In The Matter Of:

Application of NTE Connecticut, LLC for a Certificate of Environmental Compatibility and Public Need

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Continued Public Hearing
November 03, 2016

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Docket No. 470

Application of NTE Connecticut, LLC for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a 550-megawatt Dual-Fuel Combined Cycle Electric Generating Facility and Associated Electrical Interconnection Switchyard Located at 180 and 189 Lake Road, Killingly, Connecticut

Continued Public Hearing held at the Connecticut Siting Council, Ten Franklin Square, New Britain, Connecticut, Thursday, November 3, 2016, beginning at 11:02 a.m.

H e l d B e f o r e:

ROBERT STEIN, Chairman

A p p e a r a n c e s:

Council Members:

SENATOR JAMES J. MURPHY, JR.,
Vice Chairman
PHILIP T. ASHTON
ROBERT HANNON
MICHAEL HARDER
DR. MICHAEL W. KLEMENS
LARRY P. LEVESQUE, ESQ.
ROBERT SILVESTRI

Council Staff:

MELANIE BACHMAN, ESQ.
Executive Director and
Staff Attorney
MICHAEL PERRONE
Siting Analyst

For NTE Connecticut, LLC:

ROBINSON & COLE LLP
280 Trumbull Street
Hartford, Connecticut 06103
BY: KENNETH C. BALDWIN, ESQ.
EARL W. PHILLIPS, JR., ESQ.
JAMES RAY, ESQ.

A p p e a r a n c e s: (Cont'd.)

For Not Another Power Plant and the Wyndham Land Trust:

REID AND RIEGE, P.C.
One Financial Center
Hartford, Connecticut 06103
BY: MARY MINTEL MILLER, ESQ.
JOHN BASHAW, ESQ.

Town of Killingly:

SEAN HENDRICKS, Town Manager
Town of Killingly
172 Main Street
Killingly, Connecticut 06239

For the Sierra Club, Connecticut Chapter:

SIERRA CLUB
50 F Street N.W.
Washington, D.C. 20001
BY: JOSHUA BERMAN, ESQ.

A p p e a r a n c e s: (Cont'd.)

For the Connecticut Fund for the Environment:

CONNECTICUT FUND FOR THE ENVIRONMENT
900 Chapel Street
Upper Mezzanine
New Haven, Connecticut 06510
BY: JOHN LOONEY, ESQ.
ROGER REYNOLDS, ESQ.

THE CHAIRMAN: Good morning, ladies and gentlemen. I'd like to call to order this meeting of the Connecticut Siting Siting Council today, Thursday, November 3, 2016, at approximately 11 a.m. My name is Robin Stein. I'm Chairman of the Siting Siting Council.

This evidentiary hearing is a continuation of a public hearing held on October 20, 2016 at the Killingly High School Auditorium in Killingly. It is held pursuant to the provisions of Title 16 of the Connecticut General Statutes and of the Uniform Administrative Procedure Act upon an application from NTE Connecticut, LLC for a Certificate of Environmental Compatibility and Public Need for the Construction Maintenance and Operation of a 550-megawatt Dual-fuel Combined Cycle Electric Generating Facility and associated electrical interconnection switchyard located at 180 and 189 Lake Road in Killingly, Connecticut. The application was received by the Council on August 17, 2016.

A verbatim transcript will be made of this hearing and deposited with the Town Clerk's Offices in Killingly, Pomfret and Putnam Town

Halls for the convenience of the public.

We will proceed in accordance with the prepared agenda, copies of which are available by the door.

The first item is a request to make the Sierra Club a party and CEPA intervenor in this proceeding. I'll ask our Executive Director and Attorney Melanie Bachman to comment.

MS. BACHMAN: Thank you, Mr. Chairman. With regard to the request for party status and CEPA intervenor status for the Sierra Club, I have a three-part recommendation.

The first recommendation is that the Sierra Club's request be granted with the condition that the Sierra Club's attorney submit an application to the Council with copies to the service list for this proceeding on or before December 30, 2016 for an attorney who's not licensed in the State of Connecticut to participate in this state agency proceeding in compliance with the revisions that were made to the pro hac vice rule which translates to "for this occasion only" under Section 2-16 of the Superior Court Rules. It takes effect in January of 2017. And in the alternative, the Sierra Club

may submit a written description as to why this rule does not apply to them.

The second part is to group the Sierra Club with Not Another Power Plant under Connecticut General Statute 16-50n, Subsection (c) on the basis that page 5 of the request indicates that the Sierra Club does plan to join the expert testimony of Not Another Power Plant. And finally designating December 8, 2016 as the prefile testimony deadline for the Sierra Club.

THE CHAIRMAN: The Chair will entertain a motion.

SENATOR MURPHY: Mr. Chairman, I'll move that we grant the motion, subject to the conditions enumerated by Attorney Melanie Bachman of the Council to comply with the Superior Court Procedures and that they be grouped.

THE CHAIRMAN: The Chairman will entertain a second.

DR. KLEMENS: I'll second that, Mr. Chairman.

THE CHAIRMAN: Any discussion?

(No response.)

THE CHAIRMAN: All those in favor, signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: The motion carries.

I also have a request from the Sierra Club for preliminary prefiled administrative notice items.

And again, Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman. Staff recommends granting the Sierra Club's request for the administrative notice of two Connecticut Department of Energy and Environmental Protection reports, and the Siting Council's decision in orders in Dockets 192B and Petition 1218.

THE CHAIRMAN: The Chair will entertain a motion.

SENATOR MURPHY: I'll move to approve the Sierra Club's request for administrative notice by the Council of the items enumerated in their application.

MR. HARDER: Second.

THE CHAIRMAN: Second.

Discussion?

(No response.)

THE CHAIRMAN: All those in favor, signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: Motion carries.

Item number 3. We have a request to make the Connecticut Fund for the Environment a party in the proceeding.

Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman. We recommend that the Connecticut Fund for the Environment's request for party status be granted, and designating December 8, 2016 as the prefile testimony deadline.

THE CHAIRMAN: The Chair will entertain a motion.

MR. HARDER: Move approval.

SENATOR MURPHY: Second.

THE CHAIRMAN: I have a motion to second.

All those in favor, signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?
(No response.)
THE CHAIRMAN: The motion carries.
Item 4. I have a motion from Connecticut Fund for the Environment to dismiss with a memorandum of law in support. NTE Connecticut, LLC filed an objection to the Connecticut Fund for the Environment's motion.
Attorney Bachman, please comment.
MS. BACHMAN: Thank you, Mr. Chairman. Staff recommends that the Connecticut Fund for the Environment's motion to dismiss be denied on the basis that this Council deemed the application complete on September 15, 2016. And the feasibility of all the interconnections, the gas pipeline, the water connection and the transmission line interconnection will be explored during these proceedings.
THE CHAIRMAN: The Chair will entertain a motion.
DR. KLEMENS: I move to dismiss based on the reasons stated and the fact that we can review these issues as part of this proceeding.
THE CHAIRMAN: Is there a second?
SENATOR MURPHY: The motion --

MR. HARDER: Can I ask a question for clarification? The recommendation was to dismiss. Is that to dismiss the application or to deny the motion?

MS. BACHMAN: The recommendation was to deny the motion.

SENATOR MURPHY: I'll second the motion, assuming you meant to say "deny" the motion instead of "dismiss" it.

DR. KLEMENS: That's what I meant. Excuse me. I read "dismiss."

Deny for the reasons I stated that I believe we can look at these as part of this proceeding. My apologies.

THE CHAIRMAN: We have a motion to deny, a second.

All those in favor signify by saying aye?

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: Motion carries.

Item 5, a request to make Wyndham Land Trust, Inc. a party and CEPA intervenor in this proceeding.

Attorney Bachman.

MS. BACHMAN: Thank you, Mr. Chairman. Staff recommends that the Wyndham Land Trust request be granted, grouping the Wyndham Land Trust with Not Another Power Plant on the basis that Attorney Bashaw represents both entities and has similar interests in these proceedings and also designating December 8, 2016 as the prefile testimony deadline for Wyndham Land Trust.

THE CHAIRMAN: The Chair will entertain a motion.

SENATOR MURPHY: I'll move approval that they be grouped as enumerated and December 8th be the date for prefile testimony.

MR. HANNON: Second.

THE CHAIRMAN: Motion, second.

Discussion?

(No response.)

THE CHAIRMAN: All those in favor signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: Motion carries.

Item 6. I have a motion for protective

order filed by NTE Connecticut, LLC in regard to responses 1, 3, 4, 5, 8, 10 and 11 to Not Another Power Plant interrogatories, dated October 27, 2016.

And Attorney Bachman, please comment.

MS. BACHMAN: Thank you, Mr. Chairman. Staff recommends that NTE's motion be granted on the basis that the input parameters that were utilized by their third-party expert, PA Consulting, are confidential and proprietary to the third-party. It's exempt from disclosure under the Freedom of Information Act.

This is consistent with the Council's treatment of other third-party consultant input parameters as being confidential and proprietary and exempt from disclosure under the Freedom of Information Act. We've done this in several of our transmission line applications, including Docket 370, for London Economics International modeled price data information, and Eversource's cost estimate data in Docket 424.

It should be noted, Mr. Chairman, that Not Another Power Plant does not object to the motion for protective order.

SENATOR MURPHY: I'll move approval,

Mr. Chairman.

MR. HANNON: Second.

THE CHAIRMAN: I have a motion and second.

Any discussion?

(No response.)

THE CHAIRMAN: All those in favor, signify by saying aye?

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: Motion carries.

Item Number 7. We have an appeal of the Municipal Regulate and Restrict Orders filed by NTE Connecticut, LLC.

Again, Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman. Staff recommends that NTE's appeal of and responses the town Regulate and Restrict Orders under Connecticut General Statute Section 16-50x be incorporated into the proceedings, held on this application, as is consistent with Council practice in past dockets, including Docket 192 for Towantic and Docket 225 for Clean Energy.

SENATOR MURPHY: I'll move to approve to incorporate it into our procedure, as we've done in the past, Mr. Chairman.

MR. HANNON: I'll second.

THE CHAIRMAN: Any discussion?

(No response.)

THE CHAIRMAN: All those in favor signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: Motion carries.

We have a request from Not Another Power Plant for clarification regarding the November 3, 2016 evidentiary hearing procedures.

Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman. In the request Not Another Power Plant seeks clarification as to the following questions:

The first is "Will all pending petitions and other motions be addressed prior to the beginning of the evidentiary hearing on November 3rd?" The answer is yes.

The second question is, "In the absence of prefile testimony from the applicant, how will

cross-examination proceed as there is only a list of witnesses with resumes and no indication regarding what testimony is to be provided by each person?" Submission of prefile testimony is not a requirement under our regulations. It's at the discretion of party, intervenor or applicant. NTE has provided us with a list of 14 witnesses and their responsibilities relative to the development of the application. And certainly any question that is posed by any party or intervenor during the course of these proceedings will be answered by the appropriate witness.

The third question is, "Will entities that filed a request for party status be provided an opportunity to submit interrogatories to NTE and cross-examine NTE at the November 15th hearing?" The answer is yes. Interrogatories are to be submitted on or before December 1, 2016, consistent with the Council's revised schedule. And the prefile testimony deadline shall be December 8th. Furthermore, all of the new parties will have an opportunity to cross-examine NTE, not only at the November 15th evidentiary hearing but any subsequent hearing held thereafter.

The final question was, "For

cross-examination on the unredacted interrogatory responses, will NTE be required to make witnesses available at a later date?" The answer is yes. If any party requests to cross-examine NTE on the unredacted responses, Not Another Power Plant's interrogatories Numbers 1, 3, 4, 5, 8, 10 and 11, this Council will schedule a closed proceeding at a later date when parties may cross-examine NTE limited to the unredacted responses and subject to the protective order and nondisclosure agreement.

I don't believe we really need to take action on this, just a clarification, Mr. Chairman.

THE CHAIRMAN: Thank you.

Number 9. We have a motion from Not Another Power Plant for stay and/or to dismiss the application of NTE Connecticut, LLC. NTE Connecticut, LLC has filed an objection to this motion.

Again, Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman Staff recommends that Not Another Power Plant's motion for stay and/or to dismiss the application be denied on the basis that the application was

deemed complete by this Council on September 15, 2016, and the feasibility of all of the interconnections, including the gas pipeline, the electric transmission line, and the water will be explored during the course of these proceedings.

THE CHAIRMAN: The Chair will entertain a motion.

DR. KLEMENS: Move denial of NAPP's request.

SENATOR MURPHY: Second.

THE CHAIRMAN: I have a motion and second.

Any discussion?

(No response.)

THE CHAIRMAN: All those in favor, signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

(No response.)

THE CHAIRMAN: The motion carries.

Item number 10. I have a motion from NAPP to further extend the prefile testimony deadline of NAPP's energy needs expert.

Attorney Bachman may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman.

Staff recommends that NAPP's motion for a one-week extension to submit Mr. Fagan's prefile testimony be granted with a new deadline by the close of business on Tuesday, November 15th.

SENATOR MURPHY: I'll move approval to extend the deadline to November 15th close of business.

MR. HANNON: Second.

THE CHAIRMAN: All those in favor, signify by saying aye.

THE COUNCIL: Aye.

MR. BALDWIN: Mr. Chairman, could I just be heard for a moment on that request? Attorney Bashaw and I did correspond last evening. I have copies, pursuant to the Council's approval of our protective order in Item 6 under the motions. I did bring copies of all the information that was requested with me today and the signature pages so that if the folks who want that information can sign the nondisclosure agreement today, along with the protective order, we'll hand them the information today, I think obviating the need for the additional time that was requested.

The concern I have is that the

additional delay is putting us all into a position where everything keeps getting pushed out, and we're trying to keep as much as possible to the existing schedule. Again, I do have that information available for the parties as long as they sign the nondisclosure agreement today. I'm happy to give it to them a week from today, which would put Mr. Fagan's testimony at least scheduled to be submitted a week from today, which is still two days later than previously proposed. I think every day counts at this point. Thank you.

THE CHAIRMAN: Thank you. We all want to keep to a schedule, but this is going to have to go through a process. We do have a -- unless the person who made the motion wants to withdraw it, I think we should just go ahead.

SENATOR MURPHY: I'm going to leave the motion on the table. I'd rather be listening to election results for the first five days. We probably won't get to it.

THE CHAIRMAN: So, again, we have a motion and second.

All those in favor, signify by saying aye.

THE COUNCIL: Aye.

