

1 STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

2 NARRAGANSETT BAY COMMISSION

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IN RE: NBC MONTHLY BOARD MEETING
7 OF THE COMMISSION

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DATE: January 13, 2015
12 TIME: 11:00 A.M.
PLACE: Narragansett Bay Commission
13 Corporate Office Building
One Service Road
14 Providence, RI 02905

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COMMISSIONERS:

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Vincent Mesolessa, Chairman
19 Raymond Marshall, Executive Director & Secretary
Robert Andrade
20 Dr. Richard Burroughs
Bruce Campbell
21 Mario Carlino
Michelle DeRoche
22 Michael DiChiro
Jonathan Farnum
23 Seth Handy
Joseph Kimball
24 Paul E. Lemont

1 OTHER ATTENDEES:

- 2 Thomas Uva, NBC
- Laurie Horridge, NBC
- 3 Jennifer Harrington, NBC
- Linda George, Senate Policy Office
- 4 Harold Gadon, NBC
- Tom Brueckner, NBC
- 5 Terry Cote, NBC
- Paul Nordstrom, NBC
- 6 Karen Giebink, NBC
- Joanne Maceroni, NBC
- 7 Jean Lynch, CAC
- Cecille Antonelli, NBC
- 8 Al Mancini, PUC
- Christine Comeau, NBC
- 9 Eliza Moore, NBC
- Rich Bernier, NBC
- 10 Jamie Samons, NBC
- Walter Palm, NBC
- 11 Jim Kelly, NBC
- Kerry Britt, NBC
- 12 John Motta, NBC
- Deborah Samson, NBC
- 13 Diane Buerger, NBC
- Pamela Reitsma, NBC
- 14 Karen Musumeci, NBC

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1 (MEETING COMMENCED AT 11:10 A.M.)

2 CHAIRMAN MESOLLELA: If I could ask
3 the commissioners to take their appointed seats.

4 Karen, John MacQueen is not coming today.

5 MS. MUSUMECI: No.

6 CHAIRMAN MESOLLELA: Is he alright?

7 MS. MUSUMECI: I think he had a
8 funeral.

9 CHAIRMAN MESOLLELA: Okay. Good
10 morning, everyone. Recognizing a quorum. We
11 will call the Tuesday, January 13th, 2015,
12 meeting of the Narragansett Bay Commission to
13 order. The first order of business, of course,
14 is the approval of the previous minutes form
15 December 9th, 2014. Have all of our members had
16 an opportunity to review the previous minutes?
17 Commissioner Farnum.

18 COMMISSIONER FARNUM: I'd like to
19 have my name added to those who were in
20 attendance. Later on in the report I made a
21 couple of motions, so it's pretty clear that I
22 was here.

23 CHAIRMAN MESOLLELA: Have all of

24 our members had an opportunity to review the
25 previous minutes, and if so, are there any

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1 comments, questions, or corrections? Comments,
2 questions or corrections on the previous
3 minutes? Hearing none. Commissioner Andrade.

4 COMMISSIONER ANDRADE: Motion to
5 approve.

6 CHAIRMAN MESOLLELA: Seconded by
7 Commissioner Farnum, Commissioner Carlino. All
8 in favor will say aye. Are there any opposed?
9 There are none opposed, and that motion carries.

10 The next order of business, Item Number 3 would
11 be the Executive Director's Report. Mr.
12 Secretary, do you have a report?

13 MR. MARSHALL: Yes, sir, I do.

14 CHAIRMAN MESOLELLA: Proceed.

15 MR. MARSHALL: Both plants Field's
16 Point and Bucklin Point are running very well.
17 Flows have been up in the last couple of months
18 because the rain that we've had. We had one or
19 two bad days at each plant during that period
20 just because we had so much rain in such a short
21 period of time that there were a couple of
22 process upsets that occurred. And I have to

23 report those as violations to the regulatory
24 agencies. But everything went back to normal
25 fairly quickly. We got everything under

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1 control. And everything has been good since
2 that point in time. The nitrogen permit season
3 is over that ended on October 31st. And one or
4 two commissioners have asked exactly how we did.
5 So Tom Uva is going to give a presentation a
6 little later in the meeting that will roll that
7 out for you. At Field's Point it was somewhat a
8 challenge because the biggest issue we have in
9 operations right now is the status of the
10 blowers at Field's Point. Those are the units
11 that take outside air. Then they compress it
12 and then they blow into the aeration tank so
13 treatment can occur.

14 Paul Nordstrom's staff did a great
15 job getting us through the last season and what
16 we've been doing fairly aggressively is trying
17 to figure out what we're going to do from this
18 point forward. I reported on this a couple of
19 times before. When we lost several -- we're
20 down to 5 of the 9 turbo blowers. That's the
21 new technology we installed several years ago.
22 Because of their high efficiency and they have

23 not paned out as well as the industry was
24 reporting. We got into that game about the same
25 time or shortly after a number of other

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1 facilities have, and when we checked originally
2 the turbo blowers that were installed at various
3 facilities around the country were operating
4 well. Well, as it turns out shortly after we
5 made that commitment others started having
6 problems. They seem to run well for two or
7 three years, and then there's a series of
8 mechanical problems. The technology itself, and
9 I won't get into too much of the detail, is
10 changing within the turbo blower industry and
11 they claim that they're solving the problem.

12 The supplier manufacturer that we
13 had was bought out by a larger firm about two
14 years ago, which has historically provided more
15 conventional blower technology. And they've
16 been working with us very cooperatively to try
17 to solve the problem. The situation we find
18 ourselves in is we have lost confidence in this
19 technology. And on the short term what we want
20 to do is we want to bring in a couple of the
21 older style blowers, the more traditional

22 technology. And I'm planning to do this under
23 the emergency procurement provision because we
24 want them in place as early in the upcoming
25 nitrogen season as possible. If we order them

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1 tomorrow, for example, we could probably have
2 them up and running by sometime in June. There
3 is a lead time on these items, as there is on
4 many of the items of equipment that we have
5 installed. So we would put it in two smaller
6 traditional blowers which would provide most of
7 our base need, and then we would have the turbo
8 blowers to supplement that. The manufacturer
9 has given us new parts, so to speak for many of
10 our blowers.

11 We have seven of the nine are now
12 available to us. Parts are coming for the other
13 two this month. So we believe that at the
14 beginning of the season, we'll have all 9
15 available. But honestly, we're very concerned
16 that we'll get through another season without
17 some other type of problem. And we want to make
18 a move to prevent that because meeting permit is
19 why we're in business. That's why we exist.

20 Now, on the long-term we're going
21 to go out for our RFQP to have a firm study. It

22 meaning the situation more comprehensively and
23 come up with a long-term design which might
24 require another building to get over this hump,
25 to get by this problem. Because there's nothing

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1 more fundamental than having the right system of
2 blowers in place in order to meet your permit.
3 And what's interesting about this for those of
4 us who have been involved in operations for
5 decades now is that the blowers were the type of
6 equipment that once you bought them and
7 installed them and turned them on, you could
8 just walk away from them basically. Obviously,
9 you would have to do your preventive
10 maintenance, but they would just run forever.

11 And with the new technology which
12 is more efficient and it's high tech and you get
13 better controls, and all of those -- it just
14 hasn't proven to be what we feel we need in the
15 operations arena, which is you know it's going
16 to run for years and years and years if you take
17 care of it properly. You almost virtually never
18 have a problem. I don't know, Paul, if you want
19 to add anything to that, or do you think that
20 states it fair.

21 MR. NORDSTROM: Pretty accurate.

22 MR. MARSHALL: And so, we really
23 need to do this. We just don't want to go
24 through another nitrogen season without making
25 some affirmative moves. We believe we'll have

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1 all nine turbo blowers ready and available prior
2 to the start of the new season, but we don't
3 just don't want to go through a new season with
4 those as being our only alternatives. And by
5 the way, one of the advantages to the new
6 technology which you could ramp them up, you
7 could ramp them down you could turn them on, you
8 could turn them off. As it turns out based on
9 our experience, and I think we've reached out to
10 wastewater facilities.

11 The fact of the matter is is that
12 if you turn them on and you leave them on, they
13 work much better than if you do all the fancy
14 gyrations that they claim that you can do. So
15 that's our biggest issue in operations. We
16 continue to meet permit and you'll hear about
17 the nitrogen numbers when Tom gives his
18 presentation shortly. But overall, this is what
19 we feel we need to do to keep this agency in
20 compliance with our permits.

