case" shows
11 no regulations. And, in fact, the text just above the
12 table accurately describes how we modeled that case.
13 So, the correction would be, to take those words
14 "Newington Market Prices Case" and just move them one
15 row down, so that that case appears in the second row
16 of the table. As I said, the text just above the table
17 correctly describes how we modeled that case in the
18 report. And, I just wanted to correct the summary
19 table.

20 CMSR. SCOTT: Can you restate that
21 please?

22 WITNESS HURLEY: Certainly. Exhibit 1
23 on Page 4, near the top of that page, Exhibit 1 is a
24 table. And, that table summarizes how we treated

[WITNESS: Hurley]

1 environmental regulations in the various cases that we
2 ran. And, in the first row of that table, it labels both
3 the "No Environmental Costs Case and Newington Market
4 Prices Case". And, the correct thing to do is to take
5 that "Newington Market Prices Case" and just move it down
6 one row, so that it -- the table comports with the text
7 just above that table that says in that case we modeled
8 that they would be subject to the MACT rule in 2015, and,
9 therefore, it would have those baghouse and ACI compliance
10 technologies.

11 CMSR. SCOTT: Thank you.

12 CMSR. HARRINGTON: So, the "Newington
13 Market Case" goes in the block under "Reference Case, High
14 Gas Case, and Low Gas Prices Case"?

15 WITNESS HURLEY: Yes, that's correct.

16 CHAIRMAN IGNATIUS: We'll mark this
17 testimony as "CLF Exhibit 9" for identification.

18 (The document, as described, was
19 herewith marked as **Exhibit CLF 9** for
20 identification.)

21 MR. PERESS: Thank you, madam Chair.

22 BY MR. PERESS:

23 Q. Mr. Hurley, are there any additional changes or updates
24 that you want to provide based on the passage of time

[WITNESS: Hurley]

1 to your testimony.

2 A. Yes, just one.

3 CHAIRMAN IGNATIUS: Before you go, Mr.
4 Eaton, yes?

5 MR. EATON: Are we going down the same
6 path that we did before that, you know, where corrections
7 to testimony are one, but things that happened subsequent
8 to the time when the Plan was filed, really, I don't think
9 are relevant.

10 CHAIRMAN IGNATIUS: All right. And, Mr.
11 Peress, having heard the other back-and-forth with Mr.
12 Cunningham, where are you taking your witness on that
13 issue?

14 MR. PERESS: Actually, the point was not
15 to make any commentary whatsoever about the adequacy of
16 the Plan, in terms of providing any updated information.
17 It was only so that there's an accurate discussion in
18 light of the passage of time, from the time that this
19 testimony was submitted, in July, through now, which is
20 April. We could forgo doing that. But I think it would
21 just, as I said, it would assist in the discussion,
22 without making any commentary on the Plan itself.

23 CHAIRMAN IGNATIUS: Well, if the inquiry
24 is as it relates to the adequacy of PSNH's filing, then

[WITNESS: Hurley]

1 I'll allow it. If it's just to talk about what's happened
2 over the last ten months, I think not. So, I'm not sure
3 what you're meaning by "things that have happened with the
4 passage of time".

5 MR. PERESS: Well, madam Chair, simply
6 put, and this has already been discussed. Since this
7 testimony was submitted, the status with respect to some
8 of these regulations has changed. Some of them were
9 finalized, some of them were finalized in a way where they
10 don't apply. That was generally discussed during Dr.
11 Sahu's testimony, and it's not really necessary for us to
12 do it here. The purpose of it was just to update the
13 status of these requirements. This would be very brief.

14 CHAIRMAN IGNATIUS: All right. If you
15 can do it very briefly, go ahead.

16 WITNESS HURLEY: Thank you, madam Chair.

17 BY THE WITNESS:

18 A. Just to indicate to folks that, on Page 5 of my
19 testimony, the question and answer, starting --
20 specifically the answer, starting on Line 82, I
21 indicate that "the EPA was poised to issue multiple
22 regulations". And, I just wanted to let parties know
23 that, since the time of this testimony, as Dr. Sahu
24 indicated in his testimony, Clean Air Transport Rule

[WITNESS: Hurley]

1 has now been finalized as a Cross-State Air Pollution
2 Rule and does not apply to New Hampshire. But the
3 Hazardous Air Pollutants (MACT) Rule has been
4 finalized, and is now referred to as the "Metal and Air
5 Toxics Standard" -- I'm sorry, "Mercury and Air Toxics
6 Standard".

7 MR. PERESS: Madam Chair, the
8 Conservation Law Foundation would like to offer what's
9 been marked "CLF Exhibit 9" into evidence, and our witness
10 is available for cross-examination.

11 CHAIRMAN IGNATIUS: All right. It will
12 be marked for identification as "9" until the close of the
13 hearing and any issue as to whether we have any objections
14 to striking the identification and make them full
15 exhibits. Cross-examination, I think the order I was
16 intending is TransCanada, Granite Ridge, Sierra Club,
17 Office of Energy & Planning, Office of Consumer Advocate,
18 Staff, and PSNH. Is that acceptable to everyone?

19 (No verbal response)

20 CHAIRMAN IGNATIUS: Then, Mr. Patch.

21 MR. PATCH: No questions. Thank you.

22 CHAIRMAN IGNATIUS: All right.

23 Mr. Moffett?

24 MR. MOFFETT: No questions, madam Chair.

[WITNESS: Hurley]

1 CHAIRMAN IGNATIUS: Mr. Steltzer?

2 MR. STELTZER: No questions. Thank you.

3 CHAIRMAN IGNATIUS: Mr. Cunningham?

4 MR. CUNNINGHAM: No questions. Thank
5 you very much.

6 CHAIRMAN IGNATIUS: Ms. Hollenberg?

7 MS. HOLLENBERG: One moment please.
8 Thank you.

9 (Short pause.)

10 **CROSS-EXAMINATION**

11 BY MS. HOLLENBERG:

12 Q. Mr. Hurley, did your modeling include a Newington
13 Market Prices case?

14 A. Yes, it did.

15 Q. And, did that assume environmental upgrades?

16 A. Yes, it did. As described in the report, in the
17 Newington Market Prices case, the changes that we made
18 from our reference case was simply that we accepted,
19 without any agreement, we accepted the market prices
20 used by the Company in Attachment G of the Least Cost
21 Integrated Resource Plan, the Newington CUO. And,
22 then, we also assumed environmental costs as described
23 in Exhibit 1, that the MACT Rule would apply in 2015,
24 and, therefore, we would expect the Company would need

[WITNESS: Hurley]

1 to invest money to install baghouse and ACI in 2015.

2 Q. Thank you. What would be the results for Schiller 4
3 and 6, if the Newington Market Prices case had no
4 environmental upgrade costs?

5 A. In the report, you can see, on the bottom of Page 4 in
6 Exhibit 2, that, under our Newington Market Prices
7 case, which does assume environmental upgrade costs, it
8 appears to us that Newington would -- I'm sorry, that
9 the Schiller 4 and 6 units would lose money in every
10 single year.

11 If you then assumed that those
12 environmental upgrades would not be necessary in 2015
13 that we assumed, so there were no environmental costs,
14 it still appears that they would lose money in every
15 single year.