Opposed? abstention?
(No response.)
THE CHAIRMAN: The motion carries.
I wish to call your attention to those items shown on the hearing program marked as Roman Numeral I.D., Items 1-103.
Does the applicant or any party or intervenor have any objection to the items that the Council has administratively noticed?
MR. BALDWIN: No objection, Mr. Chairman.
THE CHAIRMAN: Hearing and seeing none, the Council hereby administratively notices these existing documents, statements and comments.
We'll now go to the appearance of the applicant, NTE Connecticut, LLC, and the first part of that, the swearing in of your witnesses, Attorney Baldwin.
MR. BALDWIN: Good morning, Mr. Chairman, members of the Council. Kenneth Baldwin with Robinson & Cole on behalf of the Applicant, NTE Connecticut, LLC. With me today are my partners Earl Phillips to my left and Jim Ray who's seated in the gallery.
We have a list of 14 witnesses to

present to the Council today. They are included in the hearing program, but if I could just make some brief introductions. There's many new faces to the Council.

First from NTE, Mr. Mark Mirabito, vice president of NTE Connecticut, LLC; Mr. Tim Eves, a senior vice president with NTE Energy Services Company; Michael Bradley, a senior vice president with NTE Energy Services Company; Chris Rega, senior vice president with NTE Energy Services Company -- Mr. Rega is responsible for power plant engineering and construction -- Lynn Gresock, the vice president of the energy department at Tetra Tech, along with Fred Sellars, a vice president with Tetra Tech. You may remember Ms. Gresock and Mr. Sellars from recent proceedings before the Council.

Between Ms. Gresock and Mr. Sellars is George Logan, the principal environmental scientist and senior ecologist with REMA Ecological Services. To my right is Mr. Norm Thibeault, principal and a partner in the firm of Killingly Engineering Associates. Mr. Thibeault was responsible for all site civil engineering, along with Jim Walsh. Mr. Walsh is a project

manager and supervising engineering with Mott McDonald.

Seated in the back row are Mr. Kevin Fowler, a senior acoustics engineer with Tetra Tech; Gary Fuerstenberg, a senior project manager and senior geotechnical engineer with Haley and Aldridge; Scott Hesketh who's manager of transportation engineering with FA Hesketh Associates.

Did I get everybody?

Ethan Paterno and Mason Smith with PA Consulting. They are responsible for the economic benefits and needs analyses that are included in the application. It's a large panel, I understand, but thank you for that. I offer them at this time to be sworn.

M A R K M I R A B I T O,

T I M E V E S,

M I C H A E L B R A D L E Y,

C H R I S R E G A,

L Y N N G R E S O C K,

F R E D E R I C K S E L L A R S,

N O R M T H I B E A U L T,

G E O R G E L O G A N,

E T H A N P A T E R N O,

M A S O N S M I T H,
S C O T T H E S K E T H,
G A R Y F U E R S T E N B E R G,
J A M E S W A L S H,
K E V I N F O W L E R,
called as witnesses, being first duly sworn by Ms. Bachman, were examined and testified on their oaths as follows:

MR. BALDWIN: Mr. Chairman, we have 17 exhibits listed in the hearing program under section Roman II-B. We also brought with us today a copy of what we'll call NTE's Exhibit 18, which is I think in front of you. It's a November 2nd memo and attached filing that Tetra Tech made to the Connecticut Department of Energy and Environmental Protection. It's a memo to a gentleman named James Grillo. And if I could just ask Ms. Gresock to briefly describe what that is before we go forward with the verification.

THE WITNESS (Gresock): The memorandum provides updates to the air dispersion modeling results previously presented in the application to demonstrate that the findings are unchanged based on the minor changes in the site layout and also reflecting some emissions reductions that are the

result of the ongoing technical review with the department.

MR. BALDWIN: Thank you.

Mr. Chairman, absent any objection by the Council members or any of the parties and intervenors and for the sake of convenience of the proceeding, I'd like to have our panel of witnesses verify the exhibits as a panel, as I typically do in proceedings that I'm involved with. As stated earlier, in Ms. Bachman's statements, we have a vast number of witnesses who are well versed in all of the areas of expertise regarding this application and will be responding to questions from the Council in their areas of expertise.

That said, I'd like to have the items listed in the hearing program under Roman II-B, Items 1 through now 18 on behalf of NTE, offered for identification purposes, subject to verification.

DIRECT EXAMINATION

MR. BALDWIN: To my witnesses, did you prepare, assist in, or supervise in the preparation of the exhibits listed in the hearing program as NTE Items 1 through 18?

Mr. Sellars.
THE WITNESS (Sellars): Yes, I did.
MR. BALDWIN: Mr. Logan.
THE WITNESS (Logan): Yes, I did.
MR. BALDWIN: Ms. Gresock.
THE WITNESS (Gresock): Yes, I did.
MR. BALDWIN: Mr. Mirabito.
THE WITNESS (Mirabito): Yes, I did.
MR. BALDWIN: Mr. Eves.
THE WITNESS (Eves): Yes, I did.
MR. BALDWIN: Mr. Bradley.
THE WITNESS (Bradley): Yes, I did.
MR. BALDWIN: Mr. Rega.
THE WITNESS (Rega): Yes, I did.
MR. BALDWIN: Mr. Thibeault.
THE WITNESS (Thibeault): Yes, I did.
MR. BALDWIN: Mr. Walsh.
THE WITNESS (Walsh): Yes, I did.
MR. BALDWIN: Mr. Hesketh.
THE WITNESS (Hesketh): Yes, I did.
MR. BALDWIN: Mr. Paterno.
THE WITNESS (Paterno): Yes, I did.
MR. BALDWIN: Mr. Smith.
THE WITNESS (Smith): Yes, I did.
MR. BALDWIN: Mr. Fowler.

THE WITNESS (Fowler): Yes, I did.
MR. BALDWIN: Mr. Fuerstenberg.
THE WITNESS (Fuerstenberg): Yes, I did.
MR. BALDWIN: Do you have any corrections, modifications or revisions to offer to any of those exhibits at this time?
Mr. Sellers.
THE WITNESS (Sellers): No, I do not.
MR. BALDWIN: Mr. Logan.
THE WITNESS (Logan): I do not.
MR. BALDWIN: Ms. Gresock.
THE WITNESS (Gresock): I have one correction to Exhibit 15. Exhibit 4 attached to that exhibit is an updated noise modeling memorandum. In that exhibit there is text that states that only one change in sound attenuation of the items listed on page 4 onto page 5 are new in this memo. While that's true that in terms of what we have added, that statement is correct. The demineralized water pumps being located within a building is not something that was reflected in the original sound modeling analysis. That was not a change that was made in order to apply attenuation, but it is a change that just happened

relative to the engineering adjustments that have been made. So that demineralized water pump is now located in the water treatment building and is a change from the prior noise study.

MR. BALDWIN: Anything further?

THE WITNESS (Gresock): Nothing further. Thank you.

MR. BALDWIN: Mr. Mirabito?

THE WITNESS (Mirabito): No changes.

MR. BALDWIN: Mr. Eves.

THE WITNESS (Eves): No changes.

MR. BALDWIN: Mr. Bradley.

THE WITNESS (Bradley): No changes.

MR. BALDWIN: Mr. Rega.

THE WITNESS (Rega): No changes.

MR. BALDWIN: Mr. Thibeault.

THE WITNESS (Thibeault): No changes.

MR. BALDWIN: Mr. Walsh.

THE WITNESS (Walsh): No changes.

MR. BALDWIN: Mr. Hesketh.

THE WITNESS (Hesketh): No changes.

MR. BALDWIN: Mr. Paterno.

THE WITNESS (Paterno): No changes.

MR. BALDWIN: Mr. Smith.

THE WITNESS (Smith): No changes.

MR. BALDWIN: Mr. Fowler.
THE WITNESS (Fowler): No changes.
MR. BALDWIN: Mr. Fuerstenberg.
THE WITNESS (Fuerstenberg): No changes.
MR. BALDWIN: And with those corrections, is the information contained in those exhibits true and accurate to the best of your knowledge?
Mr. Sellars.
THE WITNESS (Sellars): Yes, it is.
MR. BALDWIN: Mr. Logan.
THE WITNESS (Logan): Yes, it is.
MR. BALDWIN: Ms. Gresock.
THE WITNESS (Gresock): Yes, it is.
MR. BALDWIN: Mr. Mirabito.
THE WITNESS (Mirabito): Yes, it is.
MR. BALDWIN: Mr. Eves.
THE WITNESS (Eves): Yes, it is.
MR. BALDWIN: Mr. Bradley.
THE WITNESS (Bradley): Yes, it is.
MR. BALDWIN: Mr. Rega.
THE WITNESS (Rega): Yes, it is.
MR. BALDWIN: Mr. Thibeault.
THE WITNESS (Thibeault): Yes, it is.

MR. BALDWIN: Mr. Walsh.
THE WITNESS (Walsh): Yes, it is.
MR. BALDWIN: Mr. Hesketh.
THE WITNESS (Hesketh): Yes, it is.
MR. BALDWIN: Mr. Paterno.
THE WITNESS (Paterno): Yes, it is.
MR. BALDWIN: Mr. Smith.
THE WITNESS (Smith): Yes, it is.
MR. BALDWIN: Mr. Fowler.
THE WITNESS (Fowler): Yes, it is.
MR. BALDWIN: Mr. Fuerstenberg.
THE WITNESS (Fuerstenberg): Yes, it is.
MR. BALDWIN: And do you adopt the information contained in those exhibits as your testimony in this proceeding?
Mr. Sellars.
THE WITNESS (Sellars): Yes, I do.
MR. BALDWIN: Mr. Logan.
THE WITNESS (Logan): Yes, I do.
MR. BALDWIN: Ms. Gresock.
THE WITNESS (Gresock): Yes, I do.
MR. BALDWIN: Mr. Mirabito.
THE WITNESS (Mirabito): Yes, I do.
MR. BALDWIN: Mr. Eves.

THE WITNESS (Eves): Yes, I do.
MR. BALDWIN: Mr. Bradley.
THE WITNESS (Bradley): Yes, I do.
MR. BALDWIN: Mr. Rega.
THE WITNESS (Rega): Yes, I do.
MR. BALDWIN: Mr. Thibeault.
THE WITNESS (Thibeault): Yes, I do.
MR. BALDWIN: Mr. Walsh.
THE WITNESS (Walsh) : Yes, I do.
MR. BALDWIN: Mr. Hesketh.
THE WITNESS (Hesketh): Yes, I do.
MR. BALDWIN: Mr. Paterno.
THE WITNESS (Paterno): Yes, I do.
MR. BALDWIN: Mr. Smith.
THE WITNESS (Smith): Yes, I do.
MR. BALDWIN: Mr. Fowler.
THE WITNESS (Fowler): Yes, I do.
MR. BALDWIN: And Mr. Fuerstenberg.
THE WITNESS (Fuerstenberg): Yes, I do.
MR. BALDWIN: Thank you, Mr. Chairman. We offer them as full exhibits.
THE CHAIRMAN: Okay. Do any of the parties or intervenors object to the admission of these exhibits?
(No response.)

THE CHAIRMAN: Hearing and seeing none, the exhibits are admitted.

(Applicant Exhibits II-B-1 through II-B-18: Received in evidence - described in index.)

MR. BALDWIN: Our witnesses are available for cross-examination, Mr. Chairman.

THE CHAIRMAN: Okay. We'll now begin with cross-examination of the applicant by staff.

Mr. Perrone.

MR. PERRONE: Thank you, Mr. Chairman.

CROSS-EXAMINATION

MR. PERRONE: Did NTE fly a balloon on October 20th to simulate the stack height?

THE WITNESS (Gresock): Yes.

MR. PERRONE: What was the diameter and color of the balloon?

THE WITNESS (Gresock): The balloon was inflated with helium to approximately 3 and a half to 4 feet in diameter. It was a red balloon.

MR. PERRONE: What height was the balloon raised to above existing grade?

THE WITNESS (Gresock): The height was intended to simulate a stack top elevation of 465 feet above mean sea level. Since the existing

grade elevation at the stack location is about 298 feet, the string length for the balloon was set at 167 feet in order to simulate the top of the 150 foot stack.

MR. PERRONE: So that extra height is to compensate for the difference between the existing grade of 298 and the proposed grade of 350?

THE WITNESS (Gresock): That is correct.

MR. PERRONE: And just to be clear, is that the height to the top of the balloon or --

THE WITNESS (Gresock): That was the height of the string, and so the balloon actually afforded some additional height.

MR. PERRONE: Could you describe the weather conditions during the field review?

THE WITNESS (Gresock): Weather conditions were generally fairly clear. Winds were lighter in the morning, but winds increased throughout the course of the day. Generally speaking, it was a good visibility day for being able to see.

MR. PERRONE: What were the balloon hours approximately when the balloon went up and

when it was taken down?

THE WITNESS (Gresock): The balloon was aloft just prior to 8:00 a.m. and was brought down after 6 p.m.

MR. PERRONE: Is it correct to say that the applicant's signs included information regarding the project and the Council's public hearing?

THE WITNESS (Mirabito): Yes, that's correct.

MR. PERRONE: I also understand that before October 20th a proposed site walk plan was prepared. It had nine different stops around the perimeter of the power plant, including one by the utility switchyard. Was that plan generally followed on the day of the field review?

THE WITNESS (Gresock): Yes, it was.

MR. PERRONE: Now, turning to the responses to Council Interrogatories, Set I, Question 38, NTE states that the closest residence to the center of the power plant is at 149 Lake Road. So just to be absolutely clear, the residence at 149 Lake Road, that's the nearest off-site residence. Is that correct?

THE WITNESS (Gresock): That's correct.

MR. PERRONE: And there is one on-site residence at 189 Lake Road?

THE WITNESS (Gresock): There is an on-site residence that will be demolished if the project proceeds.

MR. PERRONE: In the response to the Council Interrogatories Set II, Question 72, there was discussion about a possible Community Environmental Benefits Agreement. I understand NTE is working on that with the town. Do you have an approximate timeline on that?

THE WITNESS (Eves): We've begun discussions with the town, and we're expecting to really have a first draft back to the town by the end of the month.

MR. PERRONE: Turning to more energy and electric markets type questions, I know there's a lot of discussion in the record about capacity factor and load factor. My understanding, the capacity factor is an energy ratio, the megawatt hours produced divided by the maximum possible megawatt hours that could be produced. Is that correct?

THE WITNESS (Bradley): Yes, that is correct.

MR. PERRONE: And Tab B of Volume 2 in the PA report it mentions the emission reductions resulting from the proposed plant and the types of older plants that could be displaced. Would the proposed plant displace baseload facilities or intermediate units or peaking or some combination of the three.

THE WITNESS (Paterno): Ethan Paterno of PA Consulting. It will be some combination of the three, but mainly mid-merit as well as peaking.

MR. PERRONE: Also in the PA report, Section 3.2, it states, "This process is designed to select the appropriate amount of existing and new capacity resources that are needed for system-wide and local reliability while simultaneously maximizing social surplus." Could you explain what is meant by "maximizing social surplus"?