21 In interceptor maintenance we have
22 had no dry weather overflow events in the past
23 two months, so that's all good news. Our
24 construction-wise: All our Phase II facilities
25 for CSO are now online and operating. We

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1 reported that the DEM, the deadline was December
2 31st and we met that deadline. We still have a
3 pretty long to-do list. You know, punch list
4 items that need to be done, as well as
5 restoration of properties and sidewalks and
6 paving. So when the weather gets better we'll
7 get on that and we'll finish those projects up
8 100 percent. But right now everything is
9 on-line and operating. We've already gone
10 through a few storms with some of those
11 facilities online.

12 The Lab building or the Regulatory
13 Compliance building which is across the street.
14 We have had a delay on that with the concrete
15 work. So we're scheduled to finish probably the
16 spring of 2016 rather than the late fall of
17 2015. So we'll keep using the existing lab in
18 the meantime.

19 In finance, a lot of the heavy

20 lifting is now going on for the FY-16 budget.
21 We're already deeply into that. Midpoint of the
22 FY-15 budget shows that we're running under
23 budget so we're in good shape. The billings are
24 doing well. Customer service has billed \$16.3
25 million dollars in the last two months that is

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1 November and December. So that's good. And
2 planning policy and regulation, they're sort of
3 doing their summary of the year how many samples
4 we've taken, how many analysis, you know we have
5 done. And all that shows that we are very busy
6 making sure that we have the information that
7 the regulatory people require as well as the
8 information that we feel we need to show how
9 well the plants are running and the CSO
10 facilities the positive impact that it's had on
11 the Narragansett Bay and the upper Providence
12 River.

13 Tom Uva has prepared the
14 presentation I referenced earlier which we'll
15 talk about our removal success for nitrogen, as
16 well as potential sustainable solutions going
17 into the future if the DEM wants us to step up
18 our nitrogen removal activity.

19 Tom will go into all of that for

20 you. We are in the process of having, or DEM is
21 in the process of issuing us new permits because
22 our current permits have expired several years
23 ago. And so we're going back and forth with
24 them on the contents of those permits. And we
25 have been meeting with DEM. Laurie and I have

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1 been meeting with the director as well as her
2 assistant director just trying to make sure that
3 we're all on the same page and they know what
4 we're doing. There's no surprises. There's no
5 filtering of information. There's nothing lost
6 in the translation, how's that, with our dealing
7 with her staff and her people dealing with our
8 staff. So, you know, it's been a very positive
9 and productive step.

10 And under Phase III which is the
11 last thing I might want to go over. We had a
12 workshop last Tuesday. Most of you were in
13 attendance. You've asked for us to do a few
14 additional things. I know that Commissioner
15 Carlino might want to make a remark or two when
16 it comes to the Long Range Planning Committee,
17 our report. But we are lining up our financial
18 advisor which is PFM to do a check on the rates

19 that have been generated by MWH, which is our
20 engineering consultant.

21 And we've contacted the firm that
22 did a return on investment analysis for both the
23 Rhode Island Convention Center Authority, as
24 well as ProvPort. That's a firm that
25 Commissioner Bennett recommended. And I have

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1 one of their reports that they did looking for a
2 little more information from them, and then
3 we'll move forward. Both of those two items
4 will probably take three to six weeks to finish
5 or to do or to undertake. And so that we may be
6 back to you at the February 17th meeting with
7 that new information.

8 It may take until March. But
9 that's the time horizon we're looking at. So
10 probably by March we'll probably need a decision
11 coming through the Long Range Planning to the
12 full board what direction we will should go in.
13 And that is it, Mr. Chairman.

14 CHAIRMAN MESOLLELA: Okay. We all
15 heard the Executive Director's report. Pursuant
16 to his report, are there any questions?

17 COMMISSIONER WORRELL: Quick
18 question. You talked about a study on ROI?

19 MR. MARSHALL: Yes.

20 COMMISSIONER WORRELL: Can you
21 explain just what that is.

22 RAY MARSHALL: What the firm does
23 is is it looks at the size of the operation, the
24 money that you're investing not only in your
25 operating budget, but in capital budget. And

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1 then from that they calculate direct, indirect
2 and -- I forget what the other term is. What
3 comes back to the state and the city in terms of
4 taxes. You know, if you hire so many
5 construction workers, you know, there's income
6 tax, and that comes back. There's spending.

7 CHAIRMAN MESOLELLA: You were at
8 the workshop. And one of the issues that
9 surfaced was the economic spinoff of this
10 project. How many job creation --

11 COMMISSIONER WORRELL: It's in that
12 genre --

13 CHAIRMAN MESOLELLA: How much
14 income tax is created. Whether or not there are
15 sales tax, that might be assessed against
16 purchases. Whether the entire economic spinoff
17 of a project of this magnitude is what Ray

18 referred to as return on investment. There are
19 other terms that have been banted around.

20 So basically the two firms that
21 we're hiring. One is doing basically comparing
22 their numbers with regard to a financial
23 analysis and financial impact of the project.
24 The other firm that he's talking about is a firm
25 who will give us a report and matrix on the

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1 economic spinoff of a project of this magnitude.

2 So there's really two different things.

3 MR. MARSHALL: So the third term,
4 by the way, is induced, direct, indirect and
5 induced effects.

6 COMMISSIONER WORRELL: Multiplier.

7 CHAIRMAN MESOLLELA: Multiplier,
8 the economic multiplier, exactly.

9 COMMISSIONER CARLINO: And I think
10 the example that Commissioner Bennet used was
11 the Convention Center. And that if you look at
12 the convention center, you know, the pluses or
13 the minuses. You might say, gee are they able
14 to run on their own. But it's the indirect or
15 the other word induced.

16 MR. MARSHALL: Induced.

17 COMMISSIONER CARLINO: Induced

18 where having people come to the Convention
19 Center also puts more people in the hotels, put
20 more people in the restaurants. So there's all
21 these other benefits that you can't put a dollar
22 figure on and that's why we're looking at that.

23 CHAIRMAN MESOLLELA: Exactly,
24 exactly.

25 COMMISSIONER BURROUGHS: Return on

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1 investment in terms of environmental quality.

2 MR. MARSHALL: No, this would be
3 strictly economic.

4 COMMISSIONER BURROUGHS: Yeah, but
5 I'm trying to balance the two, if you will. If
6 I wanted to answer the latter question today it
7 would be going to the workshop slides and
8 looking at the reduction in bacteria.

9 MR. MARSHALL: Yes.

10 COMMISSIONER BURROUGHS: Yes.

11 MR. MARSHALL: We are taking one
12 other look at the water quality impacts. I'm
13 looking at Tom Brueckner making sure I say this
14 correctly. Dr. Chris Kincaid who has done a lot
15 of the work for us modeling in the upper bay,
16 and we think has a fantastic model. Tom's going

17 to have him take a look. Tom, do you have any
18 detail?

19 MR. BRUECKNER: No, I was going to
20 have him do some on the runs that were done by
21 MWH with his model and see that if the results
22 are similar the alternative.

23 MR. MARSHALL: So that's probably
24 the third piece that Long Range Planning didn't
25 really ask for but as we talked about internally

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1 among the staff members, we thought it would be
2 good to check on the water quality impact
3 analysis that was done by MWH using Dr.
4 Kincaid's model. Because they use the ASA
5 model. I'm sure you're familiar with all of
6 those.

7 CHAIRMAN MESOLELLA: Yeah. Okay.
8 Any other questions pursuant to the Executive
9 Director's Report?

10 COMMISSIONER HANDY: I wasn't able
11 to make the meeting last month, but there was --
12 I saw in the minutes that there was some
13 discussion of a report related to the
14 performance of the turbines. And I just
15 wondered whether that's available yet, or
16 whether --

17 CHAIRMAN MESOLELLA: We're going to
18 be talking about that in the -- I think what
19 you're referring to we're going to be talking
20 about that in the Chairman's Report.

21 MR. MARSHALL: And in addition, the
22 next board meeting, we'll have a presentation
23 similar to what Tom's going to do today and
24 you've see Paul Nordstrom do on the treatment
25 plants at either the February or the March

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1 meeting and we'll go over the whole turbine
2 issue and success, and the other projects that
3 are alternative energy in nature that we are in
4 the process of undertaking.

5 COMMISSIONER HANDY: Thank you.

6 CHAIRMAN MESOLELLA: Okay. Further
7 questions pursuant to the Executive Director's
8 Report? Okay. Moving right along. Other
9 Committee Reports and Action Item Resulting are
10 Chairman Macqueen is not here, but the CEO
11 committee did not meet today. The Personnel
12 Committee did meet. Commissioner Campbell.