16 Q. Thank you. In your work for Synapse and for the
17 clients that you represent, are you familiar with
18 generation units in the ISO-New England market?

19 A. Generally, yes, I am.

20 Q. And, are you, in your work, familiar with the capacity
21 market auctions conducted by ISO-New England?

22 A. Yes. I'm very familiar with the capacity market
23 auctions.

24 Q. And, are you familiar -- OCA witness, Mr. Traum,

[WITNESS: Hurley]

1 discussed other generating units in the ISO-New England
2 market in his testimony. Are you familiar with the
3 Salem Harbor Power Station?

4 A. Yes, I am.

5 Q. And, would you agree that Salem Harbor is of a similar
6 vintage and size coal-burning unit as PSNH's Schiller
7 generating unit?

8 A. I would, yes. The Schiller Units 4 and 6 are roughly
9 50 megawatts in size. The Salem Harbor Units 1 and 2
10 are roughly 80 megawatts in size. Unit 3 is a little
11 bit larger, I think it's about 150 megawatts. And,
12 Unit 4 is not so similar, it's a large oil unit.

13 Q. Can you please discuss the capacity market pricing for
14 Salem Harbor and coal units as an indication of the
15 financial position of units similarly situated, such as
16 Schiller Units 4 and 6?

17 A. Yes. I think where you're going is that the Salem
18 Harbor units participated in the first couple of
19 auctions, and then they choose to delist starting in
20 Auction Number 3, if I remember correctly.
21 Essentially, what that means is that they submitted a
22 price at which they would be willing to take on a
23 capacity supply obligation, in other words, a price at
24 which -- a capacity price at which they would be

[WITNESS: Hurley]

1 willing to take on the commitment to offer their
2 energy. And, that price was above the market-clearing
3 price. And, therefore, they would not have cleared but
4 for the -- and, technically, they did not clear in the
5 auction, the ISO-New England determined that those
6 units were needed for reliability and, therefore,
7 agreed to keep them on for reliability, give them that
8 obligation, and then pay them a price that was above
9 the market-clearing price.

10 Q. Do you agree that they were needed for reliability
11 because of their location?

12 A. I'm not sure that I do, no. We submitted testimony to
13 the FERC shortly after the conclusion of that auction
14 that indicated that we're not entirely sure that the
15 ISO had done their modeling properly. And, I'm not
16 sure that they were needed for reliability. It cost
17 Massachusetts ratepayers, our estimate was about \$18
18 million a year to keep those units on line. I think
19 there were other options available.

20 MS. HOLLENBERG: Thank you. I have no
21 other questions.

22 CHAIRMAN IGNATIUS: Mr. Speidel.

23 MR. SPEIDEL: Staff has no questions at
24 this time. Thank you.

[WITNESS: Hurley]

1 CHAIRMAN IGNATIUS: All right. Mr.
2 Eaton.

3 MR. EATON: Thank you.

4 BY MR. EATON:

5 Q. Mr. Hurley, can we go back to what you said on Page 5
6 of your testimony, the update that you had, starting at
7 Line 82 of your testimony?

8 A. Yes, I'm there.

9 Q. And, you said that "the Clean Air Transport Rule does
10 not apply to New England"?

11 A. Yes. As I understand, that rule has been finalized as
12 a Cross-State Air Pollution Rule, and it does not apply
13 to New Hampshire, was what I said earlier.

14 Q. But Coal Combustion Residuals does apply and has been
15 finalized?

16 A. I don't know if that one's been finalized yet.

17 Q. What does that involve?

18 A. I'm not entirely sure. It's not one of the regulations
19 that we model as a cost in our report.

20 Q. And, regulations pertaining to greenhouse gas
21 emissions, do those apply to existing plants?

22 A. Are you referring to the Regional Greenhouse Gas
23 Initiative, RGGI? Yes, they do.

24 Q. What about, under RGGI, do the plants have to make any

[WITNESS: Hurley]

1 modifications or is that an auction process?

2 A. My understanding is there is an auction process, where
3 the source of the carbon dioxide has to purchase
4 allowances. So, it's not a capital cost, in the sense
5 that you don't need to purchase equipment.

6 Q. What are the -- what are the Effluent Limitation
7 Guidelines mentioned in your testimony there?

8 A. I'm not sure that I -- I'm not sure exactly where
9 you're referring to.

10 Q. Line 85, the end of Line 85, "Effluent Limitation
11 Guidelines"?

12 A. Oh, I see it now. Thank you. Yes. What I was
13 referring to there was the cooling water intake
14 structures regulations that were proposed. And, you
15 can see, in the Exhibit 1 that I referenced earlier of
16 our report, that, in our "High Environmental Costs
17 Case", so, in the case where we assumed that a number
18 of those regulations would be finalized within the
19 planning period, and they would entail costs. In that
20 case, we included the costs of adding cooling towers or
21 our estimate of them, we don't have a great estimate,
22 but our estimate of them in 2017. That's what we
23 modeled.

24 Q. How many units are at Salem Harbor?

[WITNESS: Hurley]

1 A. My understanding is that there are four units at Salem
2 Harbor.

3 Q. And, how many burn coal?

4 A. Three of them.

5 Q. And, what does the other plant use?

6 A. Do you mean to say, "what does Unit 4, what fuel does
7 it use?"

8 Q. I'm sorry, yes. What fuel is used?

9 A. My understanding is it runs on oil.

10 Q. Thank you.

11 (Atty. Eaton distributing documents.)

12 BY MR. EATON:

13 Q. Mr. Hurley, what is that document that I presented to
14 you?

15 A. Well, if I can -- I'll describe it. I'm not sure which
16 one is the exact title, but I'll describe it as it's a
17 discovery request and the answer that we provided to
18 Q-PSNH-012, dated August 15th of 2011.

19 Q. And, could you read your response.

20 CHAIRMAN IGNATIUS: Before we do that,
21 would you like this marked for identification, Mr. Eaton?

22 MR. EATON: Yes. I believe it's "PSNH
23 6".

24 CHAIRMAN IGNATIUS: Yes.

[WITNESS: Hurley]

1 (The document, as described, was
2 herewith marked as **Exhibit PSNH 6** for
3 identification.)

4 CHAIRMAN IGNATIUS: Go ahead,
5 Mr. Hurley.

6 WITNESS HURLEY: Thank you, madam Chair.

7 **BY THE WITNESS:**

8 A. Our response was, luckily, it's brief: "In general,
9 none of these regulations were in their final form
10 prior to September 30, 2010 except the GHG tailoring
11 rule. However, utilities were generally aware of all
12 of these pending regulations and/or requirements and
13 their potential impact well before the LCIRP was
14 submitted."

15 BY MR. EATON:

16 Q. Thank you. I believe --

17 MR. EATON: Well, I have another data
18 request for you to look at.

19 (Atty. Eaton distributing documents.)

20 BY MR. EATON:

21 Q. And, could you describe that document please.

22 MR. PERESS: Can you just -- if you
23 don't mind, I'd like to see it before he starts testifying
24 on it. Thank you.

[WITNESS: Hurley]

1 MR. EATON: Could we have this marked as
2 "PSNH Exhibit 7"?

3 CHAIRMAN IGNATIUS: So marked. This is
4 a data response dated September 2, 2011, from Mr. Hurley.

5 (The document, as described, was
6 herewith marked as **Exhibit PSNH 7** for
7 identification.)