THE WITNESS (Paterno): Yes, absolutely. It's effectively the solving algorithm within the forward-capacity auction framework. And if you remember back to your Economics 101 class where you have an intersection of the supply and demand curves, it's effectively

the area under the curve to the left at the intersection of those two curves.

MR. PERRONE: On page 13 of the PA report, Section 3.3.2, it mentions that KEC is projected to bid approximately 500 megawatts into the ROP zone. Now, in Council Interrogatory Number 79 we have the megawatt data. How does the 500 megawatts fit in with the existing megawatt data? For example, is it close to the 493 summer rating? Where does the 500 come from?

THE WITNESS (Paterno): It is close to the summer rating of the facility.

MR. PERRONE: And with the Pilgrim Nuclear Power Station proposed to retire, would the only remaining nuclear electric capacity in New England remaining would that be Seabrook in New Hampshire and Millstone in Connecticut?

THE WITNESS (Paterno): That is correct.

MR. PERRONE: In NTE's response to Council Interrogatory Number 81, NTE indicated that it would seek to go forward with the project even if it did not clear FCA #11. NTE's response goes on to say that NTE's analysis indicates that a need exists for KEC in terms of electric system

reliability for the State of Connecticut and the ISO New England regional electric systems. But referring back to the PA report, in the findings under the determination of need section, it appears to tie the need for the plant in terms of reliability to clearing FCA #11. So my question is, how does NTE plan to demonstrate need, particularly in the context of electric system reliability absent clearing FCA #11.

THE WITNESS (Bradley): Certainly. I'd be glad to address that. There are a number of ways that NTE can demonstrate need. Clearing FCA#11 is only one component of need for the power facility, although a very important component. The other equally very important components are things that are going on in both ISO New England and Connecticut related to resource adequacy, related to winter reliability due to potential natural gas shortages on the pipeline and retirements of existing units that go back and tie into resource adequacy. Many of the units that are currently retiring are oil and coal fired, so therefore putting more emphasis on natural gas generation.

One of the points on that for need for

Killingly is Killingly is dual-fuel. So even though Killingly has firm natural gas supply, Killingly still has the ability to operate on ULSD if natural gas would be curtailed for some reason to firm shippers.

The other factor that comes in there is the implementation of renewable resources. Renewables and demand response are nondispatchable resources. Those are placing strain on the system. Killingly, being a fast start resource with a ramp rate of 29 megawatts a minute, is a very effective resource to maintain the grid reliability for ISO New England.

MR. PERRONE: And one other question. When you mentioned the possibility of gas curtailment to firm shippers, with NTE as a firm gas with a firm gas contract, would you be treated on an equal footing with the natural gas local distribution companies, or would they still have priority?

THE WITNESS (Bradley): We have addressed that question with our natural gas supplier and also with Algonquin. And NTE, the way curtailment on the natural gas pipelines occurs, interruptible supplies are curtailed

first, and firm supplies are curtailed on a pro rata basis. However, those firm supplies are prioritized by critical users such as hospitals, other temperature-sensitive type activities, and then other items are curtailed on a pro rata basis. So the power facility would be curtailed on a pro rata basis with other users' firm shippers on Algonquin.

THE CHAIRMAN: Could I interrupt? I think I've also read in both ISO New England and also in the state reports that there is concern about becoming overreliant on gas. And it seems to be -- you would be adding to that.

THE WITNESS (Bradley): There have been some concerns addressed in a number of the ISO New England reports regarding that. However, Killingly is not adding to that concern because we have the back-up ULSD oil to use whenever for a secondary fuel whenever natural gas supplies would be curtailed. So Killingly as a firm gas user, based on existing supplies, we're not dependant on any type of upgrades and having the back-up fuel. We actually are addressing what President van Welie and the other folks at ISO New England have discussed as the issue, and they're promoting the

use of efficient natural gas with some type of back-up fuel such as ULSD. So we're actually addressing that need as opposed to contributing to the problem.

MR. SILVESTRI: I'd like to jump in on the ULSD issue. My understanding is it's it still going to be a one million gallon tank. Is that correct?

THE WITNESS (Rega): That's correct.

MR. SILVESTRI: And is the design now for double-walled interstitial monitoring?

THE WITNESS (Rega): The design now is a steel containment structure with interstitial monitoring, so we've gotten away from the earthen berm with liner. There were concerns from the Town of Killingly about that design. And although it's a common design, we heard their concerns, and we decided to go with a steel containment structure.

MR. SILVESTRI: So it's one million gallons?

THE WITNESS (Rega): That's correct.

MR. SILVESTRI: And if I'm correct, at full load the unit can burn 17,500 gallons an hour. Is that correct?

THE WITNESS (Rega): That sounds right, yes.

MR. SILVESTRI: So if you look at the tank size and that rate, one day approximately 420,000, so you basically have a two-day supply on hand?

THE WITNESS (Rega): That's correct.

MR. SILVESTRI: The concern I have is a prolonged outage from natural gas running ULSD. For example, when Katrina hit, Katrina blew out a number of gas pipelines that the northeast region couldn't get access to it, so power plants were called upon to run on oil or coal or other types of fuel because they couldn't get gas. If we're looking at math out of it, a typical tanker is probably about 7,500 gallons. Would that be correct?

THE WITNESS (Rega): That's about correct, yes. Nominally we say about 8,000, but that's probably --

MR. SILVESTRI: Somewhere in that ballpark. I'm not sure what Connecticut's weight restrictions are, but bear with me on some simple math, if we can?

THE WITNESS (Rega): Sure.

MR. SILVESTRI: If we're burning 17,500 gallons an hour, a tanker would hold approximately half of that, so you'd need two tankers to keep up for an hour?

THE WITNESS (Rega): Correct.

MR. SILVESTRI: How many trucks would you actually need if you then lose natural gas for a period of time and relying on ULSD? I can't get the math right. I'm kind of looking at 56 trucks a day or more to try to keep up.

THE WITNESS (Rega): Yes, that sounds about right. Again, simple math, two per hour obviously would be about 48 trucks per day.

MR. SILVESTRI: Could the facility accommodate those many trucks coming in on a daily basis to refuel that tank and keep you guys operational?

THE WITNESS (Rega): Yes, it can.

MR. SILVESTRI: That's all I have for now. Thank you.

MR. PERRONE: I understand that duct firing would not occur under ULSD operation. Could you explain why? For example, is the duct burner simply a gas-only burner?

THE WITNESS (Rega): It is a gas-only

burner, so we assume we don't have gas available.

MR. PERRONE: Back to the ULSD containment, I know originally there was a containment area proposed that could hold 110 percent. Now with the proposed double-wall fuel tank, what percentage could it hold .

THE WITNESS (Rega): It would still be 110 percent.

MR. PERRONE: Moving on to water. On figure 2-11B in Volume I of the application, I see the units are in KGBD. Is that 1,000 gallons per day?

THE WITNESS (Rega): Correct.

MR. PERRONE: I also noticed, because there's five different scenarios, there are cases where the evaporative cooling and the duct burners operate for 12 hours per day. Could you explain how the 12-hour run time was arrived at?

THE WITNESS (Rega): I mean, it's a peak. Basically those are the times where we would expect that the peak load would occur for 12 hours a day, but the peak load would not occur for 24 hours a day.

MR. PERRONE: But on a hot summer day if the night doesn't fall below 59, could your

evaporative coolers potentially run more than 12 hours?

THE WITNESS (Rega): They have the potential to run any time it's above 59 degrees.

MR. PERRONE: And I also understand that from case five that your worst case water consumption is 345,400 gallons per day. So is the 400,000 gallons that was provided to the water company a conservative round number?

THE WITNESS (Rega): It was a conservative round number that we've had for a while. As we've gone on in the design, we found some ways to optimize, and so that number has come down a little bit.

MR. PERRONE: Could you explain the HRSG blowdown process, what's involved in it?

THE WITNESS (Rega): So the HRSG, it's a closed system. And it obviously creates steam, sends that steam to the steam turbine. It's then pumped back to the HRSG for reuse. But during that process there are certain solids that build up, you know, essentially corrosion perhaps, that comes off of some of the tubes of the HRSG. So you do have to -- it's called blowdown. Basically we're trickling some water out of there, and we

have to take some water out and replenish it with clean water to keep the steam purity requirements up.

MR. PERRONE: Is that a continuous process, or that happens daily?

THE WITNESS (Rega): It's a continuous process.

MR. PERRONE: And also can you tell us about the CTG evaporative cooler blowdown process?

THE WITNESS (Rega): Sure. So similarly to cool the inlet air for the gas turbine, which allows greater output and higher efficiency of the gas turbine, there's an evaporative cooler on that inlet air duct. And so there's a recirculation of water that happens there. To conserve water, we do recirculate it, but, again, there are certain particles in there that have to be blown down occasionally to maintain those water requirements for the gas turbine manufacturer.

MR. PERRONE: Has NTE had any discussions with the water company regarding supplying the plant even under drought conditions?

THE WITNESS (Mirabito): We've had extensive discussions with Connecticut Water, not

that particular scenario.

MR. PERRONE: I'm going to turn to the letter from the water company dated July 29th. It mentions that a possible engineered booster station may be required. Is that the same as the pump station on figure 2.10 of Volume I?

THE WITNESS (Mirabito): Yes, it is.

MR. PERRONE: And also in the Connecticut Water Company letter, "Because supply availability of any system is finite, an annual review will need to be conducted." If this project is approved, would NTE consult with CWC regularly to participate in that process?

THE WITNESS (Mirabito): We would, but we also understand from conversations with Connecticut Water that that requirement is more for this ongoing development process. Once we commit to purchasing the amount of water we've indicated, that requirement of an annual review will go away.

MR. PERRONE: Also on the topic of water we have comments from the Connecticut Department of Public Health. Those are dated October 20th. There's several bulleted points in here. Could NTE respond to these points?

THE WITNESS (Mirabito): Sure. I've got a copy of that in front of me. I think the first bullet here has to do with the future aquifer protection mapping of the area. And it's just a request for future review. Of course, we would agree to that.

On Item 2 it's basically asking about an analysis of the adequacy of the existing system to supply our facility and also maintain existing safety margins. Our understanding from Connecticut Water that analysis was done which yielded their requirement that the system -- that the Killingly system connected with Plainfield.

So while we didn't see the results of that analysis, that's what led to their requirement that that additional infrastructure be put in place. And that really is the third bullet there where basically DPH is suggesting that that should be considered should the analysis suggest so.

And I believe the remaining bullets are more pro forma regulatory requirements that we would certainly be willing to comply with.

MR. SILVESTRI: If I could follow up on that. In responses of NTE to Not Another Power

Plant's interrogatories, page 9 mentions that there are potential alternative sources of water should permits and approvals for the water pipe interconnection with CWC not be obtained. Could you elaborate on those potential alternatives?

THE WITNESS (Mirabito): Sure. There's a number of potential alternatives, many of which we described in our water hydrogeological evaluation. I'll point you to the right reference. It's Appendix H-3 of our application where we talk about other potential sources, including the Quinebaug River, on-site well, various graywater sources from the waste treatment plant in Killingly or nearby Putnam. We looked at graywater from a nearby industrial, Frito-Lay.

So there certainly are other alternatives for water supply. We just felt once we got far along enough in our evaluation of Connecticut Water Supply that that was the most appropriate for our facility.

MR. SILVESTRI: As a follow-up, could graywater be used as a primary source?

THE WITNESS (Thibeault): Graywater, it's certainly possible to use as a primary source, yes. We're still doing some evaluations.

We've begun some sampling of the graywater source at Killingly's wastewater treatment facility, so there is some ongoing investigation but, generally speaking, yes, it is possible to use.

MR. SILVESTRI: Thank you.

MR. PERRONE: Moving on to visibility, in the visual impact assessment it states, "Although visibility potential when considering the effect of trees can generally be considered greater during winter leaf-off conditions in this vicinity, the presence of evergreen trees and the density of wooded areas is anticipated to provide strong visual buffering during all seasons."

Now, I understand that with the tree cover included, the visibility area of the stack is about 2 percent of the 5-mile radius. Does NTE expect that that percentage would materially change between leaf-on and leaf-off conditions?

THE WITNESS (Gresock): We don't expect it will materially change. One of the characteristics of tree cover in the area is even when the leaves are not on the trees, there's a very good density of trees not only around the site but in the vicinity. One of the primary factors that reduces visibility from public

locations, for example, such as roadways, is the large number of trees that are located along those roadways. Those are frequently -- the trunks of the trees are blocking the views just as much as the vegetation, the leaves themselves.

MR. PERRONE: And just to clarify, is Alexander Lake a private recreational resource rather than public?

THE WITNESS (Gresock): It's my understanding it's private, yes.

MR. PERRONE: With regard to construction, I understand in the Set I Council interrogatories, Question 7, it states, "Limited quantities of structural fill may be needed to be brought to the site if adequate material is not present." And I also understand there's some mention about that in the Appeal of Regulate and Restrict.

My question is, would clean fill, free of existing contaminants, be brought in, or at a minimum, would it be tested?

THE WITNESS (Rega): It would be clean fill, and it would be tested.

MR. PERRONE: Also in NTE's appeal of the Municipal Regulate and Restrict Orders on page

38 NTE mentions a phasing and construction sequencing plan. Would the tree clearing for the project be performed in phases such as a certain number of acres at a time, or would all the tree clearing occur at once?

THE WITNESS (Rega): The expectation is that all the tree clearing would occur at once.

MR. PERRONE: Moving on to air emissions. On page 100 of Volume I of the application it continues a discussion of the cumulative impact analysis for NO2 and PM2.5. Is the Exeter Energy power plant, is that currently in service?

THE WITNESS (Sellars): It's currently permitted.

MR. PERRONE: But nevertheless, it was included to be conservative. Is that correct?

THE WITNESS (Sellars): It was included because it passed the screening.

MR. PERRONE: And in response to the Council's Question 49, NTE provided the PM2.5 dispersion map. And since the map is zoomed out, is the worst case location more near the utility switchyard area?

THE WITNESS (Sellars): It is in that

general vicinity. It's both at the switchyard and other industrial uses slightly north of there.

MR. PERRONE: But everywhere on the map it would be less than the .3?

THE WITNESS (Sellars): That is correct.

MR. PERRONE: In the NAPP prefile testimony of Jason Anderson, Question 5, he was concerned about radon gas. And NTE in its response to an interrogatory, number 28 for NAPP, NTE notes that blasting is not likely to increase radon levels within nearby wells and residences.

Would any other site work or site excavation processes be expected to impact radon levels?

THE WITNESS (Rega): No, we don't think there's any other activities that would increase that.

MR. PERRONE: With regard to noise, when comparing the Town of Killingly noise ordinance versus the DEEP noise control regulations, when you're looking at whether the project is a residential, commercial or industrial emitter, do both sets of noise standards go by the proposed use, or is the DEEP one more about -- let

me back up.