13 COMMISSIONER CAMPBELL: Personnel
14 Committee met, and we did approve two amendments
15 for the organizational plan. And we need to go

16 through that.

17 MR. MARSHALL: No. Neither one of
18 those. There was one at Bucklin Point, one
19 associated with Bucklin Point, one associated
20 with the customer service group that neither
21 will impact the existing operating budget. And
22 so there's no need for the finance or the full
23 board to act on those. Those changes will also
24 be reflected in the upcoming FY-16 Budget which
25 you will have to approve.

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1 CHAIRMAN MESOLLELA: Okay. Finance
2 Committee. Commissioner Andrade.

3 COMMISSIONER ANDRADE: No report
4 this morning, Mr. Chairman.

5 CHAIRMAN MESOLLELA: Okay. Rules
6 and Regulations.

7 COMMISSIONER DICHIRO: No report,
8 Mr. Chairman.

9 CHAIRMAN MESOLELLA: Okay. Long
10 Range Planning. Commissioner Carlino.

11 COMMISSIONER CARLINO: The
12 executive director pretty much talked about it
13 today. We had the four alternatives. Well,
14 first of all, thank you for all of those who
15 came to the workshop. And for those who did not

16 come, they did follow up with the executive
17 director and myself and we answered questions
18 and discussed it with them. So we looked at the
19 four alternatives.

20 We decided to remove the fourth
21 alternative which was the no tunnel alternative
22 with the storage tanks, and so forth. So we're
23 going to be looking at the first three
24 alternatives. And like the Executive Director
25 explained, we have other things that are going

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1 on in February and March. So we took advice
2 from Commissioner Bennett regarding, you know,
3 the induced direct and indirect benefits, so I
4 think we're on the right path.

5 CHAIRMAN MESOLELLA: All right.
6 Thank you. Compensation Committee.
7 Commissioner Kimball.

8 COMMISSIONER KIMBALL: Compensation
9 Committee met this morning, and we have
10 Resolution 2015:01; Acknowledgement and Approval
11 of NBC's existing Policies Practices and
12 Procedures which satisfy Rhode Island General
13 Law Section 42-155-5 relating to executive
14 compensation and overall compensation

15 methodology and procedures for the Narragansett
16 Bay Commission. And we recommend approval of
17 Resolution 2015:01.

18 CHAIRMAN MESOLLELA: We have a
19 motion from Commissioner Kimball to approve
20 Resolution 2015:01, seconded by Commissioner
21 Montanari. Is there any discussion with regard
22 to Resolution 2015:01? Hearing none. All of
23 those that are in favor will say aye. Are there
24 any opposed? There are none opposed and that
25 motion carries. Okay. Moving right along. The

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1 Citizens Advisory Group. Harold, do you have a
2 report for us today?

3 MR. GADON: Short report, Mr.
4 Chairman.

5 CHAIRMAN MESOLLELA: Please
6 proceed.

7 MR. GADON: The CAC did not meet in
8 January. Will not meet again until March 11th.
9 The CAC does support the NBC in deciding how to
10 proceed on Phase III. Our Stakeholders do
11 support the Chairman on eliminating Alternative
12 4 from consideration. One of our CAC members,
13 Chris Hannifin, is active in Rhode Island
14 Housing and executive director of Rhode Island

15 Housing network is being retired this month.

16 Thank you.

17 CHAIRMAN MESOLELLA: Retired from

18 -- Chris Hannifin is being retired, you said?

19 MR. GADON: What was that, please?

20 CHAIRMAN MESOLELLA: Chris

21 Hannifin.

22 MR. GADON: Chris Hannifin, yes.

23 CHAIRMAN MESOLELLA: Is what?

24 MR. GADON: She's being connected

25 with Rhode Island Housing for many years. She's

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1 presently director of Rhode Island Housing

2 Network. She's been retiring this year and

3 she's being honored in the Warwick Museum.

4 CHAIRMAN MESOLLELA: Is she going

5 to continue on with you on the Citizens Advisory

6 Group?

7 MR. GADON: I hope she does.

8 CHAIRMAN MESOLLELA: Okay.

9 MR. GADON: I'm going to go to her

10 meetings so that maybe it will put more pressure

11 on her coming to my meetings.

12 CHAIRMAN MESOLLELA: Thank you,

13 very much. All right. Ad Hoc Internal Ethnic

14 Committee.

15 COMMISSIONER DICHIRO: No meeting.

16 CHAIRMAN MESOLLELA: The Long Range

17 Planning Committee did not meet but was involved

18 in the workshop. All of members of the

19 Executive's Committee were, but there was no

20 meeting, formal meeting of the Executive

21 Committee. Legislative Report. Joanne, do you

22 have a report for us today?

23 MS. MACERONI: Not really, Mr.

24 Chairman. The General Assembly was back into

25 session January 6, and I'm beginning my daily

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1 look at the introductions, but I have nothing to

2 report at --

3 CHAIRMAN MESOLLELA: At this time.

4 All right. Well, but thank you, very much.

5 Okay. The Chairman's Report. A couple of

6 things. The first thing is next commission

7 meeting is February the 17th, so you can make a

8 note of that. With regard to the General

9 Assembly, it's my intention to have a meeting

10 with counsel Joe D'Angelis and Laurie Horridge

11 with regard some potential legislative

12 initiatives which, of course, we will bring

13 before the Board before any formal action.

14 This, in my opinion, will primarily
15 involve any potential direct appropriation in
16 light of the financial condition of the state
17 that might be available to the Commission in
18 light of our undertaking with Phase III and the
19 financial impacts on our ratepayers.

20 So we'll report more to you at the
21 February meeting. Before we move on to a
22 presentation on the nitrogen water quality study
23 presentation by Tom Uva, as you know, with the
24 passage of the amendments of the net metering
25 statute quasi public agencies such as NBC will

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1 now be allowed to consider off site alternative
2 for energy projects. So with regard to
3 Commissioner Handy's inquiry, I had Joanne and
4 Ray put together some facts for your
5 edification, and basically these are the general
6 facts.

7 The project had a total all in cost
8 of about \$14.6 million dollars subsidized by
9 Narragansett Commission labor and some debt
10 forgiveness by the PUC -- not the PUC the --

11 MR. MARSHALL: DEM.

12 CHAIRMAN MESOLLELA: Sorry.

13 MR. MARSHALL: The SRF and the DEM
14 program.

15 CHAIRMAN MESOLLELA: SRF program of
16 \$1.8 million. So the net cost of our turbines
17 were 12 million, approximately \$12,400,000. In
18 the years 2013, 2014 we had combined savings of
19 an energy power cost of about \$1.3 million
20 dollars, and we had some REC credits which
21 amounted to about eight hundred -- is that
22 right, Ray?

23 MR. MARSHALL: It was nine hundred
24 thousand --

25 CHAIRMAN MESOLELLA: 899 thousand

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1 dollars. So our total savings were about
2 \$2,218,000. Pretty significant. So what I'm
3 proposing to the Board and we've discussed this
4 with the Board that I think it would be
5 appropriate under the new legislation that we go
6 out to a request for proposal to any potential
7 energy providers that may increase our combined
8 total electric demand.

9 So I've asked Ray, and I will ask
10 Ray and the staff to generate a request for
11 proposal. It doesn't mean that the Commission
12 has to act on anything, but it would be good to

13 see what's out there for alternative energy
14 sources and what those financial impacts and the
15 green impact is to the Narragansett Bay
16 Commission.

17 So I'm going to ask the executive
18 director and staff to generate a request for
19 proposals to see what comes in. So Commissioner
20 Handy, are there any specific questions you had
21 with regard
22 to --

23 COMMISSIONER HANDY: In reviewing
24 the minutes, there were some discussion of, you
25 know, how much was consumed on-site, how much

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1 was generated to the grid. And if there's a
2 detailed report regarding that, I --

3 CHAIRMAN MESOLLELA: I was just
4 going to say, I'm just giving you the
5 highlights. But what I'll ask someone to do is
6 generate this in a correspondence --

7 COMMISSIONER HANDY: That would be
8 great.

9 CHAIRMAN MESOLLELA: -- that would
10 be sent to all of the Commissioners for their
11 edification. So you'll see exactly what the

12 outputs are, what the net metering results are,
13 and you'll have a pretty concise report and a
14 summary form, so you'll all know. And
15 hopefully, we'll get some proposals -- if he
16 board decides that they wanted to act on any of
17 the proposals that might come in and we'll see
18 what those impacts are on any of the energy
19 savings through the new net metering laws and
20 amendments that have passed.