8 BY MR. EATON:

9 Q. I'm looking in paragraph -- in the second paragraph,
10 about seven lines down, it says "Undepreciated plant
11 values were derived from PSNH responses to data
12 requests in this docket." Did I read that correctly?

13 A. Yes, you did.

14 Q. "And we assumed a return on rate base as provided on
15 Exhibit 5", correct?

16 A. Yes. That's what it says.

17 Q. Does PSNH earn a return on undepreciated plant?

18 A. I don't know for sure. I assume they do.

19 MR. EATON: Thank you. I have no
20 further questions.

21 CHAIRMAN IGNATIUS: All right.
22 Commissioner Harrington.

23 CMSR. HARRINGTON: Yes. I have just a
24 few questions.

[WITNESS: Hurley]

1 BY CMSR. HARRINGTON:

2 Q. Referring to, starting, I guess, on Page 3, the
3 Executive Summary of your -- second part of your
4 exhibit, the Synapse study?

5 A. Yes. I'm there.

6 Q. You list all these various, I guess, scenarios that you
7 look at. And, I'm interested in the "No New
8 Environmental Costs" one.

9 A. Okay.

10 Q. It says: "This case assumes no new environmental
11 controls will be required and there is no national CO2
12 regulation. This case is consistent with PSNH's
13 assertion that all potential environmental control are
14 beyond their planning horizon." So, in that case,
15 you're saying that there would be no additional costs
16 associated that would be incurred by the units in order
17 to comply with proposed EPA regulations?

18 A. Yes. That's what that case assumes.

19 Q. And, in the "Synapse Reference Case" above that, you go
20 on, in the middle of it says, in that case, "It further
21 assumes natural gas prices consistent with the "Base
22 Case" -- "Base Price Case" for natural gas projected in
23 the Avoided Energy Supply Costs in New England 2012
24 [2011?] Report." Are those same assumptions on natural

[WITNESS: Hurley]

1 gas prices used in the "No New Environmental Costs"?

2 A. Yes. Those same assumptions for gas prices are used in
3 the "No New Environmental Costs" case.

4 Q. And, going back to then Page 7 of your testimony
5 itself, on Line 154, the question was "Are Schiller
6 units economic in any future year in your analysis?"
7 And, your answer is "No". So, I assume that's even the
8 case where the -- for the "No New Environmental Costs"?

9 A. Yes. That's correct.

10 Q. Now, you use the term "in each year, the operating
11 costs of these units is greater than the revenue." So,
12 did you take into account the book value of the plant
13 and how that affects ratepayers?

14 A. One moment please. Yes, we did. In Exhibit 5, of the
15 report itself, which is on Page 11, you can see that we
16 --

17 Q. Excuse me. That's the Synapse report, Page 11?

18 A. Yes. And, this exhibit is specifically our reference
19 case. But, in all of the cases, we did have a similar
20 table where we assumed a return on rate base.

21 Q. So, you're saying -- I'm trying to figure this out
22 without going through the chart individually. What
23 your conclusion is regards to the -- if the plant
24 doesn't operate, obviously, it's shut down, there's

[WITNESS: Hurley]

1 still going to be book value associated with that
2 plant. Does your analysis envision Public Service
3 recovering the book value of the plant or not
4 recovering it?

5 A. It assumes that they would recover some book value in
6 the plant. If it wasn't running at all, there would
7 still be fixed costs and other costs associated with
8 that plant. And, there would be not necessarily zero
9 revenue, zero energy revenue, if they weren't running
10 at all, but perhaps zero capacity revenue as well,
11 depending on how they entered the capacity market or
12 what --

13 Q. So, that's under the scenario where the capacity factor
14 goes to zero. But what about if the plant was retired?
15 It put in a -- it put in a retirement delist bid in the
16 capacity market and shut down permanently?

17 A. We didn't analyze that case. But we think that that is
18 something that should have been analyzed was the -- I
19 mean, as our recommendation shows in my testimony, we
20 think that a Continuing Unit Operation Study for the
21 Schiller 4 and 6 units should be done, and that's a
22 piece of -- to me, that would be a piece of such a
23 study, would be to assume that was one scenario and see
24 what the cost to ratepayers would be.

[WITNESS: Hurley]

1 Q. So, just so we're clear, on Line 155, on Page 7, where
2 you say "In each year, the operating costs of these
3 units is greater than the revenues", you're assuming
4 that the plant is still classified as "operable" at
5 that time, it's not been permanently retired?

6 A. Yes. That's correct.

7 CMSR. HARRINGTON: Okay. Thank you.

8 That's all the questions I have.

9 CHAIRMAN IGNATIUS: Mr. Hurley, a couple
10 more questions.

11 BY CHAIRMAN IGNATIUS:

12 Q. While we're talking about your analysis of costs, do
13 you remember from the prefiled testimony and discussion
14 yesterday a dispute on whether one should be looking
15 only at incremental costs when making these comparisons
16 and finding value in a plant, compares to the
17 incremental costs to run and versus the market price to
18 purchase power, versus an all-in cost, including all of
19 the fixed costs of the Company? What's your view of
20 which costs should be considered at what time? And, it
21 may be different in different analyses.

22 A. I think you hit it right on the head. It should be
23 different at different times in the analyses. I think,
24 if you're looking to operate the plant tomorrow, you

[WITNESS: Hurley]

1 should be considering the variable costs of operating
2 the plant tomorrow, whether that's more or less
3 expensive than the market price for power. That, to
4 me, seems to be the right decision to make. That's
5 honestly what I heard from the PSNH witnesses
6 yesterday.

7 I don't think that's appropriate,
8 however, in a planning document. I think, in a
9 planning document, the goal would be to look forward
10 through a number of years, and take, as we did, a
11 number of different cases, where you might assume,
12 within a probable range of futures, how the plants
13 might operate and whether or not they would be
14 economic. And, if it's close, and you can see, as we
15 did, that there are a number of years, and, in the
16 cases that we ran, all of the years in which the
17 operating revenues are less, the operating cost is --
18 I'll say it the other way, the revenues are less than
19 the operating costs. Then, to me, at that point, you
20 start to look at "what is the total cost of owning and
21 operating and maintaining these plants? And, would
22 ratepayers be better off if we just retired them or
23 divested them or other options that might be
24 available?"

[WITNESS: Hurley]

1 Q. So, you're making a distinction between some short-term
2 decision-making for dispatch of units, versus a
3 long-term analysis of the economic benefit of the plant
4 remaining operational?

5 A. Yes, I am. That's correct. I think it's fair to
6 assume that tomorrow PSNH will still own the plants.
7 So, they're probably bidding them in today, as they
8 should.

9 Q. And, how short-term does "short-term" apply? I mean, I
10 assume that it's not only a question of "should you bid
11 in tomorrow?" But, if you think the plant has some
12 value as part of the operations overall in the coming
13 year, would you still use that incremental cost
14 approach, even if tomorrow and the next day and the
15 week after it may not be in a good situation for being
16 dispatched?