Is the town noise ordinances more about the actual zoning use and the DEEP more about the proposed use? Can you clarify?

THE WITNESS (Gresock): It's correct that the town noise regulations focus on the zoning characterization of the property while the Connecticut requirements focus more on land use. But it's also the case that both regulations refer to the emitter.

MR. PERRONE: And in both cases the emitter would be industrial?

THE WITNESS (Gresock): In this case it would be an industrial emitter, yes.

MR. PERRONE: And as we discussed earlier, with the nearest home at 149 Lake Road, the nearest home to the power plant project, how would the proposed project affect magnetic field levels at the nearest home?

THE WITNESS (Gresock): The magnetic field level assessments that were presented in the application indicated that all of the Connecticut standards were met.

MR. PERRONE: With regard to the utility switchyard site, I understand a wetland

creation plan is proposed to compensate for the approximately 12,500 square feet of direct wetland impacts. If this project is approved, how would the wetland creation plan be provided to the Council? Would it be perhaps in NTE's D&M plan or in Eversource's utility switchyard filing?

THE WITNESS (Gresock): Because NTE will be taking responsibility for overseeing the fact that this creation occurs, I would expect that even if it's implemented by another party, NTE would be willing to provide that as part of the D&M plan.

MR. PERRONE: Turning to the gas pipeline. In the NAPP prefiled from Jason Anderson, Question 1, it was noted about abutters -- there was no abutter notice for the natural gas lateral. Would notice be provided if this project is approved for the application by Eversource?

THE WITNESS (Gresock): Yes, the proponent of those improvements would provide those notices.

MR. PERRONE: While I understand it would be an Eversource filing, could you elaborate on possible wetland impacts that could be

associated with a wider pipeline and trench following the some path?

THE WITNESS (Gresock): Based upon our conversations, we have been told that no wider right-of-way is required. We did, however, in the application provide some information about approximately 2,000 feet of mapped wetland areas that it appears would be traversed.

So we certainly do expect once delineations are refreshed for that area that there will be wetlands that will need to be impacted in order to remove and replace that pipeline.

MR. PERRONE: And I understand that the gas lateral would be upgraded to a diameter of at least 14 inches. Do you know what the existing diameter is?

THE WITNESS (Bradley): We do not know the exact existing diameter. We believe from conversations with Yankee Gas that it is a 4 or 6-inch lateral. And they have indicated that the new lateral would be 12 to 14 inches, most likely 14 inches.

MR. PERRONE: In the NAPP prefile testimony of Karen Johnson, Question 7, NAPP

alleges that the reports submitted in the Environmental Justice Act process were not the same as the ones in the application and that the application had newer and more complete reports. Could NTE respond to that?

THE WITNESS (Eves): That's not correct. The reports that we made available on our web site and locally in the library and the Town Hall are the same reports that we attached to our application.

MR. PERRONE: Lastly, I just have wildlife and vernal pool questions. I understand in the Appendix F-3 of Volume II of the application there's the bat monitoring survey report. A seasonal restriction is proposed. If tree clearing is avoided during June and July, would that be protective of all the state and federally listed bat species identified in that report?

THE WITNESS (Gresock): We believe so, but we know that the department is currently reviewing that report as well to consider the potential effect on state-listed species.

MR. PERRONE: And the response from DEEP has not yet been received. Is that correct?

THE WITNESS (Gresock): That's correct.

MR. PERRONE: And lastly, the vernal pool analysis map. It was identified as Exhibit 58-1, but it was part of the response to Question 58 from the Council.

One section of the vernal pool analysis map shows developed areas in red, but the text of the response says that currently no development exists within the vernal pool envelope or critical terrestrial habitat. Could you explain to us what the red development area is, is that the existing development or proposed development?

THE WITNESS (Gresock): That's proposed, yes.

MR. PERRONE: So just to be clear, there's no existing.

THE WITNESS (Gresock): Correct.

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

THE CHAIRMAN: Okay. We'll now continue with cross-examination by members of the Council. We have a request to go slightly out of order. Dr. Klemens is actually going to segue into vernal pools. So Dr. Klemens.

DR. KLEMENS: Thank you, Mr. Chairman.

I will talk quite a bit about the vernal pools. And then I have other questions. And I guess I'll take my questions out of order, and we'll start with the vernal pools questions, and then we'll go back to the other wildlife questions.

In your response to the Council's interrogatories, the Council gave a very clear template of how we would like to receive information. That template has been used by applicants. It derives from the publication Calhoun and Klemens, which is administratively noticed. The maps that were given to us were not responsive at all to that particular request.

Could you explain why you chose not to map the pools and respond to the Council in the manner that it was requested?

THE WITNESS (Gresock): It was our intention to do so. I guess I'd love to get some clarification about what you found unresponsive.

DR. KLEMENS: Did you look in the --

THE WITNESS (Gresock): We did look at the prior case that was referenced in the question.

DR. KLEMENS: And the concept that there is area to develop, proposed to be

developed, area beyond the road was not considered habitat because it was cut off, all of those parameters. There was a table that said pre and post development. None of that was provided in your response.

So maybe you could explain to me why. There's a lot of narrative, but nothing was tabulated, and I found it very unresponsive on this particular issue to the request of the Council.

THE WITNESS (Gresock): Well, my apologies for that. That wasn't our intention. We did look at that example. We did provide mapping that shows the location and the radius around the vernal pool. We did identify that there was not existing development in the area currently and showed where project footprint elements would be proposed that reflected grading versus permanent footprint areas. And we did also provide information within the radius in Exhibit 58-2 that eliminated, as it were, potential upland habitat that was on the other side of the Quinebaug River, of course, because that does act as a barrier for species.

DR. KLEMENS: So following on that, the

750-foot critical upland habitat, terrestrial upland habitat zone, is not complete as now by existing conditions. What percentage is lying in the Quinebaug River and beyond? Because if you would look at existing conditions and how one treats roads in these matters, those are taken off already. So what is that percentage of the habitat that is already not available to the amphibians? And we're talking about, I presume, the vernal pool B, correct, we're not even talking the A1 or the vernal pool that is located on the Wyndham Land Trust property.

THE WITNESS (Gresock): Right. A1 was not determined to be a vernal pool. We're talking about the vernal pool in wetland B, which is the only one that's on the property.

DR. KLEMENS: We'll get to that determination as we go forward, because I think people may disagree with that determination. But I believe that you have stated that you're going to be encroaching with the proposed development within 400 and some feet of vernal pool B. Is that correct?

THE WITNESS (Gresock): Yes, 432 feet, yes.

DR. KLEMENS: So there's an area beyond 433 feet that is going to be lost in the proposed development. If you add that to the percent within that disk that lies within the Quinebaug River and beyond, have you exceeded the 25 percent allowable development or recommended, I should say, development potential in that vernal pool, as stated in Calhoun and Klemens?

THE WITNESS (Gresock): We have in the final paragraph of that response, using the Army Corps methodology that eliminated that area, and assuming the Quinebaug River to be a barrier, we have excluded that portion of the radius which was about 40 acres. The adjusted percentages would be 93 percent of the area remaining undisturbed with 7 percent of habitat loss during construction, and that would be adjusted to 4.3 percent of the habitat lost once the construction was completed if you assume that the graded slopes revert to upland habitat use area.

DR. KLEMENS: So could you tell me simply what percentage is going to be lost in this adding the Quinebaug, adding the area in the Quinebaug, beyond the Quinebaug, and the area that's going to be developed and the area which is

going to be altered by the graded slopes, what do you have? And that's really what the whole nature of having this in a table pre/post development conditions would have made it much more readily apparent to the Council to understand.

THE WITNESS (Gresock): If it would be more helpful for us to develop that table, we can certainly do so.

DR. KLEMENS: I believe that was requested of you in the interrogatory, and for some reason we didn't get it. I mean, we sent you the template. It was pretty clear. I'm just disappointed we don't have it in a clearer fashion that's intelligible.

THE WITNESS (Gresock): The calculations that we've provided have indicated that 7 percent of the habitat will be lost during construction and 4.3 percent of the habitat will be lost once the construction is complete.

DR. KLEMENS: So it's your contention then that it meets the less than 25 percent cumulative loss of habitat?

THE WITNESS (Gresock): That is our belief, yes.

DR. KLEMENS: Well, it will helpful to

get that into the tabulation in a manner that the Council requested. And I'm sure we have plenty of time as we go forward here. It's not the last hearing. I hope we'll see that because it's disturbing to me that it's not there when we requested it. And it makes it a lot easier.

THE CHAIRMAN: I think we can ask and get assurance that you will provide that.

THE WITNESS (Gresock): Absolutely. Clarifying that you'd like that in a tabular format is very helpful. Thank you.

DR. KLEMENS: And also, there is not much difference really to the habitat lost be in the river and beyond to the habitat that is cut off by a roadway. It's basically the same thing. Would you say that a portion of the disk is inaccessible to the vernal pool wildlife?

THE WITNESS (Gresock): I would agree that's the case, yes.

DR. KLEMENS: Okay. So I'm going to go backward now and we'll get back to the vernal pool -- I guess I'll keep with the vernal pool.

Okay. In the application narrative on page 29 you show cuts and fills coming to wetland 1A, which you characterize as a man-made pond.

We'll get to that in a moment too. How close do those cuts and fills get to the high water mark of that wetland?

THE WITNESS (Gresock): The revised layout has been adjusted to make sure that all of the work is at least 25 feet away from all wetlands. The closer wetland is wetland X. The work is now proposed to be at least 25 feet distant from that, and so it would be even further from wetland A1.

MR. BALDWIN: And Dr. Klemens, if I could, just for purposes of the record, the revised layout is included in NTE's Exhibit 15, the responses to the Regulate and Restrict Orders from the town, Exhibit 5 of that filing.

DR. KLEMENS: I'll take a look at it. But the question I'd like to know -- thank you, Attorney Baldwin. The question I would like to know is are you 100 feet away from wetland A1?

THE WITNESS (Gresock): We are not, no.

DR. KLEMENS: So humor me here. If in fact A1 were considered a vernal pool, you would actually be filling and disrupting in the vernal pool envelope?

THE WITNESS (Logan): Yes, that would

be correct.

DR. KLEMENS: So vernal pool or wetland A1 we'd characterize it as a man-made pond. But wouldn't it actually more correctly be a pond that was created by human activity within an existing wetland?

THE WITNESS (Logan): Most likely. We don't know the exact configuration of the wetlands pre 1959 when this pond was put together, but I think your assumption is probably correct.

DR. KLEMENS: Because you have a seepage area at one end, then you have an area that's dug out and dammed, and then it continues on into the larger wetland?

THE WITNESS (Logan): That's correct. So on the eastern side it's quite clear. You have a seepage area on that side that was basically running for a long time. On the western side it's not as clear because that's more of a dug area.

DR. KLEMENS: So you have quite a bit of testimony stating that this is a sink for the 22 or so spotted salamander egg masses that occur. What proof do you have that it's a sink as opposed to a speculation?

THE WITNESS (Logan): Right. So we've

been looking, myself and my colleagues, we've been looking at this habitat, wetland A1, since February, and I think the last time we were out there was in September. The last thing that we did, just to go backwards a little bit and why this was important, I questioned in my mind always as a scientist always more data is, as you know, king.

So at the end of the season we decided that what we were going to do -- and I think that's included in one of our most recent submittals of 10/27 -- we did two days in a row consecutively dip netting at the edges of the pond. We covered about 70 percent of the edge of the pond on each side.

DR. KLEMENS: What was the date of that, please?

THE WITNESS (Logan): 9/22 and 9/23.

DR. KLEMENS: September.

THE WITNESS (Logan): Yes. So we covered and -- we did dip netting, and I think we documented that the major species, amphibian species that we did get at the time is green frog, both juvenile and tadpoles. And of course we saw a bunch of other adults also and other

invertebrates.

So there was no -- the reason for that is I wanted to see whether or not I was going to get any metamorphs of spotted salamanders, and I didn't come up with any.

DR. KLEMENS: So your contention is that spotted salamander metamorphs that you will find larvae in pools on a regular basis toward the end of September?

THE WITNESS (Logan): I could find them earlier than that, obviously, but the major thing that we noticed in this particular pond is that there was a plethora of both adults and fingerling size smallmouth bass. There were crayfish and other predators, known predators of salamander larvae.

DR. KLEMENS: So you looked in September.

THE WITNESS (Logan): Uh-huh.

DR. KLEMENS: Did you look in the summer for larvae?

THE WITNESS (Logan): Of course.

DR. KLEMENS: What are those dates that you did larval surveys in the summer?

THE WITNESS (Logan): Prior to our

September visits, the visit before that was, let's see, on July 21st.

DR. KLEMENS: And before that?

THE WITNESS (Logan): And before that we were there on May 20th and June 4th. Before that May 4th, and then in April, March and February.

DR. KLEMENS: And no larvae seen at any of those dip nets of 70 percent of the pond you estimated that you covered?

THE WITNESS (Logan): Correct.

DR. KLEMENS: Now, I'm puzzled. I understand what you're saying, but I also see that you have 22 egg masses.

THE WITNESS (Logan): Yes.

DR. KLEMENS: Is it conceivable that -- how did they get there? Is there some recruitment still happening, albeit there are issues with the aquatic ecology, is there some recruitment still occurring?

THE WITNESS (Logan): Well, obviously our survey is a snapshot in time when we went there before. By the way, it's 18 egg masses. 22 is at Pool B.

DR. KLEMENS: Sorry. 18, 22, they're

egg masses.

THE WITNESS (Logan): Exactly. And believe me, we were surprised when saw them based on the studies we did prior. So when they appeared we immediately wanted to know why. What we know, based on the fact that there are adult smallmouth bass, I saw ones that were size classes up to five or six inches. And you probably know this. Smallmouth bass are kind of slow growing.

So estimating from that, this population of smallmouth bass has been there probably at least 10 or 15 years, which kind of gets into the question as to whether salamanders could potentially -- there could be recruitment here. Obviously they're coming here for a reason. If we make the assumption that spotted salamanders do live 15 to 20 years average and some might live longer, there is a small chance that somewhere in that time of 15, 20 years prior that there was successful recruitment and therefore the salamanders started at this pool at that time, radiated out and have come back, continually come back.

But I don't know why they're coming and, again, this is only -- I have no data from

talking to the property owner that this pond was populated with smallmouth bass far a particular purpose. As a matter of fact, the property owner said he hasn't really been paying attention to the pond for many many years.

DR. KLEMENS: So based on this, maybe a better way to state it is that it does have vernal pool function and it's an impaired vernal pool, but it seems to me, from what I understand, it has species breeding, 18 egg masses. It has vernal pool functions based on the species. Albeit, it might be impaired, and we'll get to the impairment in a moment, but could you see that potentially many people would consider this still having vernal pool values?