21 MR. MARSHALL: If I could just add.
22 We're gathering all of that information now. I
23 pulled that together for the Chairman so he
24 could approach this opportunity with the Board.
25 I can come up with something fairly concise and

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1 send it out to all the Board members, so you can
2 all see it. But we'll have a more detail
3 presentation in either February or March, like I
4 mentioned, with slides, and then of course that
5 will be available to you, as well. One other
6 number because sometimes people ask me this
7 question in this way. How much of the power do
8 you guys generate that you actually need?

9 And in 2014 we generated just about
10 48 percent of the power that we need at the
11 Field's Point treatment plant. So 48 percent of

12 all the electricity that we needed to run the
13 fields point treatment plant were generated by
14 the wind turbines. The year before the number
15 was just about 42 percent. So there has been an
16 increase from one year to the next, but in part,
17 that was caused by -- we were limited in 2013 in
18 terms of how much -- how high we could run our
19 turbines, so to speak.

20 We were limited to 60 percent of
21 the capacity. In December 2013, National Grid
22 released that restriction so we're able to
23 operate at a hundred percent. Now, of course,
24 most of the time you're not near a hundred
25 percent, but the wind speeds were a little bit

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1 better in 2014, as well. But by like a quarter
2 of a mile per hour. It's hard to believe that
3 makes a difference, but that does over time.

4 COMMISSIONER HANDY: Just in light
5 of the savings that are being generated from the
6 operation of the turbine and the mandate from
7 the legislature last year on climate that state
8 agencies think about ways in which they can
9 mitigate and actively pursue. You know, it
10 seems like this is a logical part of the

11 conversation with regard to potential funding
12 sources from the state government, because this
13 obviously helps the mix with regard to the
14 impact on our rates with future construction,
15 and it's also beneficial in other ways.

16 CHAIRMAN MESOLLELA: Yeah, and by
17 the way, I think I'm correct in saying that
18 we're talking about energy projects which
19 doesn't necessary mean wind. It's alternate
20 energy projects that can eventually go into the
21 net metering system.

22 So it very well may be, I'm not
23 speaking to the economics, it very well may be
24 solar, it could be methane recovery, it could be
25 any number of different technologies, but

29

1 they're energy projects. So we don't know what
2 might come in, but it's always helpful to know
3 what's out there and I think we should consider
4 it. So -- Sorry. Commissioner Campbell.

5 COMMISSIONER CAMPBELL: A couple of
6 months ago there was a lot of news about
7 National Grid increasing their electric rates
8 like 25 percent. Did that indeed happen or --

9 CHAIRMAN MESOLLELA: Well, I think
10 we have an expert right on board that can answer

11 that question.

12 COMMISSIONER CAMPBELL: What was
13 the increase?

14 COMMISSIONER CARLINO: I think it
15 was like 3.2 percent.

16 CHAIRMAN MESOLLELA: Okay, was it
17 that high? They get that much?

18 COMMISSIONER CARLINO: Yeah, but it
19 was spread out over 12 months instead of 6.
20 Originally --

21 CHAIRMAN MESOLLELA: But it's not
22 12. It went up to 22?

23 MR. MARSHALL: No, he said that's
24 spread over 12 months.

25 CHAIRMAN MESOLLELA: No, no, I'm

30

1 saying did they start at 12 and it increased it
2 every month all the way up to 22 percent?

3 COMMISSIONER CARLINO: I'm sorry.
4 I don't know if that's how they did it.

5 CHAIRMAN MESOLLELA: I thought that
6 --

7 COMMISSIONER CARLINO: I think it
8 does escalate.

9 CHAIRMAN MESOLLELA: Right, yeah, I

10 thought that's what it ws.

11 COMMISSIONER CARLINO: Because
12 originally it was going to be during the winter
13 months which was going to cost more, so I think
14 they escalated it that way.

15 COMMISSIONER CAMPBELL: So that
16 makes the wind turbines the percentage should go
17 up because the
18 value of the power --

19 CHAIRMAN MESOLLELA: In terms of
20 savings, you're talking about.

21 COMMISSIONER CAMPBELL: The savings
22 should go up.

23 CHAIRMAN MESOLELLA: Absolutely.
24 Commissioner Worrell.

25 COMMISSIONER WORRELL: On that net

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1 metering legislation, are there any limits as to
2 how much electricity an organization like ours
3 we qualify -- any limits on how much we can
4 produce? For example, we're producing 4.5 out
5 here with these three. If we had another 4.5
6 presumably, my math tells me we'd be at a
7 hundred percent. If we had another 14.5, we
8 might be in the chips and we can start selling
9 shares in this organization.

10 CHAIRMAN MESOLLELA: So
11 Commissioner Worrell, great minds think alike.
12 So that was the discussion that the executive
13 director and I had just last night. I haven't
14 read the legislation that closely, is that a
15 possibility that we can contract for more power
16 that the commission might actually, their
17 demands, and act as a wholesaler, right.

18 I mean, I don't know how the
19 economics work, but Commissioner Handy can
20 probably speak to that. But that was the exact
21 conversation we had last night. I was going to
22 ask Joanne to look at that and counsel to look
23 at that during this process.

24 COMMISSIONER HANDY: The good news
25 is that they eliminated the cap on the program,

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1 the net metering program. There used to be a
2 cap that it could only be 3 percent of their
3 maximum daily load. So they've eliminated that
4 cap. They have a five megawatt project cap, but
5 you can contract with separate projects to meet
6 your load. And as far as net metering goes, you
7 can't net meter more than a hundred and twenty
8 five percent of your load --

9 CHAIRMAN MESOLLELA: Total demand.

10 COMMISSIONER: And if you're over
11 your load, you only get standard on the rate
12 which is the wholesale standard rate for that
13 power you don't get your retail part. So
14 there's not really a benefit over production.
15 You really want to try to target load. That's
16 the purpose of the program. There are other
17 programs where you can generate and sell the
18 energy to the grid, and that is a potential
19 opportunity, as well.

20 CHAIRMAN MESOLELLA: And we're not
21 speaking to the economics, we're talking to the
22 specifics of the statute, right?

23 COMMISSIONER HANDY: That's right.

24 CHAIRMAN MESOLELLA: Yeah, okay.
25 The idea is to get out there, see what's out

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1 there and let everybody come in. It could be
2 one or two or three or four different vendors,
3 right?

4 MR. MARSHALL: Yes. One other
5 thing I want to point out that's been brewing in
6 Washington is that EPA is looking at facilities
7 in the wastewater industry as generators of
8 greenhouse gases, and there's probably going to

9 be in the next couple of years some type of
10 legislations or regulations that are passed that
11 require us as an entity to reduce our greenhouse
12 gas production by a certain amount.

13 Now fortunately, at this point in
14 time, they're talking about benchmarking your
15 greenhouse gas baseline back to about the year
16 2000.

17 So that works to the advantage of
18 organizations like ours because we will be
19 taking affirmative steps to reduce our
20 greenhouse gases. Others have done nothing.

21 And so we want to make sure we get credit for
22 what we've already done, I guess is my point.

23 And we have the biogas project, as well as
24 looking at some solar. And then all the
25 opportunities that may might fall out the RFQP

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1 that the chairman just outlined. So just to let
2 you know that we try to keep our eye on these
3 things both at a state and national level. And
4 that national association of clean water
5 agencies that we belong to is a big help, and
6 you know, in that regard.

7 CHAIRMAN MESOLELLA: Okay. Any

8 other questions? All right. So that concludes
9 the Chairman's Report. Is there any new
10 business? Any new business at all to raise
11 here? Okay. Hearing none. We're going to get
12 a presentation from Tom, who's going to try to
13 complete this in 18 to 20 minutes because lunch
14 will be served, and -- right Tom?

15 MR. UVA: Yes. Ray gave me two and
16 a half hours, Mr. Chairman, but I'm going to try
17 and keep it to 20 minutes.

18 CHAIRMAN MESOLLELA: All right.

19 MR. UVA: Please eat your lunch
20 while I'm talking.

21 MR. MARSHALL: We can have lunch
22 now.

23 CHAIRMAN MESOLLELA: Yeah, you want
24 to do that. You want to take a break, get some
25 lunch and watch the presentation. Does that

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1 work for every body? Do you want to do that?

2 Tom, are you all set up?

3 MR. UVA: Yeah, I'm going to have
4 to put that screen down, Mr. Chairman.

5 (LUNCH RECESS 11:45)

6 (PRESENTATION BY TOM UVA)

7 MR. UVA: All right, Commissioners

8 thank you, enjoy your lunch while I chat here.
9 I want to thank Commisioner Mesoellela and
10 Director Marshall for letting me give me the
11 opportunity to come and talk to you today about
12 nitrogen. It's something near and dear to our
13 hearts.