17 A. I can't say off the top of my head exactly where the
18 breakpoint is. You mentioned "a year". My thought
19 would be that the process involved with not owning the
20 units, whether that's retirement or divestiture or
21 something else, probably takes longer than a year, from
22 start to finish. So, if I just think of the time frame
23 of a year, I think you probably should be looking more
24 incremental costs. The planning horizon here is five

[WITNESS: Hurley]

1 years. I would recommend it's probably better to be
2 something closer to ten years, which is a bit more
3 standard, and is what the region uses when it does
4 transmission planning, for example. If you're looking
5 out over that time frame, obviously, that's plenty of
6 time to go through any process you might need to no
7 longer own and operate the units, whatever path that
8 might take.

9 Q. All right. Also, on that same Page 7 of your
10 testimony, you discuss other utilities that you have
11 seen engage in planning where they have the similar
12 uncertainty about environmental regulations, it's at
13 the very top of the page. Can you give any more detail
14 on what -- what you've seen, how they have dealt with
15 the difficulty of uncertainty and changing regulations?

16 A. Yes. The team that I work with to prepare the report
17 that was attached were actively involved in these cases
18 at the time. And, my understanding is that all three
19 of those utilities in their IRPs set forth the
20 potential regulations that were not yet finalized, and
21 what their costs to comply with those regulations would
22 be. And, of course, they limited that to regulations
23 that, as proposed, would be in effect during in
24 planning periods. Of course, they all treated them

[WITNESS: Hurley]

1 slightly differently. But they did propose a future
2 scenario where they might or might not be subject to
3 those costs and how those costs would impact the value
4 of the plants or the plants that they own.

5 Q. You heard Mr. Eaton's concern about what could be
6 wasted money, spending ratepayer money unnecessarily,
7 in studying things that turned out not to pass. How do
8 you -- how should a company balance that need to only
9 spend what it ought to spend and still try to evaluate
10 an uncertain future?

11 A. No. I think it's a great question, and I thought the
12 same one myself, when I heard that. And, I think it is
13 very valid, and we don't want to go off and spend lots
14 and lots of time and money analyzing a situation that
15 might be clear from a very quick analysis that it would
16 be easier to perform. And, in this case, what we've
17 done is we've said in the testimony there's a
18 reasonably quick and easy analysis to do, that shows
19 that it's, even under the most optimistic scenarios,
20 where there's no environmental costs, despite all the
21 ones that have been proposed, and optimistic revenue
22 projections, over the next five years to ten years, the
23 plants still are losing money every year. And, so, to
24 me, that means that, at the very least, if you were to

[WITNESS: Hurley]

1 refine those numbers with actual costs proposed for
2 those specific plants, in this case Schiller 4 and 6,
3 and maybe it becomes close. But at least we know, you
4 know what, this is close, to either losing money or not
5 losing money for ratepayers. And, at that point, I'm
6 not sure of the process, but maybe that's the point at
7 which it makes sense to describe that in the plan and
8 say, "do you want us to go" -- you know, "Commission,
9 would you like us to go and spend the further of the
10 money and the time necessary to do a deeper analysis on
11 this or not?" I mean, if you were to do that analysis
12 and it was clear, under any reasonable scenario, that
13 they were going to make money and therefore be
14 cost-effective for ratepayers, then I don't see any
15 need to do the deeper study. And, similarly, in the
16 other direction, if it was clear that they were going
17 to lose money in every single year over a ten year
18 planning horizon, I'm not sure that you need the deeper
19 study.

20 Q. What about plants that aren't at a difficult point in
21 terms of their economic dispatch, but still could be
22 facing significant capital investments if certain
23 things come to pass, and not, if other things, if they
24 don't come to pass? How would you evaluate? How would

[WITNESS: Hurley]

1 you plan for that?

2 A. When you say "not under difficult circumstances", I
3 think you mean clearly less costly to run than market
4 power, in other words, they are cost-effective to run?

5 Q. Yes.

6 A. Okay. Right. So, assuming we looked out into the
7 future in all reasonable cases of the market, the cost
8 of market power, and the cost to operate those plants,
9 and yet we know we can assume no new large capital
10 expenditures for those plants, I think that's the
11 scenario that you're proposing. I still think it's
12 reasonable, at some regular point -- regular period in
13 time, whether that's every year or every two years or
14 every three years, I'd have to think, to stop and look
15 out into the future and say, "okay, we don't expect any
16 great capital expenditures on these plants that would
17 affect their total overall cost of owning and operating
18 them. But, if we think that we're losing money every
19 year on these plants, because of our projections of the
20 operating costs and the market revenue for them, then I
21 still think you're in the same situation where you need
22 to either, at the very least, do a deeper study to see
23 if all your assumptions still bear out." But, at that
24 point, you may consider, if they're losing money every

[WITNESS: Hurley]

1 year, why would you own them? Why would you not retire
2 them or divest them or whatever the other path might
3 be?

4 Q. I'm trying to get at something slightly different.
5 And, rather than looking at units that you're concerned
6 about their value in going forward, because of market
7 conditions and the costs to operate, really, a broader
8 question. When you look at -- when a company is
9 looking to make planning decisions or planning on how
10 to make decisions in the future, how do you evaluate
11 things that have so much uncertainty of whether those
12 environmental regulations will come to pass? How does
13 a company make sense of rules that are proposed and not
14 yet in effect, or rules in a political world where the
15 whole construct can be shifted on you in a matter of a
16 year or two?

17 A. No, and -- okay. Thank you. I understand the question
18 a little better now. And, I do think it's difficult
19 for the Company before the rules are finalized.
20 However, as Dr. Sahu mentioned, the rules, to my
21 understanding, are discussed, and discussed with the
22 owners of those plants to which those rules would
23 apply, for months, if not years, in advance. That
24 doesn't mean that they're -- they aren't subject to

[WITNESS: Hurley]

1 political pressures, and they are. But, I think that's
2 the purpose of a planning document, is to look at those
3 reasonable scenarios, given all the information that
4 you have at the time and project in the planning
5 document. These are, based on all of the involvement
6 that we've had with these rules, the development of
7 these rules over time, these are the reasonable
8 scenarios that we see. These are the reasonable
9 scenarios that other similar companies are assuming.
10 And, these are reasonable scenarios perhaps proposed by
11 industry groups or others. Amongst those, here would
12 be the outcome. And, at least look to see, under -- if
13 there are five different reasonable scenarios, under
14 these four, it's still perhaps economic to run the
15 plants, and only under this one, and maybe you have to
16 analyze that one. Or, it could be the other way
17 around, where, under four out of the five scenarios, it
18 would be uneconomic for us to continue to run these
19 plants. So, we're better off to retire them.

20 Q. And, so, that requires making some assumptions about
21 the breadth of the regulations and the cost that would
22 be incurred at certain levels of regulatory controls
23 that might be enacted?

24 A. I think so, yes.

[WITNESS: Hurley]

1 Q. In your view, is that doable? You don't know for
2 certainty any of those terms, but that kind of set of
3 assumptions in running scenarios is -- provides a
4 meaningful enough result to be worth doing?

5 A. I think it does, yes. Absolutely. And, I think that's
6 the whole purpose to do the forward plan, to look
7 forward, to set out those potential futures for all the
8 parties involved, and the Commission, of course. And,
9 I think that's what other utilities do and have done in
10 this case.

11 Q. Also, in your testimony you use the phrase, this is on
12 Page 5, "piecemeal compliance evaluation for individual
13 regulations", and compared that to "coordinated and
14 comprehensive planning". Can you describe more what
15 your concern is? And, do you see examples of what you
16 would consider "piecemeal compliance evaluation" going
17 on?