THE WITNESS (Logan): My professional opinion is I could see how one could say that. I don't agree with that statement personally, and I'll tell you why. As you know, I've been looking at vernal pools for many many years, and one of the things that I found is that spotted salamanders tend to -- a percentage of them in a particular habitat tend to breed wherever they can find suitable habitat. So quite often I have found them in man-made pools such as test pits

that have water that weren't filled. And so --

DR. KLEMENS: I think you're confusing the concept of decoy pools and ruts with a wetland that has been dug out and has vernal pool -- in my opinion, vernal pool function. Let's not conflate those two, Mr. Logan.

THE WITNESS (Logan): Well, it's not a big jump to show that there are habitats out in the landscape that could attract vernal pools for breeding, and yet there's no recruitment from them because, as I state here in my report, it's a trap, an ecological sink.

DR. KLEMENS: But you really don't have conclusive proof to that. Humor me here. Let's say we're looking at it from a conservation viewpoint. We're going to build something, and how can we make things better. If one Rotenoned that pond and removed the fish, what would happen?

THE WITNESS (Logan): Yes, I could see that. But that would have to be an ongoing purposeful effort by someone to turn an existing man-made pond that doesn't have recruitment for spotted salamanders into a vernal pool --

DR. KLEMENS: You don't have proof that it doesn't have recruitment.

THE WITNESS (Logan): How can I prove a negative?

DR. KLEMENS: Well, that's difficult. It's easier to prove an absence. But you're sitting here trying to convince me that the pool has minimal value. You have said basically fill right up to its edge within 25 to 50 feet and it's invaluable, not very valuable. And I'm trying to say as we balance the public need for the project with the environment, which is the job of this Council, we need to have a really hard look at it.

Let's move on.

THE WITNESS (Logan): Okay.

DR. KLEMENS: Tell me about Pyxicephalus adspersus in that wetland that you reported there. The last time I was aware of Pyxicephalus, it's the African bullfrog with the Sub-Saharan distribution. Tell me about the African bullfrogs you found there.

THE WITNESS (Logan): Where did you find that, sir?

DR. KLEMENS: In your application that you had Pyxicephalus adspersus, page 79 of your application.

THE WITNESS (Gresock): Do you know

which document, Dr. Klemens?

DR. KLEMENS: Yes, Volume I of the application, page 79. You found green frogs, Lithobates clamitans; bullfrogs, Pyxicephalus adspersus; and spring peepers in that pond.

THE WITNESS (Logan): Obviously that's a mistake that I didn't catch. I don't know why that even got in there.

DR. KLEMENS: You see, I come from an academic background. When I see a mistake -- and members of the Council have heard this before. When I see an error like that that's so obviously wrong, it makes me wonder what I'm not seeing that may not be as obvious. I found it troubling.

THE WITNESS (Logan): I think you're jumping to conclusions, Dr. Klemens.

DR. KLEMENS: I don't think I'm jumping to any conclusions. I'm just asking you how it got into a report that you submitted to this Council, how something that glaring could in a report, in the narrative of your report.

THE WITNESS (Logan): Okay. So here's what's going on. If you look at the actual -- not the summary that summarizes the actual pond and vernal pool surveys, but if you go into my report,

which is -- I'll tell you which -- Volume II, Appendix F-1, and you find yourself to page 14 of that report.

DR. KLEMENS: I'm aware of it. We're going to be visiting that too in a bit.

THE WITNESS (Logan): You'll see 37 smallmouth bass and one bullfrog. This is the end sentence of the first paragraph. And one bullfrog. And it says Lithobates catesbeianus. So I have no idea how we jumped from Lithobates to this other interesting species that I'd like to know a little bit more about.

DR. KLEMENS: Did you put that in the report, or is there somebody -- and this always worries me. And here's something else the Council has often heard me talk about is when you have a bunch of handlers, corporatized science, someone just pulled this off the internet and plugged it into the report.

THE WITNESS (Gresock): I believe it's just a typographical error in this instance.

DR. KLEMENS: Typographical error. I'm not going to pursue it. It bothers me. That kind of sloppiness in a submission is bothersome.

Let's talk about the seepage, the

springhouse that is associated that you showed me in the field. What will the effect of this proposed cuts and fills and grading have on the hydrology of that spring?

THE WITNESS (Logan): None whatsoever.

DR. KLEMENS: Why?

THE WITNESS (Logan): Because that particular spring is probably -- not probably. It's my professional opinion that it is fed from the eastern ridge. So it's away from any development that we're making. So I think the water that expresses itself from that particular springhouse comes from the east; it doesn't come from the west where we're proposing development.

DR. KLEMENS: What did you do? Did you do any surveys within that springhouse? Did you put minnow traps in the springhouse? Did you look at the springhouse at night?

THE WITNESS (Logan): Yes. As a matter of fact, yes and no. I did not put any traps in there, but as I'm a curious scientific kind of guy with an academic background, every time I was there I would lift up, as we did when we did the site walk, lift up and peered in, whether with a flashlight or with daylight. And the only --

apart from some invertebrates that I could not identify, they were running, scurrying around -- the only time that I saw anything was I think in -- it was not in February, it was in March, and it was a dead wood frog.

DR. KLEMENS: But you never went there at night and looked in the springhouse?

THE WITNESS (Logan): Yes, I did. As a matter of fact, when we did the owl surveys, which obviously were at night, my son was with me at that time. I wanted to show him a few things, and one of the things we did was we opened up and looked.

DR. KLEMENS: Did you try to dip net around looking for salamander larvae in the springhouse?

THE WITNESS (Logan): Not in the spring house.

DR. KLEMENS: You didn't look for salamander larvae?

THE WITNESS (Logan): No.

DR. KLEMENS: You didn't consider the possibility that that springhouse could have spring salamanders in it, which are state protected species?

THE WITNESS (Logan): I never -- I always consider all possibilities when I'm doing surveys. I'm always curious to see what I can find. So that was part of my investigation was to always look in there, but I did not put any traps.

DR. KLEMENS: So you didn't really survey that spring comprehensively for spring salamanders?

THE WITNESS (Logan): My visual observations did not indicate that I needed to do that.

DR. KLEMENS: What visual observations would lead you to that conclusion?

THE WITNESS (Logan): Well, from, for instance, at night when we looked with a flashlight from corner to corner and all around, all I could see was some unidentified invertebrates. I did not see any salamanders or other --

DR. KLEMENS: Have you ever had any experience looking for spring salamanders?

THE WITNESS (Logan): A couple of times, yes.

DR. KLEMENS: Where at?

THE WITNESS (Logan): Recently in

Storrs, Connecticut. Before that actually it was before this Council many years ago. It was a cellular tower that was being proposed at East Hartland, I believe, and so there was potential evidence of spring salamanders in those areas.

DR. KLEMENS: Do you think that -- do you understand why I'm concerned about spring salamanders at this site?

THE WITNESS (Logan): Sure, very clean water, consistent source of water discharging year round in some cases.

DR. KLEMENS: You cited my book, and it's referenced in the -- administratively noticed. Are you aware of the statement about spring salamanders in the Town of Killingly in my book?

THE WITNESS (Logan): No, I'm not. I did not specifically look at that at this time.

DR. KLEMENS: Are you aware that there's spring salamander sites contiguous right in Rhode Island contiguous with the Town of Killingly, and that's what prompted that in the book?

THE WITNESS (Logan): Again, I did not specifically look at it. One of the things that

we always go off is we rely also not only on us opening the possibility that any species could be there if the habitat is sufficient and suitable. We also relied on the query that we did through the Natural Diversity Database, and most spring salamanders came back as a potential species.

DR. KLEMENS: Well, yes, that is a problem with the NDDB, and I'm going to talk about that in a minute. How far is this site located from the Rhode Island border, roughly, and the Massachusetts border? And I'll make it easy. Is it within 40 miles or less?

THE WITNESS (Logan): It's within 40 miles certainly.

DR. KLEMENS: Because this is -- we had no paucity of looking regionally at the air data. You have the maps, you have all the stuff. And I'm sort of amazed.

And if you go -- and I'm going to jump ahead to Question 52 in the response to the Council's interrogatories talking about the hibernaculum, certain bat hibernaculum, and you went on and on about all the ones in Connecticut. But wouldn't it make sense to you as a biologist that with a site that is so close to Rhode Island,

so close to Massachusetts, that actually you might learn more about what might be on that site by consulting databases and information on those states rather than Connecticut?

THE WITNESS (Gresock): Well, and certainly U.S. Fish and Wildlife Service, who approved the protocol, would be looking at that more regionally. In response to that particular question, we did provide a Connecticut map.

DR. KLEMENS: All right. I think you've answered. So you really haven't considered the possibility of trying to understand this site of looking at other databases and other information from contiguous states that may be really helpful in understanding the ecology of this site?

THE WITNESS (Logan): I think the specific answer to your question is, no, I didn't. But, as I've said before, whenever I look at a site it's an open canvas for me to find whatever is there. So I look at all the places that I would expect to find life, aquatic life, especially herptiles.

DR. KLEMENS: So would it be possible, given the fact that I'm not so convinced that

Wetland A1 is not a vernal pool, that we get -- in addition to Wetland B, which we agree is a vernal pool, that we get the analyses that were requested by the Council for all three of those wetlands? That would be A1, that would be B, that would also be the vernal pool you identified on the Wyndham Land Trust property, which I think is far removed but, again, I would like to see that in the record just what the impacts might be of the proposed construction on all three of those vernal pools.

THE WITNESS (Gresock): Yes. I mean, while we disagree that A1 is a vernal pool and spent a lot of time taking a look at it to support that, we don't have any problem providing those calculations for those three areas. I think that will be helpful information.

DR. KLEMENS: It would be helpful to me and other people. And I don't dispute that when you start to look at a site with multiple vernal pools, you really take a look at those that are the highest quality. And I think you've made a case that there is impairment. I'm just not willing to declassify it as a vernal pool based on the impairment.

Let's switch gears for a second. I

have just one. And I'm going to come back to the pipeline, and then I'm going to come back to all the other species. I had an arrangement of questions, which I got thrown off by having the vernal pool thing handed to me.

I'd like to go to the municipal consultation information that you submitted to the Council on September 1st and to your illustration on page 8. I think you might have heard this from members of the public where you're showing the closed or refitting or generation at risk. And what I find notably absent on here are the new plants that are coming online, specifically Docket 192B and Petition 1218. And I'm just asking why when you go out to the public to make a case for this plant you don't give the full picture in the stakeholder meetings. I mean, obviously many people are aware of it. It seems somewhat disingenuous not to.

THE WITNESS (Bradley): I'll be glad to address that. As you look at the generation retirements that we've pointed out, both in ISO New England and in Connecticut and the discussions in the stakeholder meetings, I believe in the last stakeholder meeting where we addressed questions

that were submitted by the members of the town -- and I don't recall the exact date of that meeting. It was approximately -- it was on October 19th -- I recall discussing specifically the generation that's retiring in Connecticut and also specifically mentioning in my response to those questions to the public that there were two new facilities in Connecticut that were previously approved, and that would be Towantic and one of the Bridgeport Harbor units.

DR. KLEMENS: Well, you used the same thing at your public hearing, the same map. It seems to me that if they were coming on, you would at least give a balanced viewpoint. That's just my opinion. You can take it for what it's worth.

THE WITNESS (Bradley): Right. The map that we used at the public hearing is provided by ISO New England which is only intended to show at risk or retiring.

DR. KLEMENS: All right. That's my comment.

Let me move to the letter that you received as a segue to discuss the pipeline which, although I voted to move to deny the two petitions, or whatever you want to refer to them

as, to not go forward based on it doesn't obviate the need for us to look at this.

Now, Ms. Cartledge, Pamela Cartledge of the Pomfret Conservation Commission, had concerns about how this crosses the Quinebaug River and the wetlands. And my first question is, doesn't this pipeline go in or near what's designated as a critical habitat area? As a matter of fact, I believe you discuss that on your response to Council Interrogatory Number 53, you actually discussed that floodplain of the Quinebaug River as a critical habitat area.

So is the pipeline going through that mapped -- it exists now, I realize. Is it going through what is classified as a critical habitat area?

THE WITNESS (Gresock): It's our understanding that the crossing of the Quinebaug River will be directionally drilled. And in terms of looking at the resources, I'm sure the drill will be designed so that it avoids anything that would be particularly sensitive.

DR. KLEMENS: Is the pathway on figure 8-1, page 168, is that pipeline pathway going through floodplain wetlands that are part of the

critical habitat area?

THE WITNESS (Gresock): It does cross that area, yes.

DR. KLEMENS: It crosses the area. You can talk about how you're going to protect them. That's a separate question. But right now my question is that is one in the same, that pipeline does cross through the critical habitat area, the existing pipeline?

THE WITNESS (Gresock): It appears to, yes.

DR. KLEMENS: Would it be possible -- we didn't see it. Is it possible that we can get a bit more information, photographs, pictures, or some understanding of what this is, particularly as there's going to be digging associated with part of it? I understand part of it is going to be directional drilling. But I'm particularly concerned.

Are you aware of the population of wood turtles that exists -- what is it, Cotton Ridge or -- on Cotton Ridge Road, in that area, that there is a population of wood turtles in that section of the Quinebaug, and how will you protect them against incidental take?

THE WITNESS (Gresock): So we don't currently have the rights to enter onto those properties and provide photographs. So because this is an element of work that will be conducted by others under rights that they have, I don't believe that we would be able to do that at this time.

DR. KLEMENS: So there's really no information that's been -- you can't provide information on amount of wetland potential impact, amount of wetland digging, how you're going to protect the wetlands, how you're going to protect the wood turtles, you're saying we have to wait for another day to get that plan?

THE WITNESS (Gresock): We don't have details about that information, but we do know that this is the kind of work that is considered and completed all the time by this entity, and that we know they will need to receive all of the appropriate approvals prior to the work being implemented. Because this is an underground feature, it doesn't mean that it won't have some surface disruption in terms of the placement, but it does mean that working within an area that's been previously disturbed for the existing

pipeline, that can be minimized, it can be temporary, and there are measures that can be applied in order to minimize a whole wide range of potential effects.

MR. BALDWIN: And Dr. Klemens, just to add to that, we certainly will pass those concerns along to the Connecticut Yankee Gas Company who will be ultimately responsible for that separate filing. And we can do some exploration and have some additional information, I'm sure, for you to discuss those issues in a little bit more detail next time, but that will be more thoroughly investigated as a part of that future application.

DR. KLEMENS: I understand it, and I understand the arguments you made in your response. Okay. Well, my concerns right now will be the wood turtles, will be the wetlands, the wetland restoration, and the control of invasive species as part of your disturbance. So those are all things that I would hope you would consider, at least in my wheelhouse.

So let's go to Volume II of Appendix F, which Mr. Logan mentioned earlier. And if you could turn to Attachment E, A-2, page 5 of 7.

THE WITNESS (Gresock): I'm sorry.