14 I'm going to start off by telling
15 you a little bit about the upper bay issues and
16 impairments. And usually when there's an
17 impairment, it falls on the Narragansett Bay
18 Commission to remove a pollutant. And the bay
19 is impaired for bacteria dissolves oxygen
20 impairments which is low oxygen, hypoxia and
21 anoxia is caused.

22 Hypoxia is low oxygen and anoxia is
23 zero oxygen. And what happens is fish die,
24 plants die, and that's not a good thing. And
25 that comes from excessive nitrogen loads or

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1 excessive nutrient loads. And we have
2 contaminated sediments. We also have
3 contaminated sediments in the bay from years of
4 industrial pollutions that entered the bay. We
5 have the loss of wetland, habitat and eel grass.
6 And right now we have major NBC construction

7 projects that have addressed nitrogen enrichment
8 and bacteria impairments. And you all are very
9 familiar with that, what's been going on with
10 the CSO Phase III discussions. And what brought
11 about nitrogen pollution issues with DEM?

12 In August of 2003 there was a major
13 fish kill in Greenwich Bay, dissolved oxygen
14 levels were very low in Greenwich Bay. We had
15 actually higher dissolved oxygen levels in the
16 Providence River than in the bay. And as a
17 result of that fish kill, the House and Senate
18 passed legislation requiring DEM to issue new
19 permits to the wastewater facilities. And those
20 permits required a 50 percent reduction in
21 nitrogen loads to the bay by 2008.

22 Well, that deadline came and went,
23 and there were reports generated about what
24 caused the fish kill, and there were many
25 factors including low flushing, no wind, poor

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1 circulation of the waterways in Greenwich Bay.
2 Many physical factors that are beyond the
3 control. Also, high nitrogen loads and high
4 water temp and warm water temps cause the
5 problem.

6 The only thing that DEM can control

7 is nitrogen loads by permitting wastewater
8 treatment plants to reduce nitrogen. But
9 stratification is another major cause of low
10 dissolved oxygen. Stratification is when you
11 have the surface waters, if you look at this
12 little diagram. The top of the water is fresh
13 water. We have river inputs into the bay and
14 the surface water is fresh. And the bottom
15 waters are salt water. And the oxygen can't
16 penetrate through that surface layer to get to
17 the bottom layer. And the fish at the bottom
18 are deprived of oxygen and die, and that's when
19 you'll have a fish kill.

20 And one of the other causes of low
21 dissolved oxygen is nitrogen enrichment. And
22 what happens is the nitrogen causes, just like
23 in our lawns, we fertilize our lawns. We're
24 fertilizing the bay, and we cause algae to form,
25 sea lettuce and plankton. And when the sun goes

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1 down at night that plankton dies off and sinks
2 to the bottom, and it uses up the oxygen when
3 bacteria breaks it down and the dissolved oxygen
4 gets very low. So those are the two major
5 causes of low dissolved oxygen in the bay.

6 And the NBC has been addressing
7 high nitrogen loadings to the bay. We're going
8 to be spending about \$80 million over 20 years
9 in capital costs to address nitrogen -- capital
10 and operating costs, to address nitrogen at our
11 present level of five parts per million when our
12 permits have been opposed on us. And the left
13 side in blue, these are all construction
14 projects that we've completed.

15 You can see the CSO project Phase I
16 and Phase II, the actual cost. And what we have
17 here in the green colors on the right are
18 potential future projects, and you could see the
19 monster sitting there, the CSO Phase III, \$741
20 million dollars. This doesn't show anything for
21 future nitrogen upgrades, and DEM has told us
22 they want us to go three for nitrogen. And you
23 can see where you're all familiar with this
24 graph that shows how our rates have been
25 increasing and they're approaching 2 percent of

1 the median household income. So we've been very
2 active at the Narragansett Bay Commission to
3 ensure that any construction projects that are
4 imposed on us are based on sound science, and we
5 have a extensive water quality monitoring

6 program and we perform studies to make sure that
7 something's really needed and that there's going
8 to be water quality benefit associated with the
9 millions we have to spend. And we have an
10 exemplary water quality science team that
11 evaluates all of this data.

12 This is the buoy at Bullocks Reach
13 and we operate two fixed site buoys, fixed site
14 monitoring stations. You can go on the computer
15 at any time and log in and see the water
16 temperature, dissolved oxygen levels,
17 chlorophyll levels at either of these sites.

18 And some of this monitoring is required by a
19 consent agreement from DEM.

20 These particular bouys are required
21 by our consent agreements. But a lot of it is
22 to give us good data so we can basically
23 challenge something if it's not appropriate for
24 the Narragansett Bay Commission. We also
25 monitor all of the nitrogen that comes across

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1 the state lines into the upper bay. So we know
2 how much is coming into the rivers from
3 Massachusetts. And we sample the bay and the
4 tributary rivers to see water quality

5 improvements associated with the millions that
6 we're spending on nitrogen removal projects. We
7 sample at all of these red dots or all the
8 different locations that we collect nitrogen
9 samples from, and we sample these bay stations
10 twice a month.

11 We also -- Ray mentioned the ROMS
12 model that we have with Dr. Kincaid from
13 University of Rhode Island. And we've been
14 working on that for quite a few years now. And
15 we think it's the best model available to track
16 the fate of pollutants through Narragansett Bay.

17 We can track a pollutant that comes
18 out of our treatment facility and see exactly
19 where that pollutant goes. So if we're
20 discharging some nitrogen from our treatment
21 facility, we can see does it go into Greenwich
22 Bay, does it go south down into the lower bay,
23 does it go out to Rhode Island sound (sic) and
24 we can track those pollutants? And we can
25 determine how effective nitrogen reductions are.

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1 So we can program in if we went to three. Would
2 there be any water quality improvement? And
3 these are some of the things that we're working
4 on presently with Dr. Kincaid. And we also do

5 sechidisk readings which test the clarity of the
6 water. We have a seabird's unit which we can
7 lower into the water. This unit here we built
8 and put it on the back of our boat. And any
9 time our boat is underway, we can record
10 dissolved oxygen and chlorophyll levels every
11 time the boat is running and that data goes
12 directly into the computer. And we also the
13 analyze plankton samples so we can see how the
14 bay is changing with the nitrogen reductions.
15 We built this video camera set-up. This is a
16 sled.

17 We spent about a thousand dollars
18 to build that and we're able to do transects in
19 the bay and we do this once a month. You may be
20 familiar with several years ago sea lettuce.
21 Seaweed was washing up on the beaches at
22 Edgewood and Conimicut Point, and DEM goes out
23 and cleans that up and that sea lettuce grows
24 because of the nitrogen that's in the water.
25 And we're able to see the reductions in that

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1 with these video cameras. And here's a -- oops,
2 let's see what's happening here. I want you to
3 see this nice movie that we put together for

4 you. And we'll show you what is in the upper
5 bay. Portions of the upper bay are mud flats,
6 and here's some of that sea lettuce that I told
7 you about. That's down near our buoy at
8 Bullock's Reach.

9 There's a bunch of shells, shell
10 rubble around Bullock's Reach, and these are
11 amphipod tube mats. These are shrimp waste.
12 These are anemones, sea anemones. There's green
13 crab in the upper bay. This one's going to be
14 tough to see. There's a manta shrimp. It's
15 almost the size of a lobster and they burrow
16 into the ground and sea stars. There's a flat
17 fish there, a summer flounder. And there's a
18 mass of spider crabs mating in the upper bay.

19 So there's a lot of sea life in the
20 upper bay. The upper bay is alive and well. If
21 someone tells you it's just a sewer, it's not.
22 And all of our information is on our website,
23 which we received the national award for this
24 website to get the data out to our Stakeholders
25 to educate them about the great work that we're

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1 doing here at Narragansett Bay. Some of the
2 commissioners have asked about the Blackstone
3 River and about the plant in Worcester, how it's

4 doing. So I wanted to add a few slides on that.
5 And they've reduced their nitrogen load by 69
6 percent already. They've spent a hundred and
7 sixty million dollars to upgrade their facility.
8 And in the river what we're seeing at the the
9 border coming from Massachusetts, a 46 percent
10 reduction in nitrogen at the border.

11 They've also reduced their nitrogen
12 89 -- their phosphorus 89 percent. And that
13 translates to a 79 percent reduction at the
14 border with Massachusetts. So they've done a
15 very good job of reducing their nitrogen load.