18 A. The point of the language in that answer in my
19 testimony was merely to say that, in our view, the EPA
20 was specifically going out of its way to not put
21 forward piecemeal regulations. That they were
22 specifically taking an opportunity to look at the suite
23 of regulations that they were -- that were under
24 proposal at the time, and make sure that they were

[WITNESS: Hurley]

1 coordinating the regulations of all of them, and that
2 they had taken the time with the market or the owners
3 of the units to which those proposed rules would apply.

4 CHAIRMAN IGNATIUS: That's, I think, it
5 for my questions. I think Commissioner Scott does have
6 something further.

7 BY CMSR. SCOTT:

8 Q. On Page 6 of your testimony, you don't need to look at
9 it, because I assume you know this, your testimony
10 suggests that there should be a Continuing Unit
11 Operations Study for Schiller Station. That begs a
12 couple questions from me. Let me ask you this. When
13 you ask for a CUO, what criteria do you expect to be
14 used in such a report? Is there a standard that you
15 expect to be used?

16 A. I don't have a specific standard. You know, and I
17 don't have one that we've used 100 times before. I
18 think the Continuing Unit Operations Study that was
19 done for Newington is probably a decent starting place.
20 But we do specifically recommend an independent
21 Continuing Unit Operations Study done for them. As I
22 mentioned earlier, it should include some of the
23 futures, like the ones we did in our cases, but it
24 should include more specific and detailed information

[WITNESS: Hurley]

1 than we were able to gain from public sources. It
2 should also probably do an analysis of, on the
3 flip-side, "what would be the cost of not operating the
4 units anymore?", as Commissioner Harrington asked me
5 earlier. "What would the cost be of either retirement
6 or divestiture?" Which I think that would be an
7 important piece of information.

8 Q. Also yesterday, and, again, I think it was an
9 off-the-cuff, but what we heard yesterday, the cost for
10 the CUO, the other CUO was on the order of half a
11 million dollars. With that kind of cost in mind, do
12 you think that's still in the ratepayers' interest to
13 have one done for Schiller?

14 A. Did you say that the cost was on the range of a half a
15 million dollars?

16 Q. That's what I heard, yes.

17 A. Okay. I think so. Based on our report, with our quick
18 study, these units are, I mean, in our reference case,
19 the units are losing \$18 million every year. So, I can
20 spend a half million dollars to help me make a decision
21 that might save me \$18 million in every year over the
22 next ten years, seems like a pretty wise investment.

23 CMSR. SCOTT: Thank you. That's all I
24 have.

[WITNESS: Hurley]

1 CHAIRMAN IGNATIUS: Any redirect, Mr.
2 Peress?

3 MR. PERESS: No thank you, madam Chair.

4 CHAIRMAN IGNATIUS: All right. Then, I
5 think we can excuse you, Mr. Hurley. Thank you. Our next
6 witness, is that Mr. Traum?

7 MS. HOLLENBERG: Yes.

8 CHAIRMAN IGNATIUS: All right. Why
9 don't we commence with that.

10 (Whereupon **Kenneth E. Traum** was duly
11 sworn by the Court Reporter.)

12 **KENNETH E. TRAUM, SWORN**

13 **DIRECT EXAMINATION**

14 BY MS. HOLLENBERG:

15 Q. Good morning, Mr. Traum.

16 A. Good morning.

17 Q. Thank you for joining us today.

18 A. I'm not sure why.

19 Q. If you could please state your full name.

20 A. Kenneth E. Traum.

21 Q. And, in what capacity are you participating in this
22 docket?

23 A. Where the docket has continued, let's say, for 18
24 months, I initially was involved in the docket as the

[WITNESS: Traum]

1 Assistant Consumer Advocate for the Office of Consumer
2 Advocate. When I retired in June, I agreed to continue
3 through the process of the docket, partly as a
4 consultant, and now I guess you can say as a
5 "volunteer".

6 Q. And, just to clarify, you were initially hired through
7 a contract with the Office of Consumer Advocate, and
8 this point the funds for that contract have been
9 depleted?

10 A. That's correct.

11 Q. Thank you for your help.

12 A. You're welcome.

13 Q. Did you file testimony in this docket on July 27th,
14 2011?

15 A. Yes, I did.

16 Q. And, was that testimony prepared by you or under your
17 direction?

18 A. Yes, it was.

19 Q. Do you have any corrections to make to that testimony?

20 A. No, I do not.

21 Q. And, does that testimony include a copy of your
22 experience and qualifications?

23 A. Yes, it does, as "Attachment 1".

24 MS. HOLLENBERG: I would ask that Mr.

[WITNESS: Traum]

1 Traum's testimony be marked for identification as "OCA
2 Exhibit 1" please?

3 CHAIRMAN IGNATIUS: So marked for
4 identification.

5 (The document, as described, was
6 herewith marked as **Exhibit OCA 1** for
7 identification.)

8 MS. HOLLENBERG: Thank you.

9 BY MS. HOLLENBERG:

10 Q. Mr. Traum, as you're aware, the Commission generally
11 does not have witnesses go into detail about their
12 prefiled direct. If you could just provide a brief
13 summary of the points that you made in your direct.

14 A. Yes. Certainly. There were two major aspects in my
15 prefiled testimony. One addressed the Least Cost Plan
16 in general, while the other addressed the Newington
17 CUO. So, I'll just be speaking about the Least Cost
18 Plan at this point. On that, I recommended that the
19 planning process of PSNH should incorporate reasonably
20 anticipated regulatory change impacts on O&M costs and
21 capital costs at PSNH's generating units. At the same
22 time, they should include in their planning process
23 estimates regarding new installations of distributed
24 generation, utilize a rigorous forecast of PSNH's

[WITNESS: Traum]

1 generating costs, incremental, as well as all-in,
2 utilize updated degree day data, include a base case
3 for migration, analyze targeted spending using SBC
4 funds for load control, and significantly, that the
5 Commission require new CUO studies for Newington, and
6 Merrimack, which would include divestiture as an
7 option, in order to determine how to meet ratepayers'
8 needs and at the lowest costs. And, I believe this
9 last concept is one that's, in one fashion or another,
10 being utilized by all of the other non-PSNH parties in
11 this case.

12 Q. Thank you. And, is it fair to say that you recommended
13 that the Commission find that the IRP, as filed by PSNH
14 and as revised during this docket, is inadequate?

15 A. Yes, for the reasons I've stated.

16 Q. Mr. Traum, you participated in the hearing yesterday,
17 and you've been here this morning, is that correct?

18 A. Yes.

19 Q. And, do you have any, as other witnesses have briefly
20 mentioned when they have gone up for their testimony,
21 do you have any response to the prefiled testimony of
22 other parties, the rebuttal of PSNH, or any of the live
23 testimony that you were a witness to yesterday?

24 A. Yes. And, primarily, I'll just address my comments to

[WITNESS: Traum]

1 PSNH's rebuttal testimony as it addressed my testimony.

2 CHAIRMAN IGNATIUS: Mr. Eaton.

3 MR. EATON: Once again, we have
4 surrebuttal testimony coming in now. Under the
5 Commission's rules, 203.23, Public Service Company, being
6 the movant in this case, has the right to go first and
7 last. And, without being able to -- we did not waive our
8 right to request that we put on witnesses to rebut the
9 testimony that comes out newly today. We object to the
10 question and the summarization of this, of this testimony.