Which one again?

DR. KLEMENS: Attachment E, Table A-2, page 5 of 7. This is the table of the wildlife inventory.

THE WITNESS (Gresock): So within Appendix F-1?

DR. KLEMENS: Correct, Appendix F-1, Attachment E. It's a complex taxonomy of paper.

THE WITNESS (Logan): Sorry, Dr. Klemens. You're looking specifically at Table A-2?

DR. KLEMENS: That is correct, A-2, my favorite creatures. And noting on page number 7 of 7, you're citing Klemens M.W. 1993 as helping you compile this table, which is my 1993 book, which I went through and looked and have questions why certain things are or are not on this list. I realize we do actual lists, and then we do potential lists, but the potential lists on this one, some of it give me pause.

For example, if you look on page 47, bulletin 112, you'll see Ambystoma opacum, marbled salamanders, as being in Killingly, yet I see --

THE WITNESS (Gresock): I'm sorry. Where is that reference?

DR. KLEMENS: Bulletin 112, page 47. It's administratively noticed. It's Item number 67 and extensively cited by Mr. Logan.

On page 47 the marbled salamander, another vernal pool obligate, is cited as occurring in Killingly, yet it's not even within the list of potentials. Is there a reason why?

THE WITNESS (Logan): Honestly, in retrospect that's probably an omission.

DR. KLEMENS: Okay. We can correct that, I assume.

And how about we look in the same volume at page 65, and we'll see the spring salamander there just east of Killingly. And there's quite a discussion about Killingly and spring salamanders. So can we look at that also?

THE WITNESS (Logan): I think after our previous discussion, we can.

DR. KLEMENS: Great. Let's take a look at the newt, which is curiously absent on here also. It's on all the neighboring towns around Killingly. Is there a reason that's not on there?

THE WITNESS (Logan): There's a reason for it. I didn't find it.

DR. KLEMENS: But it potentially could

be there based on all the dots on the map that are around Killingly.

THE WITNESS (Logan): Based on my experience of where I've typically found newts, in a pond with a preponderance of fish and other predators, I usually don't find newts. It doesn't mean they can't be there.

DR. KLEMENS: But we're also talking about red efts, we're talking about the whole --

THE WITNESS (Logan): The whole thing, exactly. And obviously efts would be pretty conspicuous. I did not see any of those in my 160-plus hours of field work.

DR. KLEMENS: So it's your contention they're not there even though they are shown --

THE WITNESS (Logan): Yes.

DR. KLEMENS: Let's move to snapping turtles, painted turtles, both of those show as being quite widespread, and musk turtles, in Killingly. Any potential for those there?

THE WITNESS (Logan): Again, I think it goes similarly to my response to a previous question. The only habitat that I saw on site was the pond with some minor exceptions in a couple of other --

DR. KLEMENS: You don't think they could be coming from the Quinebaug River to utilize portions of the property?

THE WITNESS (Logan): That is possible. However, it's quite steep between -- as you come up from the Quinebaug River. So there's a principle of ecological conservation that comes into place at that point.

DR. KLEMENS: All right. I just want to go through. I want to get this all straightened out.

Worm snakes, they occur in Putnam, they occur right over the line in Rhode Island. Again, this is on page 214. Is there any reason why you wouldn't expect worm snakes?

THE WITNESS (Logan): You're probably right about that one. That would be an omission.

DR. KLEMENS: How about water snakes on page 240 in Killingly?

THE WITNESS (Logan): Again, that goes to my previous, the only habitat that I found where they would congregate would be the pond, and I did not find any --

DR. KLEMENS: They do like to eat fish, don't they?

THE WITNESS (Logan): They do like the fish, and occasionally they will go a long distance to find them, but I did not find a permanent pond or similar habitat in close vicinity to the site or else I would have --

DR. KLEMENS: But you just were saying that it's a man-made pond. So what is this, a man-made pond or a --

THE WITNESS (Logan): It is a man-made pond.

DR. KLEMENS: So there is a pond?

THE WITNESS (Logan): There's a pond.

DR. KLEMENS: And a vernal pool.

Okay. Let's talk about the switchyard. There's a lot of open wetland habitat. Did you consider the possibility that ribbon snakes might occur there in the switchyard in that habitat which is a state special concern species?

THE WITNESS (Logan): My experience with ribbon snakes, they tend to like areas that at least have a little bit of semipermanent water, maybe not permanent situations. They like to be along river floodplains, the wet meadows near river floodplains, et cetera. Where I've seen ribbon snakes before on a dozen occasions or so in

Connecticut I've never found them in this kind of meadow scrub shrub habitat with just barely an intermittent stream.

DR. KLEMENS: They are very difficult to find and survey.

THE WITNESS (Logan): Sometimes they like to appear when I least expect them though.

DR. KLEMENS: Would it shock you if I told you that in a very similar habitat, Docket 192, ribbon snakes were not reported and were only found when they put up large arrays of silt fence in a very similar habitat, and all of a sudden ribbon snakes started showing up along the silt fence. Would that surprise you?

THE WITNESS (Logan): Not if you said it, no, it wouldn't.

DR. KLEMENS: Well, I mean, that's what I'm saying. I mean, so it is possible, you wouldn't discount the possibility that you could have ribbon snakes in that habitat?

THE WITNESS (Logan): Based on what you just said, which kind of cures my experience a little more, I would say there's a remote possibility.

DR. KLEMENS: So that's something one

should consider also.

How about spotted turtles in those same habitats, intermittent streams, animals that have wide home ranges, spotted turtles and ribbon snakes?

THE WITNESS (Logan): Again, my experience with spotted turtles in Connecticut, they like vernal pools, for instance. So I did check in those habitats and did not find them. It doesn't mean they're not necessarily there, because they can be quite cryptic. So you have to basically either trap them purposefully with turtle traps or make a lot of dip netting and try to find them. Which in the man-pond pond or whatever we want to call it, I did do that, because I was curious as to whether any turtles might be there. But we're talking about the switchyard site now. We're not talking about --

DR. KLEMENS: We're actually talking about the site because how far are the switchyard wetlands from the wetlands on the site proper? How many linear -- as the turtle crawls?

THE WITNESS (Logan): As the turtle crawls?

DR. KLEMENS: Or as the snake slithers,

how many feet are we?

THE WITNESS (Logan): I would have to look at a map, but I would say more than 1,000.

DR. KLEMENS: And are you aware of the migration, the annual migration distances of the species such as the spotted turtle on an annual basis that rotationally uses different wetland --

THE WITNESS (Logan): Yes, I'm quite aware of it.

DR. KLEMENS: What would the numbers be?

THE WITNESS (Logan): Thousands of feet.

DR. KLEMENS: So it is conceivable that there are connections with spotted turtles or ribbon snakes that would be connecting from the wetlands on the site into the switchyard wetlands?

THE WITNESS (Logan): Okay. So we have two things that are going on here. Number one, in my inventory of the switchyard site, which the habitat would be more conducive, would be a preferred habitat for a spotted turtle, I didn't find any spotted turtles. And there was quite an effort there. As a matter of fact, I would say, in my experience, this is in the top ten sites

that I've studied that I've spent so much time, or I was allowed to spend so much time, and sniff and scratch and do whatever we biologists/ecologists like to do. So that's factor number one.

Now, factor number two is that I did not see any other similar habitat that would be preferred habitat for these turtles in the immediate vicinity of the generating facility site or the switchyard, meaning off site.

DR. KLEMENS: Off site, not the site, not A1 or B, you're talking off site beyond?

THE WITNESS (Logan): Not even including -- so not including D which, as you know, Wetland D we only -- a little slither of it. There are several more acres out on the Eversource right-of-way. That doesn't qualify, in my view, for a core habitat for spotted turtles. So I would have to go further off site into the industrial park possibly, several more thousand feet away, to find potential habitat for spotted turtles.

DR. KLEMENS: So you're fairly certain that when we put up the silt fence and start filling all that wetland in the switchyard, which is part of your proposal, we're not going to all

of a sudden start to see ribbon snakes and spotted turtles and that caught up behind there and say, oh, wow, what have we done? How certain are you?

THE WITNESS (Logan): Well, you know, what I would say is that there's a remote possibility always. As a scientist, I can never say "never" 100 percent. However, there are mitigation measures that we're proposing to protect for the potential incidence of the Eastern box turtle. So I think we could expand those or use those same ones to potentially protect other species of their ilk.

DR. KLEMENS: But if you have to fill that wetland there, which might be used, are you going to create similar wetland types as mitigation? Are you going to fill that sort of open meadowy sort of -- what are you creating as compensation? Is it compensation that's going to be helpful to those species if they're there, or is it just a formulaic compensation to get you through the ACOE process?

THE WITNESS (Logan): I hope not. That's not the case. I always take a lot of pride in the habitats that I'm allowed to create nowadays.

Wetland D, which we're taking, has some meadow habitat obviously in it, in part. About maybe a half of it is a meadow habitat. There's transitional and facultative species. It's not even seasonally flooded, at most, seasonally saturated only in part. So we take that in mind. And in the open field that I think you've seen during our site work, although we didn't walk down across the street --

DR. KLEMENS: We were short on time that day.

THE WITNESS (Logan): I know. The sun was going down rapidly. So that area, once that area is utilized for construction-related activities, for parking, and that has gone by, we're proposing something in the order of, at last count, more than 18,000 square feet of wetland habitat to be created. So that's moderately well drained soil out there, so you don't have to do much to create a wetland habitat. So we're looking at open wet meadow habitats, we're looking at a little bit of marsh with a couple of stumps and also for a scrub shrub component to it.

DR. KLEMENS: So you're creating a great habitat --

THE WITNESS (Logan): I believe we're creating habitat that's better than what we're taking by an order of magnitude.

DR. KLEMENS: I always get very nervous when people say they can do better than nature, but okay.

THE CHAIRMAN: My stomach is getting very nervous. So we're going to break for lunch now. We're going to resume at 1:45.

THE WITNESS (Logan): We apologize for the lengthy answers.

(Whereupon, the witnesses were excused and a recess for lunch was taken at 12:57 p.m.)

AFTERNOON SESSION

1:47 P.M.

THE CHAIRMAN: I'd like to call the meeting back to order.

Dr. Klemens, you said you were finished with cross-exam, or are you being slightly disingenuous?

DR. KLEMENS: I'm being slightly disingenuous. I just want to ask one more question, actually just a summary question just to be clear. We're going to get those three vernal pool analyses we requested, and we're also going to update and correct that table with the various amphibians and reptiles we discussed. Is that correct? And it's going to be submitted?

THE WITNESS (Gresock): The plan is for the off-site vernal pool, the vernal pool within Wetland B, and for the pond, to conduct the calculations in a tabular format relative to the Calhoun and Klemens methodology, yes.

I had not understood that we were going to resubmit the table. Certainly we've had some discussion about potential species that could or -- you know, that may or may not have the potential to be there.

Is that a request?

DR. KLEMENS: Just a question. A request it doesn't have to be. But I think seeing we went over this table in great detail, and there were things that were -- Mr. Logan admitted or conceded they should have been there. And as this is a proceeding with quite a bit of public scrutiny, I think it would be useful to have it corrected.

THE WITNESS (Gresock): Okay. We can certainly do that. I had not understood that that was a request so that's why --

DR. KLEMENS: Well, no. Actually I thought about that. We ended somewhat quickly for lunch, and I want to make sure after all of that that we have something in the record, not just for us but for the public.

THE WITNESS (Gresock): Fair enough.

DR. KLEMENS: Thank you.

No further questions, Mr. Chairman.

THE CHAIRMAN: And Mr. Silvestri I think has a request for a Late-Filing on graywater.

MR. SILVESTRI: Yes. Thank you, Mr. Chairman. I can't quite read the name tags,

but I think it's the gentleman next to Chris. Actually right there would be -- yeah, Richard.

THE WITNESS (Rega): Chris.

MR. SILVESTRI: When we were talking earlier about the graywater, if I understood correctly, there's a potential that it could be used as a primary source. Am I correct on that?

THE WITNESS (Rega): That is certainly a potential.

MR. SILVESTRI: Is there either an engineering study, a feasibility study, et cetera, that you folks could supply to the Siting Council as a filing so we could see in more detail what that would entail?

THE WITNESS (Rega): There's not one available at this time. There is some information that is being considered now. As mentioned earlier, we were doing some -- we are doing some sampling of the effluent from the Killingly Wastewater Treatment Plant, but there's not been a study that's been completed yet, but there is some study ongoing.

MR. SILVESTRI: What would be a potential time frame for that study to come to completion?

THE WITNESS (Gresock): I mean, there is an evaluation, of course, that was provided in Section 5 of Appendix H-3 that provides the initial engineering assessment. And I think part of Chris's hesitation is that we're in the process of gathering water quality information from the wastewater treatment plant. And of course one of the factors when you're considering the potential for use is to determine over time what the variability of the quality and flow is from that source which is one of the reasons why it's under evaluation, but it's not something that is immediately available.

MR. SILVESTRI: So while you have maybe a high level scope of what could be done from an engineering side, the issue is to try to get representative samples of the graywater, figure out what type of analyses would need to be done to then clean that up, shall we say, before it could be used. Is that correct?

THE WITNESS (Rega): Yes, I think that's a good summary. And that's certainly in the technical nature as well, you know, the ability of that water to be used, what type of equipment will be required, what type of equipment

will be required to transfer that water to site, discharge. There's a number of things that we would need to look at, but certainly as was mentioned, we certainly want a good representative sample of that wastewater to understand that it's feasible to use and what the equipment would be throughout -- ideally we'd love to have a year's worth of data, of course, to cover all of the seasons, but that will be something we'll continue to look at.

MR. SILVESTRI: So there's nothing on the short term that would be able to be provided other than what was in the appendix already?

THE WITNESS (Rega): I think that's a correct statement.

MR. SILVESTRI: One other question on that. The volume that's out there from whatever sources that you're looking at, possibly the WTP or other, is it sufficient volume to operate what you need it for?

THE WITNESS (Rega): Yes, there appears to be sufficient volume, yes.

MR. SILVESTRI: Year round?

THE WITNESS (Rega): Year round, correct.

MR. SILVESTRI: Okay. I think I'm all set, Mr. Chairman.

MR. BALDWIN: Mr. Chairman, just to clarify, to the extent that there is additional existing information or information that is easily obtainable between now and the next meeting, perhaps we can offer to pull that together and get us at least part of the way there. It sounds like we have a lot of that information somewhat available. The testing obviously is a little bit beyond that. I just want to make sure that we are in a position to provide something --

THE WITNESS (Gresock): So really much of the information is already generally reported in the application. And I think that the major information we need is the sampling over time. It's absolutely the case that projects such as this can utilize treated effluent when the source has a consistent enough water quality and flow over time such that one can design a treatment program that doesn't have to drastically change depending upon the wastewater treatment plant's operation.