16 But what I'm more concerned about
17 is how the NBC is doing. And at Field's Point
18 we installed this I-FFAS system, and you've all
19 seen this before. The plastic meteor and it
20 gets covered with bacteria, and the meteor stays
21 in the tank. And we've done that to meet our
22 standard of five. And it's the largest I-FFAS
23 plant in the world. So this summer we averaged
24 3.4 parts per million. Now, keep in mind DEM
25 wants us to go to 3 parts per million. So it

1 will be a very small reduction and it's going to
2 be very expensive. This was all part of a \$59

3 million dollar project to upgrade Field's Point.
4 Thirty one million of that was allocated to
5 nitrogen alone. And that resulted in a
6 reduction of almost 48 hundred pounds of
7 nitrogen, basically an 82 percent reduction
8 we've already achieved.

9 And at Bucklin Point when our
10 existing permit was issued back in 2005, that
11 plan was going on-line to reduce nitrogen to
12 8.5. And that was about 8.3 million out of a
13 \$70 million dollar contract to upgrade that
14 facility, which hasn't been upgraded since it
15 was built in the '50s. And the new permits that
16 were issued required us to reduce it to five.

17 So we challenged the permit,
18 entered a consent agreement and we spent another
19 13 million to remove another 158 pounds a day of
20 nitrogen. So that's pretty expensive when you
21 start to get to these lower levels. But the
22 plant performed well. During the summer permit
23 season we averaged 3.66, almost down to the
24 number of three that DEM wants. And we're
25 looking at about an 80 percent reduction

1 compared to 2003, the year of the fish kill. So
2 how does the Narragansett Bay Commission and the

3 other wastewater plants doing compared to that
4 legislative mandate to reduce 50 percent? Well,
5 the wastewater plants in the upper bay of Rhode
6 Island spent about 275 million on upgrades
7 already. And they reduced about 59 percent from
8 1995, 1996 baseline levels. And NBC has reduced
9 63 percent since those baseline levels.

10 And DEM is not recognizing that
11 goal as being met yet. They are indicating that
12 the reduction should be based upon design
13 capacity of the facilities which is not built
14 out, which means it translates to about a 60
15 percent reduction and not a 50 percent mandated
16 reduction.

17 So they kind of changed in the game
18 plan a little bit there. And in any case, we've
19 exceeded it in any way. And if you compare it
20 to the year of the fish kill, the upper bay
21 wastewater treatment plants have reduced 67
22 percent nitrogen loading into the upper bay, and
23 Narragansett Bay Commission as of 2014 has
24 reduced to 81 percent of the load. So basically
25 we reduced 7,100 pounds a day of nitrogen at our

1 two facilities, which is overall for both plants

2 an 81 percent reduction. And we're discharging
3 now about 1,600 pounds a day at our present
4 loading. And if went to three we would
5 discharge 1,378 pounds per day. And that would
6 be an additional deduction of 263 pounds. And
7 what I asked my friends at DEM is will that
8 deduction achieve water quality standards, that
9 additional 263 pounds? I think not.

10 So DEM basically imposed these
11 regulations on us without doing a comprehensive
12 study of what the loading in Narragansett Bay
13 for nitrogen should be. They base the initial
14 permits on what was known as the Merle study, a
15 series of tanks where they added nitrogen into a
16 tank. It wasn't mixed. And this was done in
17 1981 down at the University of Rhode Island.

18 So the best data we have is what
19 they call the National Coastal Condition Report.
20 And this an EPA and NOAA document and USGS. And
21 for an estuary like Narragansett Bay in the
22 northeast, a good estuary that will promote
23 eelgrass growth and oyster cultivation, should
24 have less than .1 milligrams per liter of
25 dissolved and organic nitrogen. So how are we

1 doing? Our two lower monitoring stations are

2 meeting that, and we're in the good category,
3 these green dots. The mouth of the Pawtuxet
4 River is one of the highest concentrations of
5 nitrogen, about one and a half parts per million
6 averages.

7 For the first time the Phillipsdale
8 Landing and the Seekonk River downstream of our
9 wastewater treatment facility is in the fair
10 category. The rest of the Providence River is
11 now in the fair category, but there's still
12 nitrogen reductions going on.

13 COMMISSIONER CARLINO: So why is it
14 so bad at Pawtuxet?

15 MR. UVA: Well, a lot of that data
16 is based upon Rhode Island Resource Recovery
17 going into the Cranston treatment plant, and
18 they don't have nitrogen removal. DEM has
19 regulated that the plants on the Pawtuxet for
20 phosphorus because it's a fresh water body. The
21 problem is it's right next to the estuary, and
22 it dumps that nitrogen into the saltwater
23 estuary. Phosphorus is the problem in fresh
24 water and nitrogen is the problem in saltwater.
25 That's the type of fertilizer it is. Now we

1 redirected Resource Recovery to our facility at
2 Field's Point. So they will be installing
3 additional treatment this spring, and we should
4 see those numbers at the Pawtuxet River go down.
5 And they're also upgrading those treatment
6 plants on the Pawtucket River to reduce
7 nitrogen.

8 So this is another way to look at
9 this over the years. This pink area is poor.
10 This yellow area is the fair category, and the
11 green area is the good. And you can see these
12 are all different sampling locations. This red
13 one is the Phillipsdale Landing near the Bucklin
14 Point plant, and you can see how it's
15 decreasing. And these other plants that are in
16 the green are the lower bay ones that I
17 mentioned earlier.

18 The Conimicut Lighthouse monitoring
19 location has been in the good category now for
20 three years. But what I want you to notice is
21 the nitrogen load. This is rainfall, this
22 dotted blue line. And it dramatically follows
23 rainfall, the nitrogen concentrations. So we
24 could basically take a lot of the nitrogen out
25 of our plants and not discharge, but when it

1 rains, it's going to be a bad year for the bay.

2 COMMISSIONER ANDRADE: Is that from
3 runoff?

4 MR. UVA: That's from runoff, yes,
5 Commissioner. And this is a very busy graph.
6 But what I wanted to demonstrate here is the
7 bottom in red is Narragansett Bay Commission
8 Facilities. And these are all different rivers
9 that empty into the bay for every sampling
10 location. This is pounds of nitrogen.

11 This is the March floods. Almost a
12 hundred thousand pounds of nitrogen a day were
13 flowing into the bay when it rained and when we
14 had those floods. And typically we can see
15 easily 50,000 pounds of nitrogen that flushed
16 into the bay at a rainstorm event, hence, the
17 importance of stormwater management to deal with
18 stormwater.

19 This is another way to look at it.
20 This bottom line here is both the DEM in black
21 and the NBC in gray. We don't have the 2014
22 data yet from DEM. But that shows the percent
23 of time that the water is impaired. Oxygen
24 levels are below 2.9. This year we only had one
25 day of impairment in the upper bay, less than

1 one day. So it was a .82 percent of a day,
2 really. So, but what's interesting to note is
3 this is rainfall. Every time there's a bad
4 year, it's following rainfall. The more rain,
5 the more hypoxia we have in the bay.
6 Interestingly enough, this is the map of the DEM
7 map of the impaired waters for dissolved oxygen.
8 This is where they're cracking down on the
9 sewage plants for nitrogen. Interestingly
10 enough, this is where all the rivers enter into
11 the bay, all the freshwater sources.

12 So my question to DEM is it
13 stratification that's causing the problem where
14 you're getting this freshwater layer on the
15 surface and the oxygen can't penetrate to the
16 bottom, or is it nitrogen loading that's causing
17 the problem?

18 Well, this is our nitrogen
19 reduction. This is our greenhouse gas emissions
20 as we reduce our nitrogen at Field's Point, this
21 is Field's Point. And if we go to three you can
22 see there's not going to be much nitrogen
23 reduction, but we're going to really increase
24 our greenhouse gas emissions, which means more
25 climate change, more rainfall, more violations.

1 So does this make sense? Is this a sensible way
2 to proceed? And I did include here in the
3 dotted line that's the offset in carbon from our
4 wind turbine. So you can see how our greenhouse
5 gases are reduced. And I want to tell you a
6 little bit about the cost of going to three.

7 Here's before we went to five.
8 Here's when we're at five. It cost us about \$80
9 million dollars to go to five. And this is not
10 the loading, this red line is the loading of
11 nitrogen in upper in Narragansett Bay, north of
12 Conimicut Point.

13 This is the reduction from all the
14 wastewater plants including us, and this is
15 where we are now. To go from five to three
16 we're going to reduce 263 pounds. The cost is
17 going to be a hundred and eight million dollars
18 over 20 years. So to do this initial reduction
19 was \$11,000 per pound of reduction. To do this
20 future reduction, to reduce this 263 pounds,
21 it's going to cost us \$410,000 plus for a pound
22 of reduction.