11 CHAIRMAN IGNATIUS: Well, I'm going to
12 overrule the objection. I think he has a right to respond
13 to the prefiled testimony of your witnesses. And, there
14 was nothing in the procedural schedule for prefiled
15 responsive testimony. So, he can respond to it. If you
16 think you need to call additional witnesses at the end,
17 you can make that argument. And, I'm not ruling on that
18 at this point.

19 WITNESS TRAUM: Thank you.

20 BY MS. HOLLENBERG:

21 Q. And, just to remind you, Mr. Traum, if you could focus
22 your comments at this point in time on the Least Cost
23 Plan process and document. Thank you.

24 A. Certainly. I'll start with Mr. Large's testimony as it

[WITNESS: Traum]

1 addressed mine. And, his testimony basically addressed
2 the adequacy of the Plan. And, in part, I agree with
3 him on his Page 8, when he says that "the Least Cost
4 Plan should be viewed as a planning document." But I'd
5 add that a planning document not only explains the
6 planning process, but it's something which the
7 Commission, the Company, ratepayers, legislators,
8 should be able to rely upon.

9 In my Attachment 8, I had quoted PSNH
10 stating that "As part of the least cost planning
11 process, PSNH does not prepare analyses or scenarios
12 based upon possible regulatory rules or outcomes."
13 And, then, further in the rebuttal by Mr. Smagula and
14 Ms. Tillotson, they seem to have changed the standard
15 from "reasonably foreseeable" to "known and
16 quantifiable" for regulatory changes. And, I just
17 totally disagree with that. And, I'm using the
18 secretarial letter that had been included, I believe
19 Mr. Patch had made it an exhibit this morning.

20 Q. And, just to clarify, that was TransCanada Exhibit 2
21 that you're referring to?

22 A. That's correct.

23 Q. Thank you. Please continue.

24 A. Yes. On, again, with regards to Mr. Large's rebuttal

[WITNESS: Traum]

1 testimony, on Page 14 he addressed the use of SBC funds
2 on a targeted basis versus traditional solutions.
3 Where I had initially had a problem with it, the
4 Company did not seem to be taking advantage of the
5 legislation that allowed them to target the use of SBC
6 funds. From what he explained in his rebuttal, I would
7 say, "okay, that seems to now meet the criteria." But
8 I just felt that the original information provided by
9 the Company did not. And, if they do now, that's
10 great, and kudos.

11 Q. Thank you. Do you have any other comments?

12 A. Yes. Finally, with regards to Mr. Large's rebuttal,
13 I'd just point out some of the issues in my testimony,
14 which they did not address, related to forecasting
15 long-term energy and capacity prices. And, again, the
16 PSNH's generation projections are not rigorous. And,
17 they did not address the use of the most current
18 weather or degree days or a base case migration
19 scenario.

20 As I already mentioned with regards to
21 the rebuttal testimony of Mr. Smagula and Ms.
22 Tillotson, they seem to have moved from a -- what I
23 view as a "reasonably foreseeable regulatory standard"
24 to a "known and measurable" or "known and

[WITNESS: Traum]

1 quantifiable", which I believe other witnesses that
2 preceded me have had problems with.

3 I think a much smaller issue within the
4 overall scope is that, on Page 19 of their rebuttal
5 testimony, they address my concern about seeking bids
6 for Newington, in effect, saying that Emera is the only
7 potential supplier. But they ignore that my statement
8 was based upon reliance of PSNH's own witness,
9 Mr. White, in DE 10-257, when, on Page 47 of the
10 transcript of June 23rd, 2011, he indicated, as I read
11 it, that there would be a small number of suppliers
12 willing to interact with PSNH, in terms of purchasing
13 gas or receiving gas, so that it does not have to be a
14 sole source.

15 The last item I'd mention, with regards
16 to their rebuttal testimony, actually came up in the
17 Levitan piece. Where they, on Page 6, where they took
18 some of my statements regarding SO2 allowance --
19 emission allowance prices out of context, that -- the
20 page of my testimony was in the section dealing with
21 the Least Cost Plan.

22 CHAIRMAN IGNATIUS: Mr. Traum, I don't
23 know, Mr. Eaton, do you have an objection?

24 MR. EATON: Well, yes, but the Levitan

[WITNESS: Traum]

1 testimony is going to be brought up in the Newington
2 portion of the proceeding. So, I don't think it's proper
3 for this portion. Mr. Traum, I think, will come back to
4 testify about that. And, so, we haven't heard the Levitan
5 testimony, so I don't think it's proper to be including in
6 this portion of the proceeding.

7 CHAIRMAN IGNATIUS: Ms. Hollenberg.

8 MS. HOLLENBERG: Thank you. It's my
9 understanding that Mr. Traum is offering this response
10 because he interpreted the comments in the Levitan
11 testimony at the page he's referencing, which is Page 6,
12 to be related to his recommendations related to the IRP,
13 and not the Newington aspect of the case. He can
14 certainly confirm that for the Commission, but that's my
15 understanding, that this would be the appropriate time for
16 him to respond to it, notwithstanding the fact that we're
17 not addressing Levitan and his recommendations related to
18 Newington.

19 CHAIRMAN IGNATIUS: All right. I'm not
20 sure I follow. Maybe, Mr. Traum, is what you're getting
21 at something that relates to the Newington study by
22 Levitan or does not relate to that.

23 WITNESS TRAUM: It did does not -- I was
24 not criticizing that aspect of the Levitan study. What I

[WITNESS: Traum]

1 was saying is that what the Levitan study used for SO2
2 emission allowances was very different than what PSNH was
3 using in the Least Cost Plan portion. And, I had said
4 that in the Least Cost Plan portion of my testimony. So,
5 that's why I was raising it here. And, it was just
6 emphasize or reemphasizing that PSNH did not forecast
7 long-term energy and capacity prices, and they have said
8 that a number of times. That's all I wanted to bring out
9 here.

10 CHAIRMAN IGNATIUS: All right.

11 MS. HOLLENBERG: Okay. Thank you.

12 BY MS. HOLLENBERG:

13 Q. Mr. Traum, you'd agree that the other aspects of your
14 testimony focused primarily on the Newington Continuing
15 Unit Operations Study?

16 A. That's correct.

17 Q. So, and since we are dealing with that in a different
18 phase of this hearing, do you have any other comments
19 before you are available for cross-examination?

20 A. No.

21 MS. HOLLENBERG: Thank you. The witness
22 is available for cross-examination.

23 CHAIRMAN IGNATIUS: All right. Thank
24 you. For an order of cross-examination, let's keep more

[WITNESS: Traum]

1 or less the way we've been going; TransCanada, Granite
2 Ridge, Sierra Club, Energy and Planning, Staff, PSNH. Did
3 I get everyone? So, Mr. Patch.

4 MR. PATCH: Good afternoon, Mr. Traum.

5 WITNESS TRAUM: Good afternoon.

6 **CROSS-EXAMINATION**

7 BY MR. PATCH:

8 Q. Page 3 of your testimony, it's actually in response to
9 a question on Page 2 about the "actions that the
10 Consumer Advocate recommend that the Commission take to
11 address certain inadequacies." But, on Page 3, you
12 said that "The all-in costs of power produced [not just
13 at Newington, but Schiller and Merrimack Station, are]
14 increasingly over market, and this is causing
15 significant costs to be borne solely by default service
16 customers each year." Do you remember that portion of
17 your testimony?