And I think that we have very limited samples at this point. We have an ongoing

program. We've identified the parameters that are being tested, but we don't really have a lot of information that would be particularly meaningful to provide unless you think otherwise, Chris.

THE WITNESS (Rega): No, agreed.

MR. SILVESTRI: Counselor, I appreciate that if there is something else that comes to mind, and you do have it, that you could forward it. That would be appreciated.

THE CHAIRMAN: Mr. Levesque has a question.

MR. LEVESQUE: I had a question because it's on the same subject. In Tetra Tech's report on the water study regarding the Putnam Wastewater Treatment Plant effluent, you said that subsequent communications have indicated treated effluent from this facility may be reserved for another purpose. What purpose was that?

THE WITNESS (Mirabito): They didn't indicate to us what that purpose was, but that's what stopped the conversations.

MR. LEVESQUE: Another possible customer?

THE WITNESS (Mirabito): Correct. That's our understanding. They didn't tell us

what customer.

MR. LEVESQUE: Okay. Thank you.

THE CHAIRMAN: Okay. I'd like to now continue.

MR. HARDER: Am I going to have to wait until later until my turn? I had a question on this issue.

THE CHAIRMAN: If it's just on this issue, okay.

MR. HARDER: I'm wondering, do you look at the use of the treated wastewater -- first of all, I think you mentioned two possible sources, one Frito-Lay and the other Killingly Sewage Treatment Plant, is that correct, as far as possible sources of treated wastewater?

THE WITNESS (Rega): We certainly considered both. We took a quick look at the effluent from Frito-Lay. And the problem is with the processing they have there were a couple of issues. One is the type of water that comes out of there is not really suitable for power plant makeup. The other was they do have outages during the year, so it wasn't a reliable source of water. So the source that we're focused on now is the Killingly Wastewater Treatment Plant.

MR. HARDER: Would you say that's the most likely alternative source?

THE WITNESS (Rega): The most likely alternative, yes, yes. We still strongly believe in the Connecticut water source, but that would be the first alternative.

MR. HARDER: Where would you go if that was not available for whatever reason, technical or otherwise?

THE WITNESS (Rega): If both of those options are not available? I don't understand the question.

MR. HARDER: The Killingly switching plant effluent, if that was not available?

THE WITNESS (Rega): Well, again, our first source of water is Connecticut Water. Killingly Wastewater Treatment plant being an alternative.

MR. HARDER: I'm wondering if you need an alternative to Connecticut Water, what would that be?

THE WITNESS (Mirabito): I mean, I guess we could perhaps take another run into Putnam Waste Treatment Plant to see if their interest has changed. We also could take a look

at the various surface water or a well source. And we discussed those options in the report and the reasons why those were deferred to the Connecticut Water option.

MR. HARDER: Thank you.

THE CHAIRMAN: We'll continue with the cross-examination starting with Senator Murphy.

SENATOR MURPHY: Thank you, Mr. Chairman. A number of my questions were sort of touched on or covered already to a sufficient degree, but there's one other item that I'd like to touch on. It's more of a statement really, and the panel can comment on it.

But this application to me, one of the important things for us to make a determination is on need, and I think this whole thing does a pretty poor job of that. Basically as I peruse through the volumes of material, there's not very much on that. And it seems to be that the applicant is resting upon the presumption that in the forward capacity auction coming up in February they're going to make the cut and that, per se, means they are needed. And that's an assumption that I just don't agree with at all. And I want to make that very clear. And it says that in here

that you presume that you're needed if you get it. Because to me the one who makes the auction cut just outbid other people. That's really what it comes down to, in my judgment. And things can be arranged so that they may not be the real numbers that you have to bid, but it gets you in the door, and if you -- per se, then you're needed, and you go from there.

There's a couple of interrogatory questions dealing with the units throughout the ISO territory that are shutting down, and what have you, and the response, for the most part, deals with those that have already shut down. And we know who those are. And it does mention those that are going to -- that are at risk. There's no dates given for these at-risks, and I understand that there can't be any dates, and I'm not faulting you on that.

But what it doesn't deal with, and what I think this Council really needs to make a determination of need, is where the megawatts to be put out, if this facility is approved, fits in with what's online now and what's coming online. Because we know as Council members that we have approved, you know, the change in circumstances so

that Towantic is now being constructed. And the interrogatory response indicates that Bridgeport is closing down, but the coal plant in Bridgeport closes down when the facility that we approve goes on. So really I'll have to indicate that a loss in capacity is not really there. And so I just don't feel that we have been painted an accurate picture of where this fits in, and as far as I'm concerned, that's the important thing.

Going back again to the forward capacity auction, as I said before, I don't think that if they make the cut that that necessarily means that they are really needed. And I'm not singling out this project. I'm talking about just conceptually. Because it may be convenient to underbid, and they can work out scenarios where their overhead is not what it's really supposed to be and so forth. It gives a perspective in your application as to where they feel they're going to fit in, and they're probably accurate on that.

But I also think personally the fact that someone bids in successfully in this forward capacity market, if there -- in the circumstances such as your client looking to come online, and they narrowly bid out somebody that's online of a

similar type of facility, similar capability, similar pollution and so forth, that it may be a mistake for the overall system to award it to someone who for not very much in the way of a bid goes forward and is constructed and we end up with a couple of plants operating at far undercapacity.

And I'm just trying to give you the way I'm thinking on this thing. And need is a crucial thing here. And in reading this thing, I was just amazed how little there was in here. And so I guess I'm asking you to -- I think your clients are listening to me -- to draft something up and give us what I have tried to explain to you is the way I think we have to take a look at this application and how this proposed project here in Connecticut fits in with what's online, what apparently is going to stay online, and what's going to be online a little before them or at the same time they are, and what have you.

And with that, shoot me down.

MR. BALDWIN: Thank you, Senator. We, of course, appreciate your candid comments. We believe certainly that the application contains a substantial amount of information on that issue. And they're very complicated issues, we

understand, but we do have folks here that can address those issues for you. And I think what I'd like to do is ask our witnesses to step through what has been provided in the application, perhaps explain in terms that I can understand what it all means, because if --

SENATOR MURPHY: We lawyers have problems.

MR. BALDWIN: We lawyers have problems with these types of things, don't we Senator? Yes. But I think the information is there, so I'll respectfully disagree with that point. But let's talk about it, because I think it's important to get this information on the record. It's important for everyone on the Council and at these tables to understand and hear that information. Mike Bradley and Ethan Paterno have put a lot of time and effort into that. So let's spend some time, if we could, Senator, talking about that?

SENATOR MURPHY: Dr. Klemens has already kind of indicated that some of the things, you know, at the different hearings and that, but anyway let me shut and listen.

THE CHAIRMAN: Mr. Silvestri, do you

have a specific --

MR. SILVESTRI: Counselor, before you actually ask, I just want to pick up what was mentioned already. In looking at the regional electric generation needs, this exhibit that was presented during public meetings, there's things that are missing. And again, as was mentioned, Oxford, the Towantic plant, is not here, the Bridgeport unit 5 isn't here. But also when I look, for example, at Unit 2 being closed, I believe it was officially quote/unquote retired at the end of 2013, but the unit didn't make megawatts at all for probably like five years before that. A number of the power plants that are listed on this curve are not running at 100 baseload type capacity, they're running much much lower. New Haven is less than 8 percent. I'm sure Montville, Middletown might be in the same boat.

So when I look at the total megawatts that are on their way out, I kind of disagree because a lot of them are already gone because of the low capacity factors that are there. And I tie that in as well to the emission aspect of it where we have different emissions that are going

to be saved because of the new plant. In comparison to what? In comparison to the plants that are here that are running at 100 percent capacity, or the way they are right now?

So if you could mold that into what the Senator's concerns were and to what mine are with the specifics on that, that would be most helpful.

THE CHAIRMAN: I'm not sure how exactly we're going to do it because the bulk of my questions also relate to need. And I also agree -- I haven't done this before, but I decided I'd weigh the paper. It came to -- and mine is incomplete. It came to 22 pounds. I weighed the amount on need, other than what you sent us on ISO, you know, you just send us report after report of ISO -- was in the ounces. And I know that's not necessarily a measurement, but it was thin.

So I have other questions. I don't know if you want to start, because I do like to go around and get everybody's comments on. But if you want -- Senator Murphy started this -- you want to respond to Senator Murphy, and then I'll throw out more later?

MR. BALDWIN: Well, I think --

THE CHAIRMAN: I'm not sure the best way to -- the most efficient way to handle this.

MR. BALDWIN: Let me offer this, Mr. Chairman. I think clearly it's something we need to address, and I would like to address it now because it's very very important to the Council, it's very very important to NTE. Let's talk about it. And to the extent that if we hit on one of the questions that you're asking in particular, we can address that specifically. If you hear something that reminded you of another question, I would ask that you jump in and stop us so that we can address your concerns as we go through this discussion. That might be the most efficient way that we can deal with it with a little leeway, certainly not coming from me, but coming from our witnesses as direct testimony and response to your questions. Perhaps we could start that way.

THE CHAIRMAN: Let's start that way.

MR. BALDWIN: Mike.

THE WITNESS (Bradley): Yes. Can everyone hear?

There are several components to this question, needless to say. So I think just to

preface the conversation, which may be a fairly lengthy conversation, I would like to address the map that's been shown a couple of times from ISO New England and what that means, and then discuss the continuation of the earlier conversation on the various components of need, both in the forward capacity auction and then outside of the forward capacity auction, and then I think hand it over to Mr. Paterno to address specifically the Senator's discussion and questions on how the forward capacity auction bidding strategy works, the demand curve, and those type of things.

Does that sound like a reasonable breakup for everyone?

The first thing I'd like to address is the map that was provided in the ISO New England documents that shows the expected and current retirements by ISO New England. So what that map shows are facilities that have retired or in the process of retiring or facilities that the ISO New England expects will retire in the very near future, and I believe that is by 2020 is the date that they show for the expected retirements of approximately 6,000 and then the current ongoing retirements as well.

And so taking that information, it only shows retirements. It's not intended to depict a full picture of need as far as supply demand resources that are coming in in addition. That is one component that the ISO uses in their information. To carry that one step further and hit on the load factor versus capacity, because I think that's a very important part of the overall discussion, the older facilities that are listed on there that were mentioned have a very low load factor. I think there was a statement that they really haven't been available. Those facilities are technically available to ISO New England for reliability purposes. They've cleared the auctions. They're part of the resource group. They operate at a very low load factor because their dispatch cost is higher than other generating resources in the fleet, as you would expect with a peaking type resource for reliability or emergency or during periods of higher demand and higher energy usage. I think the fundamental concepts there are you've got capacity to meet reliability on one hand at the time of the summer or winter peak, and then you've got energy that occurs throughout every hour of

the year. And to meet the energy, resources are dispatched from lowest cost to highest cost, generally, with a few exceptions here and there for reliability or location or must-run parameters. But the resources that are shown that are at risk for retirement have not operated other than at the extreme time of the peak, and that's why they are at risk for retirement in a lot of cases. They're not economical. They cost a significant amount of money to keep those operational for a very short period of time. They also are not in many cases clean operating units. They operate on oil in most cases or coal. So emissions are very high, thus the dispatch cost is very high.

You can think of that concept like a manufacturing process, if you will, where you've got very old equipment, very old factories that produce a very high cost product, somewhat unreliable product in many cases. They don't produce, say, nearly as much steel or nearly as much plastic or nearly as many Fritos as say a newer facility that was built 40 years later, per se. That's what goes on with the electric power system as well. You've got the new highly

efficient natural gas machine such as Killingly with dual-fuel capability. So you're replacing that older manufacturing -- you're manufacturing electrons, they're manufacturing electrons -- with newer equipment that is lower cost, more reliable. It meets the needs of the system by providing dual-fuel capability. So we replace -- other facilities like us that are dual-fuel -- replace those older units that only run eight or ten percent of the time because we've got that reliability but, on the other hand, the other 90 percent of the time that those units may not be running, we would be running, Killingly would be running on natural gas at an extremely low generation cost.

So if you look at kind of the ripple effect of pricing, Killingly's cost of generation is significantly below the average cost of generation on an hourly basis of the ISO New England system. So we're going to be averaging that cost for the whole system down by generating electricity at significantly lower than system average while still providing the reliability and the emission savings that are inherent with those generating units that are running at a very low

load factor that don't recover the revenue from energy necessary to keep them running on a long-term basis and that ISO has listed at risk.

That's particularly important in that case to the State of Connecticut because a couple thousand megawatts of these units that are labeled at risk are in Connecticut. When you look at those units with the two units that have already retired, that's about 30 percent of the state's generation that's oil fired or coal fired that's at risk. And so if that generation goes, even though they're the two facilities that were previously mentioned that are coming back in, you're still looking at a little over a 20 percent net reduction in generation in Connecticut if those facilities are removed.

So that's kind of a long answer to that's why it's important to look at that particular map for what could retire, but also understand that Towantic, the new Bridgeport unit and Killingly brings something to the table as far as in Killingly's perspective dual-fuel capability and the very low cost production with very low emissions from natural gas that those older units that are running at a very very load factor don't

bring.

MR. SILVESTRI: Here's my disconnect though.

THE WITNESS (Bradley): Okay.

MR. SILVESTRI: If you talk about the older units not running, all right, they might run in the wintertime. The polar vortex would be a great example.

THE WITNESS (Bradley): Correct.

MR. SILVESTRI: They might run on a hot summer day when ISO is stressed for power, otherwise they might not run at all.

THE WITNESS (Bradley): That's right.

MR. SILVESTRI: So if Killingly comes on line, who is it replacing?

THE WITNESS (Bradley): Killingly will fall into the dispatch stack somewhere above nuclear, clearly, because we'll have a higher generation cost than nuclear. Then we would fall in, I would imagine -- and Ethan, correct me if I'm wrong here -- that we should be in that next dispatch stack of highly efficient gas combined cycles right above nuclear. There could be some coal that would have a lower dispatch cost than us from time to time.

THE WITNESS (Paterno): Most likely not though.

THE WITNESS (Bradley): Yeah, most likely not. So the older generating facilities that are, you know, much newer, much more efficient than, say, the old steam oil-fired boilers are going to bump up the dispatch stack. So we'll come in below them. So from an overall perspective, you're just moving less efficient units up the dispatch stack. And it's kind of that natural progression as you bring in new manufacturing facilities. There's only so much need for product, so the output of the older, less efficient facilities continue to move up and produce less. So it's the natural progression of modernizing the system and moving in the newer, more efficient lower cost facilities to bring the overall cost down for the ratepayers.

SENATOR MURPHY: Let me ask you though. That's all well and good, but where does Towantic and Bridgeport fit in? You've slid in where you would be if you were approved. They're approved.

THE WITNESS (Bradley): Ethan, do you want to address that one?