23 So my question is that going to get
24 us water quality standards? So I hear from our
25 friends all the time that, oh, you know, man has

1 made its footprint here and it's coming out of
2 the sewage plants. You've got to address the
3 problem, you know, if you ever want to get it
4 pristine like when the Narragansett Indians were
5 on Narragansett Bay.

6 So we look at it a little
7 differently, our team, and we say nutrients are
8 not the only problem. We have -- Narragansett
9 Bay's faced with a lot of problems, loss of
10 habitat and eelgrass, contaminated sediment,
11 alteration of coastline, change in the
12 circulation of the bay, climate change. We
13 built dams, we built break walls, we silted up
14 the rivers. And we have stratification.

15 So let's look at the historical
16 record. In 2010 oyster production in the upper
17 bay was at its peak. There were 5,000 leased
18 oyster beds north of Conanicut Point. That
19 generated \$45,000 in revenue for the state from
20 leasing those oyster beds.

21 They produced 7,000 metric tons of
22 oysters a year. After the sewage plants and the
23 waste was directed into the rivers, people
24 started becoming sick on oysters and the
25 population started to decline. This is Field's

1 Point. These are oyster shells in these
2 pictures. And Pettis had a big oyster farm on
3 Starvegoat Island, which I'll show you in a
4 second. And this is an old map that we came
5 across of upper Narragansett Bay and the
6 Providence River. And this is a sewage
7 treatment plant here, and it was a chemical
8 precipitation plant then. And this shows
9 eelgrass and oyster beds all along this area.

10 The Seekonk River was the most productive. The
11 Seekonk River was 37 feet deep. Right now it's
12 6 feet deep. It's all silted up with sand.

13 And the Providence River channel
14 was 25 feet deep. And what you see here in
15 writing is the City of Providence engineer
16 stating how they're going to dredge the bay, how
17 they're going to fill the bay. They're drawing
18 roads into the bay right here, and where they're
19 going to fill it. And here's the waterline.

20 Here's the coastline at that time in the old map
21 from the city plans. And how did the
22 circulation flow? Well, we have that ROMS
23 circulation model that I talked to you about.

24 And what happens is the water came down the bay
25 and it hit this point here. This was the real

1 Fields Point where they used to have picnics
2 right out here. And the water would flow evenly
3 down the bay because the bay was 25 feet deep.
4 Now, it's 50 feet deep in that area. So here's
5 what we did. We filled in the bay.

6 We built the channel that's 50 to
7 60 feet deep now. This is where Save the Bay
8 is, that's that Starved Goad Island that I told
9 you about. That was where the oyster production
10 facility was. And what we're seeing now when we
11 built the hurricane barrier, we built the
12 Pawtuxet River break wall, we allowed the rivers
13 to silt up, the Seekonk River as I indicated, 6
14 feet deep where it used to be 37 feet deep. And
15 we created this low dissolved oxygen area. And
16 what happens is we had very poor flushing in
17 that area.

18 When we have these big rainstorms
19 the nitrogen flushes into the bay and it sits
20 there for 10 days or more until we have a storm
21 to break up what's known as a GYRE. And here's
22 what happens. We have the jet of water that
23 comes down the bay, it follows the channel, and
24 this GYRE just circles around. Bottom waters

25 from the Pawtuxet River head into the GYRE and

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1 they're feeding that highly enriched nitrogen
2 water into the GYRE. It sits there like a
3 greenhouse, and it causes algae to grow,
4 plankton to grow, sea lettuce to grow. So we're
5 looking at it, are there sustainable solutions?
6 Instead of spending a hundred and eight million
7 dollars to take out 263 pounds of nitrogen, is
8 there a better way to do it?

9 So we think that you can do some
10 smart engineering to break up this GYRE. Maybe
11 some selective dredging where you take some of
12 that jet of water and send it over to GYRE,
13 dredged like an off-ramp of a highway, and just
14 to divert the flow over the GYRE to break it up
15 and change the direction of flow. Maybe you
16 could remove some break walls that are -- the
17 break walls, Pawtuxet break wall is sending the
18 flow north, the nitrogen rich water north.
19 Maybe you could cut some holes in it and maybe
20 you build some natural break walls.

21 COMMISSIONER WORRELL: When was
22 that built in the beginning, that Pawtuxet --

23 MR. UVA: That was, I believe after
24 the hurricane, '38 Hurricane to protect those

25 homes down there. So we're looking at possibly

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1 maybe they could create some wetlands and
2 increase habitat. Wetlands are great sources to
3 remove nitrogen from the water. They flush the
4 nitrogen into the air. They use up the nitrogen
5 in the summer. They grow grasses. They provide
6 habitat to species, then they die off in the
7 fall and the winter and the process repeats
8 itself. So these are sustainable things. What
9 about doing aquaculture again in the upper bay,
10 putting up some solar upwellers, rent those
11 solar upwellers out.

12 Grow different types of shellfish
13 that you can transport to other sections of
14 Narragansett Bay to restore depleted shellfish
15 beds. Fix the circulation areas. This GYRE
16 area is a big hot spot, what they call a hot
17 spot. It's loaded with low dissolved oxygen
18 water, and when it breaks up it sends that
19 waters to other portions of the upper bay which
20 causes more problems. So we're looking at
21 sustainable solutions. We know the rates are
22 going up. You can't keep going this way. And
23 we're trying to educate the Stakeholders at DEM

24 and others, a better way to do things. We
25 presented a poster on this up in Tampa at the

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1 Restore American Estuary's conference. We
2 applied for grant money. We have received
3 \$150,000 grant from the Coordination Team in
4 Partnership. They wanted us to partner with DEM
5 on it, and we did. And there's an expert
6 Stakeholder process going on with all the
7 experts in this field. People are very
8 enthusiastic about this. The way the Clean
9 Water Act is written, it focuses on the water
10 column.

11 And the philosophy is if you clean
12 up the water column, all that eelgrass will come
13 back and wetlands will come back and the fish
14 will come back. So they don't look at restoring
15 everything in a holistic fashion. In
16 ecosystem base management and the holistic
17 evaluations are really the way to go.

18 So what happens is in the beginning
19 of the sewage rehabilitations in the country,
20 sewage plants got all the money, wetlands. And
21 those people never got any money or any grants.
22 So those projects really don't happen. So this
23 is the way to look at things holistically, and

24 say, where are you going to get the most bang
25 for your buck? Where are you going to get the

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1 most water quality improvement, the best habitat
2 restoration? By looking at things holistically.
3 And that's what we're trying to do. We're
4 trying to give DEM the tools to develop a good
5 TMDL, and not just say, well, the Bay
6 Commission, you're there, you got ratepayers to
7 pay it, so just do it.

8 You know, we want to give them the
9 tools to look at other things. Some of these
10 things have been done in other municipalities,
11 other communities. One little small element of
12 it, and I'll show you a little bit about that.

13 DEM is scheduled to do a TMDL in
14 2016 for the Providence and Seekonk Rivers for
15 nitrogen and dissolved oxygen. So we're trying
16 to give them feedback from all of these experts
17 of what really should be done. And you know,
18 because we're at diminishing returns now to
19 taking nitrogen out of wastewater plans.

20 And there's a Project Steering
21 Committee with the NBC, DEM Resource, CRMC, EPA,
22 Estuaries Program, and others, and they're

23 evaluating all of these different opportunities
24 that could be possibly used in the upper bay;
25 shellfish, restoration, aquaculture, the nature

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1 conservancy. They want to be oyster beds all
2 over the upper bay. They're ready to go to
3 town. So there's a lot of people that want to
4 partner with us on these types of projects.
5 Oysters take up the nitrogen, you know. So it's
6 a win/win type of thing, you know, fisheries,
7 oysters and shellfish pump the water and clean
8 it. So these are some of the technologies that
9 are readily available. So this is a two-year
10 project. And I won't get into the details on
11 that. But we're trying to find good sustainable
12 solution that will actually create green jobs
13 and put people back to work and help Rhode
14 Island economy.

15 And the first kick-off meeting was
16 on December 2nd, and we have another one this
17 week. And the different specialty groups are
18 meeting and coming up with their top ideas. And
19 year two of the project will be to do some of
20 the set trials in the upper bay, and see where
21 we go from there. And these are some of
22 examples. I'm just going to quickly go over

23 these. You notice there was some areas where we
24 had mud flats in the bay. Well, you could put
25 structures like this that attract fish and grow

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1 shellfish all over those things. So these are
2 solar upwellers where you can grow shellfish
3 right under the dock. And you come in and you
4 throw a seed in the nitrogen enriched waters,
5 transplant those seeds when they're big enough
6 into management areas that could be harvested by
7 the public or commercial fisherman. And these
8 are some opportunities where these are going on.
9 You can actually grow seaweed, and the seaweed
10 uses up the nitrogen, the seaweed can then be
11 used for fertilizer.