18 A. Yes. I'm looking at it now.

19 Q. And, in terms of the recommendation that you make to
20 the Commission to address that particular inadequacy,
21 could you explain exactly what that recommendation is?
22 Is that in the context of a future IRP? Is it in the
23 context of another docket before the Commission? Or,
24 how do you think that ought to be addressed?

[WITNESS: Traum]

1 A. Well, certainly, one of the recommendations coming out
2 of my testimony was, on behalf of the OCA, was that the
3 Commission should, as soon as possible, have
4 independent CUOs done for Schiller, Merrimack, and
5 Newington, that it included reasonable regulatory
6 costs, and retirement and divestiture as potential
7 options, looking at what is in the best interest of
8 PSNH's ratepayers or customers over the long term.

9 Q. And, on that same page, you had referenced the fact
10 that "capacity factors of the fossil fuel fired plants
11 continue to decline over time because the plants are
12 over market." Correct?

13 A. Yes.

14 Q. And, you were here yesterday and heard the testimony in
15 response to questions from the Bench and questions from
16 some of the parties, about part of the reason being,
17 you know, I mean, I guess this is consistent with what
18 you've said, but part of the reason being that it
19 appears likely that the Company, absent some game
20 changer in the price of natural gas, is likely to
21 reduce the capacity factors even further, because of
22 the comparison of the price of the power they generate
23 versus the market price. Is that correct?

24 A. Yes. For economic reasons, they're being, in general,

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1 are being dispatched less often, and moving into
2 economic reserve more often.

3 Q. So, at the time that you filed this testimony in the
4 Summer of 2011 as compared to now, does it seem to be a
5 worse problem now or not?

6 A. As far as I know, and I think I heard yesterday, that,
7 if anything, natural gas prices have declined from the
8 time that the filing was made. So, I would say that it
9 has -- the situation has gotten worse. And, again,
10 just trying to stick to the time frame of the filing
11 and the data responses related to the filing, my
12 Attachments 19 and 20 relate to the capacity factors
13 for PSNH's major plants over the years. And, for the
14 Merrimack, as a for instance, it has ranged from highs
15 in the 80s to 90 percent a few years ago, to in the 60
16 percent range in 2010. And, similar, for Schiller 4
17 and 6, they went from the 80s to the 50s. And,
18 Newington went from high in the 50s, to certainly now
19 in the single digits for a number of years.

20 Q. Would you say that this issue is tied into one of the
21 other criticisms that you make on Page 10, about their
22 failure to "analyze whether to invest additional
23 capital"?

24 A. It certainly has to be looked at in terms of the whole

[WITNESS: Traum]

1 process of, "okay, what's in the ratepayers' best
2 interest?" Do you, you know, spend more money for
3 capital costs, even though the plant's capacity factor,
4 for economic reasons, is still only going to be
5 10 percent or whatever? You've got to look at all
6 factors in determining whether to make a large capital
7 investment or to continue operating the plant, or
8 whether to retire it or maybe divest it and, you know,
9 cut ratepayers' losses.

10 Q. On Page 11, you say that their generation projection
11 does not involve a "rigorous analysis". And, I think
12 we may have heard some testimony to that effect
13 yesterday. And, you cite there to "Attachment 15" or
14 "KET-15" to your testimony. And, is that correct?

15 A. That's correct. And, on Attachment 15, at the bottom
16 of Page 1, I just quote, "Because the generation
17 projection was not a rigorous analysis, there [was] no
18 assumed dispatch prices nor a specific market price
19 forecast."

20 Q. And, then, finally, you had -- I think you were here
21 yesterday and you heard the discussion, you made
22 reference to it already, but about the Pages 14 and 15,
23 you had faulted them for not incorporating the base
24 case migration scenario. And, the witnesses -- the

[WITNESS: Traum]

1 PSNH witnesses were asked some questions about that
2 yesterday. Now that you've heard that testimony, is
3 there anything you'd like to add on that issue?

4 A. Well, I believe, as Commissioner Harrington had asked
5 about, the Company used four scenarios, going from zero
6 migration to a high of 40 percent. And, at the time,
7 migration -- at the time of the filing, I believe
8 migration was around 37 percent, getting awful close to
9 the high level. And, that high scenario used a
10 residential customer migration rate of 0.2 percent.

11 At this point, according to the last
12 filing PSNH made for December 2011, just for a sanity
13 check, I looked at it, and the residential migration
14 rate was almost twice their high case, it was
15 0.38 percent. And, anecdotally, I see ads on the news
16 for resident power, you know, there finally is a
17 residential competitor coming into the market. So, I
18 don't know if, you know, 0.2 is going to turn into
19 10 percent or something. So, I just really question
20 that high case scenario they developed.

21 Q. And, actually, one more question raised by your
22 testimony. I believe in its order in the migration
23 docket, the Commission had indicated that it was going
24 to open a separate docket on purchase of receivables,

[WITNESS: Traum]

1 do you recall that?

2 A. I do. I haven't, obviously, have not been following
3 that case in detail. But that was viewed as one
4 possible way to make it easier for competitive
5 suppliers to enter the residential market.

6 Q. And, to the best of your knowledge, has that docket
7 been opened yet?

8 A. Certainly very subject to check, I have not heard it
9 has been.

10 MR. PATCH: Okay. That's all the
11 questions. Thank you.

12 CHAIRMAN IGNATIUS: Thank you.
13 Mr. Moffett?

14 MR. MOFFETT: No questions. Thank you.

15 CHAIRMAN IGNATIUS: Mr. Cunningham?

16 MR. CUNNINGHAM: No. Thank you very
17 much.

18 CHAIRMAN IGNATIUS: Mr. Steltzer?

19 MR. STELTZER: Yes. I just have a few
20 questions.

21 BY MR. STELTZER:

22 Q. Mr. Traum, in OCA Exhibit 1, your testimony that you
23 filed on July 27th, 2001 [2011?], I'm going to be
24 asking you some questions regarding a section on Page

1 16. Let me know when you're there.

2 A. I'm there.

3 Q. Specifically, I'm looking at Line 16 and 17, where you
4 state, and I'll quote: The planning process simply
5 must be more robust in order to protect ratepayers",
6 and you reference that to, in the previous sentence to
7 that is referencing the regulatory aspect of this
8 proceeding here. I was wondering if your statement --
9 if you could clarify whether that statement you have
10 here about "the planning process must be more robust"
11 could also apply to aspects of energy efficiency in
12 this matter?

13 A. Where I, you know, touched on energy efficiency in the
14 testimony, I don't view that as an area that I keyed my
15 interest on. The Company had provided what we'll call
16 a "base case" for energy efficiency, and then I believe
17 it's a market potential study, which, in order to
18 attain those additional savings, it would, you know, it
19 would require additional investment on the Company's
20 behalf. And, I didn't take a position on where the
21 funding source should come from or what should happen
22 there. I suggested maybe it be a subject of a separate
23 proceeding.