12 And these are some of the
13 opportunities where it is going on, there are
14 some places -- I'll show you one. Let's see,
15 Falmouth, Mass. They have part of their TMDL by
16 their regulatory agency was to grow shelled
17 oysters. And that's how they're dealing with
18 the nitrogen and pollution in that bay. But
19 part of it is to change the mentality the way
20 people think, and that's what we're trying to do
21 through these projects.

22 Bio-extraction, as I indicated, you
23 can grow ribbed mussels which is not edible, but
24 it could be used for fertilizer, you can grow
25 seaweed which could be used for fertilizer.

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1 There are regulatory roadblocks to doing this
2 stuff. And that's what we're trying to identify
3 through the Stakeholder process also. What are
4 the road blocks? Well, DEM doesn't want any
5 shellfishing in the upper bay. And they're
6 concerned about changing their enforcement plan.
7 These are what you can do when you dredge up the
8 fluids you can make wetlands. So I'm just going
9 to just close it at that. These are just some
10 of the things, fertilizer controls, examples of
11 fertilizer controls.

12 This presentation will be on the
13 Board's website so you can look at it. I want
14 to thank Christine Comeau, Pamela Reitsma and
15 Eliza. If you could stand up and I want to
16 recognize my science team that works so hard on
17 all these presentations.

18 (APPLAUSE)

19 MR. UVA: I'll be glad to take any
20 questions if you have any. I know there's a lot
21 of information.

22 COMMISSIONER WORRELL: I'm amazed
23 that the Seekonk River's only 6 feet deep and it
24 used to be 37 feet deep. That blows me away.
25 What about dredging up there, would that help at

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1 all?

2 MR. UVA: The Seekonk is full of
3 organic material. The video that we did. We
4 did a video of Seekonk. It's loaded with leaves
5 and debris. And, you know, we never clean catch
6 basins in our cities. All of that sand flushes
7 into our rivers, and everything just soaks it
8 up. So we have no circulation in the rivers.
9 The Tall Ships used to come up the Seekonk and
10 dock in Pawtucket, all right, to unload.
11 Tankers used to go up there. So we used to have
12 access to two channels.

13 We have one small channel now.
14 That's about six feet. Even our little boat
15 goes around once in a while.

16 COMMISSIONER WORRELL: Is it
17 feasible to do dredging.

18 MR. UVA: Absolutely, absolutely.
19 You need to do dredging. If want to really
20 restore something, we have contaminated

21 sediments. You're not going to fish in the
22 upper bay until you do something with that. You
23 dredge them, you encapsulate them, you can build
24 wetlands with them. You can build marshlands
25 with it, but clean stuff over the top, and

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1 you're done. But, you know, you can do it
2 piecemeal. It's not going to be done all at
3 once. But, you know, you have to have some kind
4 of vision and game plan. And this is what we're
5 trying to get our friends on Promenade Street to
6 understand, that there are other alternatives
7 than just going after the NBC ratepayers to
8 reduce it because you're not going to get your
9 goal. The goal is clean water, water quality,
10 fishable swimmable waters.

11 COMMISSIONER BURROUGHS: Thank you.

12 And I look forward to reviewing the slides in
13 detail. That was a lot to take in. In
14 connection with the earlier discussion today,
15 about the CSO. Is the \$108 million dollars that
16 DEM would like us to spend a part of the
17 integrated planning framework?

18 MR. UVA: That is not in there yet
19 because it's not a requirement yet. They've
20 told us they're going eventually want us to go

21 to three. Keep in mind, it's going to be years
22 of studying upper bay before they can do that.
23 The sediment is loaded with nitrogen. So now
24 that you've taken the nitrogen out of the water
25 column, it's going to be years of flux of that

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1 nitrogen out of the sediment before you're going
2 to be at a point where you can really say, yes,
3 we do have to go lower or we have to take more
4 nitrogen out. So there's still, and there's
5 still other plans. DEM estimates that it will be
6 2018 before that 50 percent reduction goal is
7 met. And that's because Woonsocket hasn't done
8 anything yet.

9 So there's still other plans that
10 are building, the plans on the Pawtuxet. The
11 City of Cranston is being upgraded now to reduce
12 their nitrogen a little lower. So there's still
13 upgrades going on that will change this. So
14 they don't have the legal backing, I don't
15 think, to make us go to three, this permit
16 iteration. Next permit iteration, it's
17 possible.

18 COMMISSIONER HANDY: It looks like
19 the flood events, obviously, impact this a huge

20 amount, and I assume that the one that you saw
21 the major spike for was overflows at the Warwick
22 treatment. I mean, that was inundated with
23 water.

24 MR. UVA: No, that was the March.
25 That was March of 2010 floods. That was the big

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1 spike. It was almost a hundred thousand.

2 COMMISSIONER HANDY: Is that the
3 cause of that?

4 MR. UVA: Well, no. A lot of that
5 was coming down the Blackstone. Keep in mind,
6 you have these dams. The dams will back the
7 organic matter. They hold back nitrogen. When
8 you have big gully washes everything's coming
9 off the land and flushing down the rivers.

10 COMMISSIONER HANDY: It seems like
11 there's another issue which is prioritization of
12 storm. You know, dealing with the storms that
13 are overflowing --

14 MR. UVA: Well, this is why --

15 COMMISSIONER HANDY: So we need to
16 invest in that --

17 MR. UVA: This is why, you know,
18 you look at an integrated planning process.

19 Should we spend \$741 million dollars on a CSO

20 project that's not going to meet water quality
21 because of the stormwater that's still not being
22 addressed by the municipalities?

23 So that's something that has to be
24 considered, you know. So until you address the
25 stormwater issue -- and when I presented

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1 bacteria to you a few months ago, you could see
2 upstream of all of our CSO's, we're not meeting
3 water quality standards for bacteria. So what
4 is \$750 million going to get you? Is it going
5 to get you compliance? Should there be
6 different zones? We regulate same water quality
7 everywhere.

8 They want the water quality outside
9 of Field's Point the same as the water quality
10 on Block Island. All right. Should that be the
11 same water quality, or should this be an
12 industrial area which it should have a different
13 designation, a different level of water quality
14 standards? So these are the kind of issues that
15 are above our pay grade, but the folks at EPA is
16 supposed to, you know, or congress addresses it.

17 CHAIRMAN MESOLLELA: Okay. Are
18 there any more questions? It's approaching

19 12:30. What I'd like to do is maybe adjourn.
20 If anybody wants to stay back and talk with Tom,
21 stay back as long as they like, but I'd like to
22 move toward adjournment. And then if you just
23 want to hang around and talk with Tom, you can
24 spend the rest of the day. So having said that,
25 any other business?

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1 COMMISSIONER ANDRADE: Motion to
2 adjourn.

3 COMMISSIONER CARLINO: Motion to
4 adjourn.

5 CHAIRMAN MESOLLELA: There's a
6 motion to adjourn from Commissioner Andrade,
7 seconded homily by Commissioner Carlino. All in
8 favor will say aye?

9 (UNANIMOUS VOTE)

10 CHAIRMAN MESOLLELA: Are there any
11 opposed? There are none opposed, and the motion
12 carries. And, of course, you're all welcome to
13 stay and talk with Tom. He's at your disposal
14 -- right, Tom?

15 MR. UVA: Thank you, Mr. Chairman.
16 I will be here all afternoon and into the
17 evening if they want.

18 CHAIRMAN MESOLLELA: And that very

19 well may be the case. Okay. Thank you, very
20 much. I appreciate you coming today.

21 MR. MARSHALL: Thank you everyone.

22 (MEETING ADJOURNED AT 12:30 P.M.)

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1 C-E-R-T-I-F-I-C-A-T-E

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3 I, Paula J. Campagna, CSR, a Notary
4 Public, do hereby certify that the foregoing is a
5 true, accurate, and complete transcript of my
6 notes taken at the above-entitled hearing.

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In witness whereof, i hereunto set my
hand this 17th day of February, 2015.

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20 PAULA J. CAMPAGNA, CSR, NOTARY PUBLIC/CERTIFIED
21 COURT REPORTER

21

MY COMMISSION EXPIRES: April 25, 2018

22

23 IN RE: NBC Monthly Board Meeting
24 of the Commission

24

DATE: January 13, 2015

25