24 Q. Do you -- maybe I'll ask the question a little

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1 different way. Do you feel that the IRP fully utilized
2 the energy efficiency as the least cost option in this
3 plan?

4 A. They indicated that, certainly, there were more
5 cost-effective options that could be achieved, but they
6 did not build them into their base case load
7 projections.

8 Q. Turning to, of your testimony, in OCA Exhibit 1,
9 turning to Page 37, --

10 A. I'm there.

11 Q. -- you highlighted just some comments there, regarding
12 Line 17 through 18, where you say "but does not
13 consider funding efficiency through other rate
14 mechanisms." And, I recognize that you're not
15 necessarily taking a position on whether -- whether
16 they should be adopted or not. But I'm just wondering
17 if you could just highlight a little bit more about
18 some of those other rate mechanisms that is briefly
19 mentioned here?

20 A. Some other ones? I guess another would be that,
21 through base rates, there could be X million dollars
22 added to base rates that's targeted for energy
23 efficiency.

24 Q. And, that that was not included into this plan?

[WITNESS: Traum]

1 A. That's correct.

2 Q. Do you believe that other rate mechanisms should have
3 been considered into this plan?

4 A. I guess that's why I suggested that maybe a separate
5 docket would be more efficient for that.

6 MR. STELTZER: Okay. That's all. Thank
7 you.

8 CHAIRMAN IGNATIUS: All right. Lost my
9 little cheat sheet here. CLF, is that right?

10 MR. PERESS: Thank you, madam Chair.
11 Yes. Just a few questions.

12 BY MR. PERESS:

13 Q. Mr. Traum, you're aware of the Commission precedent
14 relating to the primary objective of an integrated
15 least cost resource plan being to satisfy customer
16 energy service needs at the lowest overall cost
17 consistent with maintaining supply reliability?

18 A. Yes.

19 Q. You pointed out in your testimony a number of aspects
20 of the Plan that, in your view, are deficient. And,
21 what I was hoping you could do is connect some of those
22 deficiencies with the impact on customer costs. So,
23 for example, you stated on Page 3 of your testimony, at
24 Line 10, "the all-in costs of the power produced at

[WITNESS: Traum]

1 these plants is increasingly over market, and this is
2 causing significant costs to be borne solely by default
3 energy service customers each year."

4 A. Sure. And, there have been prior dockets before the
5 Commission, energy service dockets, where the all-in
6 costs of each unit have been provided. And, they have
7 shown that the cost to ratepayers of the fact that PSNH
8 owns those units is in the range of 100 million or over
9 100 million. I'm struggling at the moment, I'm trying
10 to think of what the attachment is that I might have on
11 that. If you could give me a moment.

12 (Short pause.)

13 **CONTINUED BY THE WITNESS:**

14 A. Okay. For instance, in my Attachment 30, I provided a
15 table that summarizes, by generating unit, for 2011,
16 PSNH's forecasted total cost, all-in cost, and revenues
17 by plant. This was provided by PSNH. And, if you
18 would look at that. And, in total, you see for
19 Merrimack, Schiller, Newington, the hydros, and others,
20 that the total cost is 341 million, whereas the total
21 revenue is 234 million, roughly a \$117 million
22 forecasted expense or hit on ratepayers because PSNH
23 owns those units. If all of a sudden the units were --
24 if they had been deregulated, had they -- had PSNH not

1 owned those units and there wasn't an issue of any
2 stranded costs, ratepayers would have been \$117 million
3 to the better.

4 BY MR. PERESS:

5 Q. And, can you just explain what the impacts of that are
6 to ratepayers, in comparison to the other
7 shareholder-owned utilities in New Hampshire?

8 A. I guess there we'd be looking at what the energy
9 service rates are. And, I believe on the very end of
10 my testimony, Page 40, I referenced at that point in
11 time, on Lines 6 through 8, that "PSNH's default
12 service rate was 8.89", versus those for Unitil and for
13 Grid's small customers were -- and the Co-op's were
14 more than a penny less, so that the impact on a
15 residential customer was roughly \$10 more per month.
16 And, then, I went on to explain that, certainly, a
17 portion of that related -- was due to the migration of
18 large customers to a competitive choice, leaving the
19 small customers with the over market or fixed costs of
20 the PSNH-owned generation, which was the subject of the
21 migration docket.

22 Q. And, so, what you've said in your testimony, at Page
23 40, is that, as of the date of your testimony, and I'm
24 reading now, "Average residential customers are paying

1 \$3.60 per month just from the cost shifting resulting
2 from migration of PSNH's large customers." Is that
3 correct?

4 A. Yes.

5 Q. You also said in your testimony that, in your view, and
6 I'm referring to Page 14, and I'm summarizing, that
7 PSNH's planning is inadequate with respect to
8 migration?

9 A. Yes. I believe I addressed that in my direct.

10 Q. Can you explain what the effect of migration is on the
11 energy services rate specifically, in terms of how it
12 affects the energy services rate?

13 A. Where there are the costs of fixed or sunk costs of
14 PSNH's own generation, has to be or is recovered --
15 it's recovered from a shrinking pool of energy service
16 customers, and contributing to the over-market prices
17 that those customers, who, for the most part, do not
18 have any options are paying, which the larger
19 customers, that do have competitive options, are
20 avoiding by moving to the competitive market.

21 Again, just for comparison, to show
22 that, you know, that the situation continues, I had
23 asked the OCA for what the proposed energy service
24 rates are for the other utilities for May 1. And, for

[WITNESS: Traum]

1 Granite State Electric, I believe it's 5.8 cents, for
2 Unitil it's roughly 6.8 cents, and the Co-op is -- I
3 don't have that number for the Co-op; whereas PSNH's
4 current rate is, I believe, 8.3 cents, prior to
5 whatever happens with the scrubber.

6 Q. And, in that regard, can you explain what the effect of
7 a large capital expenditure, such as the scrubber,
8 being included in rates would have on migration?

9 A. I would anticipate that, as the energy service rate
10 increases for PSNH or the spread between it and the
11 market price, what competitors will offer, more and
12 more customers will leave, thus driving more costs onto
13 the non-migrating customers. Whether it's a spiral
14 that -- whether you call it a "death spiral" or not.

15 MR. PERESS: I have no further
16 questions. Thank you.

17 CHAIRMAN IGNATIUS: Thank you. Staff,
18 Mr. Speidel, questions?

19 MR. SPEIDEL: No questions for this
20 witness. Thank you.

21 CHAIRMAN IGNATIUS: All right. Mr.
22 Eaton.

23 MR. EATON: Thank you.

24 BY MR. EATON:

[WITNESS: Traum]

1 Q. Mr. Traum, can we start off by going through some --

2 CHAIRMAN IGNATIUS: Actually, before,
3 Mr. Eaton, before you begin, it occurs to me it's 12:25,
4 probably --

5 MR. EATON: I'll have more than six
6 minutes of cross.

7 CHAIRMAN IGNATIUS: I thought you might.

8 WITNESS TRAUM: You don't have to.

9 CHAIRMAN IGNATIUS: And, there will be
10 other questions and redirect. So, why don't we take a
11 break now, and resume at 1:40. Thank you.

12 (Whereupon the lunch recess was taken at
13 12:25 p.m., and the hearing to resume
14 ***under separate cover*** so designated as
15 ***"Afternoon Session Only"***.)
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