THE WITNESS (Paterno): Yes,

absolutely.

SENATOR MURPHY: So in looking at need, I've got to say to myself they're approved, so they've got to be taken into account before I decide whether or not we need you also. There's the question.

THE WITNESS (Paterno): Absolutely, Senator. And they were taken into account in the analysis, yes, absolutely. And in particular, the way we think about capacity additions going forward over time. So new power plants coming in, one of the key indicators of that obviously is the forward capacity auction which, as you know, runs three years ahead of the commitment period. So right now we know new capacity additions through May 31st of 2020. ISO New England will be holding its next capacity auction in February, which will be procuring capacity prices for new power plants June 1, 2020 through May 31st of 2021. So we're taking all of that into account when we forecast our need for the system.

Along the subject of the forward capacity auction, I would also note -- and I apologize if I get too technical here -- there's the concept of the downward sloping demand curve

which recognizes that reserves in excess of the minimum amount of reserves are of benefit to the system so long as those reserves are procured at lower pricing. So within that concept we see that as new power plants such as Killingly come into the market, it increases the reliability of the market because you have a greater headroom over your minimum amount of reserves while simultaneously putting downward pressure on pricing.

And to Mr. Silvestri's point, I want to say this now. I want to make sure I don't forget. You asked a very good question, well, how do you figure out the CO2 emissions, are you assuming the Montvilles, the New Havens and whatnot are operating at 100 percent capacity factor. And we all well know they don't. We don't is the short answer. We are taking into account their forecasted generation, which is quite well, as you pointed out, sir.

THE CHAIRMAN: Dr. Klemens has a question.

DR. KLEMENS: I have a question on this. So what I understand from that discussion is that actually with these coming online, we're

actually having the ones that are at risk, we're putting them, in a sense, more at risk, we're pushing them out basically in a sense. What you're saying is having these new facilities, many of these that are so-called at risk will be more at risk and maybe be eliminated, which I think that's what I'm understanding. Is that correct?

THE WITNESS (Bradley): In part. I think if you look at it, there are two ways -- and we have seen this discussion frequently. I think a conclusion that many people draw is that facilities like Killingly are pushing the older facilities out of the market and causing them to retire, and that's not the case. Killingly and Towantic and the other facilities are coming into Connecticut as a response to the retirement of these facilities. Ultimately as these facilities get older, as their emissions continue to increase, their operating costs continue to increase, they're not going to be able to sustain operation. The owners of those facilities have communicated with ISO New England. It becomes very clear from their operating profiles and their operating costs, the maintenance costs on those facilities, that they are not going to be viable

for an extended period of time. So facilities like Killingly are being developed in response to what would be occurring with those facilities either way.

And I think the Connecticut IRP actually in Strategy 3 acknowledges this because Strategy 3 discusses that if the forward capacity market and the ISO processes don't acquire enough capacity for the good of Connecticut, then the state will go out and acquire that capacity. So therefore looking just at the Connecticut IRP, it recognizes that these factors are going on.

The other factor that comes through kind of as a response to your question of why the plant is needed, along those lines, these facilities are clearly going to go away. They cannot be sustained economically. Particularly as the capacity payment through the forward capacity market has decreased, that puts even more pressure on these facilities. These are the facilities that even though they operate a very short period of time, are what the ISO depends on for winter reliability.

So therefore looking again at the Connecticut IRP, I believe it's Strategy 4, the

next one, talks about winter reliability and the importance of non-gas generation. Killingly under that circumstance qualifies as non-gas generation because we're dual-fuel, and so we can provide that reliability. I think Strategy 4 of the IRP says that the state could need to acquire, if the ISO process doesn't work, as much as 5,000 megawatts of non-gas fired generating capacity. Under that definition Killingly would apply to that definition.

DR. KLEMENS: That leads me to a follow-up question. We saw in Bridgeport where they actually on the site creating new generation, Petition 1218. And I'm looking at this just as someone who's concerned. We're using what we have, we're using damaged sites versus going in and going into what's basically a greenfield site such as this. And we have all these sites that are being for one reason or another these plants that are being phased out because they're not efficient, and it's troubling -- and maybe there's no way around it -- to see that we're going to be inheriting lots and lots of old plants that are going to have to be decommissioned, where the ground has been disturbed and there's hardscape

and that, and instead of trying to say how can we make these plants more efficient, create megawatts there in situ, we're going out into the greenfield and taking greenfields.

Now I understand there's an issue of where the gas flows. I understand that's a big issue. But I just wonder if any thought is given to trying to use what one has, which is already -- when they were built they damaged the environment, they've created -- the impacts are there already versus creating a whole host of de novo impacts. I just don't know whether that factors into thinking about these things.

THE WITNESS (Bradley): I would like to respond to the technology side of that, and then maybe Mark or Lynn could respond to the siting side of that.

But we really have no way of speculating on what the owners of those facilities would want to do with the site or not do with the site where their generation is at. The one thing that you do know kind of looking at the technology that's at these various sites, it would be excellent if you could update that technology and get it to a point where it would be efficient,

such as new generation like Killingly or Towantic.

The fact of the matter is an older oil boiler or an older even gas-fired boiler or an older oil or gas-fired combustion turbine that may be 20, 30, 40 years old, it's not like you can take a 1975 Chevrolet Impala and make some upgrades on it from the auto parts store and turn it into a Corvette which, when you're looking at that kind of analogy, the 30-year old generating unit versus -- they could be upgraded. It would take a significant amount of capital. And you're still going to have very diminishing returns on the actual technology side.

DR. KLEMENS: I think you didn't quite -- I didn't imply that you just take these and modernize them. I'm taking a much more basic approach. You have a large area that's already been damaged or built upon. It's an industrial area. And I wasn't saying you have to update these things. But have they thought about actually using those already established footprints as opposed to going and taking -- going into a greenfield site?

THE WITNESS (Bradley): Right. And that's the second part of the response.

THE WITNESS (Mirabito): Right. And we absolutely considered those sites when we're looking anywhere, not just in Connecticut. And we did that in Connecticut. But as you point out, the problem with some of these coal and oil-fired facilities that are due for retirement don't have both the transmission and gas infrastructure available. Those that do are valuable to those property owners, and folks like PSEG are going to redevelop those sites themselves. So as an independent power producer, those sites are very rarely available to us, which is why we have to find other alternative sites in appropriate locations.

DR. KLEMENS: Thank you.

THE CHAIRMAN: Okay. I'm going to --

MR. ASHTON: I'm just going to pick up at the site by example. The development at Devon gas turbines and also another set of gas turbines at Middletown, those are existing sites, but they don't utilize any of the existing equipment there because it's just -- they're obsolete. When I started in the business, generating units were producing kilowatt hours at two and a half pounds of coal per kilowatt hour. And Devon 2 and the

Montville 3 and so forth, they're all long gone. Norwalk Harbor is looked upon as the cat's meow, and that's obsolete. It is just obsolete. We've grown past it. And I do agree that these combined cycle plants do offer about the best technology available and technology which seems to be working well.

Thank you, Mr. Chairman.

THE CHAIRMAN: I want to respond. I was going to wait until we went around, but I see we're on this topic. And I also see that you talked about the State's Integrated Resource Plan. It's like a lot of reports, you could always find something that you like. But I'm also going to quote something from the Siting Council's own report. What I'm quoting is from page 3 of the executive summary. And I may not have the quote perfect, but I think you can understand it. It says that "Connecticut will continue to have plenty of capacity through 2024 and beyond due to ample instate generation, low demand growth and new transmission built to reduce congestion. At the regional level, however, the Northeast capacity surplus is rapidly dwindling. Beginning in 2017, the region will face -- that's the entire

region, not just Connecticut -- a capacity shortage of 143 megawatts, but this will only be temporary. More than 1,400 megawatts of new supply have been committed to enter the market by June 2018. Within the Connecticut sub area no new capacity will be required." That's from the integrated -- that the state.

Now, the Siting Council forecast report, Docket F-2014/2015, which this Council has adopted states, and I quote -- that's on page 50 of the report -- "The Council has considered Connecticut's electric energy future and finds that even taking into the most conservative prediction, the ISO Northeast 90 and 10" -- and I'm sure you know what that means -- "forecast and conservatively neglecting the effects of non-ISO dispatched energy, the electric generation supply during 2015 to 2024 will be adequate to meet demand."

This is the State of Connecticut, and this is the Siting Council spending a lot of staff time looking at everything we talked about and things which I'm really surprised we haven't even mentioned. So far the discussion is all about what's going to be retired, what's at risk,

nothing about other things that we've been doing, we collectively, to reduce demand, and there's a whole list of them, other technologies that are coming online. This is not a static thing.

So I really think -- and I have other things I want to say on this whole issue of need, but I think it's woeful you've mentioned some of these other things, but if you've given more than a paragraph thought to them. It's all about what's going to be retired, what's at risk, and what's financially, but we have to look at it broader. We have to balance the need with the environmental issues. And you have just not -- I mean, we've gotten reports, and they're not old, they're recent reports, which state exactly the opposite of what you've been telling us.

THE WITNESS (Bradley): And I wanted to respond to that. As we mentioned when Senator Murphy asked his questions, there were three parts. We addressed the first part.

The second part comes to exactly the topic, Mr. Chairman, that you just mentioned, and that is the things other than retirements. We started on the discussion of retirements simply because that's the item that was presented. There

are a number of other things, as we mentioned earlier in response to staff's questions, that point to the need for the facility. As you mentioned, the Connecticut IRP and other documents do say Connecticut has sufficient capacity. There are also points in there, as you note, where the state would need to do things and is relying on ISO New England to meet the reliability need of the state, such as Strategy 3 and 4 that we mentioned. The information that we've provided on a number of things was presented by both Connecticut and ISO New England. So I wanted to step through now for everyone those various pieces.

I think we hit pretty well on the first one, which was resource adequacy, which comes to the total amount of resources needed both at the ISO level and Connecticut from requirements. Just to summarize that quickly, about 20 percent net with Bridgeport and Towantic coming in is at risk in Connecticut. We've got that on the record, and that's been very well discussed.

The next thing that is a major issue for need is the dual-fuel capability. President van Welie from ISO New England has discussed

extensively in a September 28th presentation in New Hampshire all the way back to January of 2015 in various presentations that are included in the documents we submitted that there is a significant need in ISO New England and there's also a significant need in Connecticut, as outlined in the IRP documents and some of the other documents that you mentioned in the various procurement strategies for non-gas generation in the winter. Particularly if the retirements that we discussed as part of the overall resource adequacy come to fruition, as everyone anticipates they will, or at least as ISO and NTE and other industry experts expect they will.

So that is the second component. That really drives the need for a dual-fuel like Killingly. I think right now about 45 percent of the energy in ISO New England comes from natural gas, which for the ratepayers in New England is phenomenal that it comes from low emission, low cost facilities such as Killingly, Towantic and others. The overall reliability in the winter is very key, because you can switch to that ULSD in the unlikely event firm gas is curtailed, so you've got that reliability. So that's the second

point of need.

The third point comes back to a number of the things I think, Mr. Chairman, that you mentioned as far as load and demand response and renewables. As we mentioned in a number of the documents that we've provided to the Council, Killingly is a very efficient machine, very quick response combined cycle ramp rate of 29 megawatts per minute. That will allow Killingly to ramp up and down very efficiently to maintain the reliability of the system.

Yes, renewables are coming into Connecticut and New England. Connecticut has a target of 20 percent. So that's 20 percent of the system that would be nondispatchable, meaning that there has to be resources that would show up very quickly if on a day like today clouds cover the sun or if the wind is not blowing or if, in the case of demand response, the end user applications that take advantage of that demand response are not there.

So looking at a minimum of 20 percent of the system that would be nondispatchable, a facility like Killingly takes that into account. Looking on the other side, on the demand side,

yes, I think there have been a number of forecasts that are showing around a half a percent load growth in Connecticut. Looking at demand response in Connecticut, both passive demand response, active demand response, behind the meter solar, those have been very effective programs at reducing peak demand and reducing energy usage. But effectively what those programs do is in addition to great benefits to the ratepayers in the state, they provide a great amount of reliability and system operating issue for ISO New England because demand response, even though it is a resource that clears the auction, is still a nondispatchable resource that is intermittent as well.

So you've got demand response closing in from the top, you've got renewables closing in from the bottom. So what that's doing is that's creating a significantly larger proportion of your reliable generation to meet peak demand, to meet instantaneous demand that is nondispatchable. And so the older oil-fired facilities, such as we discussed, that run a very low percentage of the time, they just can't meet that need. They can't respond where facilities like Killingly can

respond to that need and can meet that need.

In addition, and if you look at cost impacts, Killingly, as we discussed, has very very low operating costs. That's going to reduce the cost to the ratepayers. Killingly is also a facility that brings all of these benefits that we've discussed in terms of need to the ratepayers without risk to the ratepayers. The financial risk is on NTE. So if we built the facility and it never generates a single megawatt hour, the ratepayers are not at risk. So in this situation, thanks to the implementation of independent power, we can provide these benefits to ISO New England, to the ratepayers of Connecticut without putting the ratepayers at risk.

And Mr. Paterno may have something to add to that conversation.

THE WITNESS (Paterno): The only thing I would add is on the environmental side of things, as outlined in our report -- I think it's in Section 2, chart 2-5 or something like that -- that we do show a net reduction in CO2, NOx and SOx emissions. So I think there are positive environmental benefits to Killingly coming into the market because, along with Towantic and

Bridgeport Harbor Unit 5, there's not going to be much, if any, thermal fossil fuel generation that's going to be more efficient in producing electricity.

THE CHAIRMAN: Just one quick thing. I think -- and I don't have it in front of me -- the state report, I think you skipped over either number one or number two of their priority goals, and that's probably the most cost effective thing that we could do. That's called both efficiency and conservation. If we would spend a fraction of the money that you're going to spend giving increased rebates for people, updating their furnaces, whatever they use, putting in insulation, that demand, which is part of the equation, would drop.

And again, you're not providing a comprehensive view, because those are things that can make a huge difference, not only for you, whether we need your project, but whether we need other projects. And I know it's not part of the record, but I'd like to just make mention -- and I know California's energy is probably considered about as foreign as if it was in China, but I think it's Diablo Canyon, that nuclear plant,

they're proposing to -- and I don't know all the details -- to shut it down and not replace it with gas or -- to replace it with renewables. There are ways.

The other problem I have with your analysis is it's as if technology is static as it is today, and you look at how fast we've come in solar and wind and other renewables, both dropping the prices and making them more efficient. But some of us -- and I know there are several on the Council who may disagree -- think is the Holy Grail of all of this is battery storage. And I'm fairly convinced that in ten years from a utility base battery storage is going to be with us. So technology is changing, but you're giving us, in my view, a very static view of this.

DR. KLEMENS: Mr. Chairman?

THE CHAIRMAN: I'm done. Go ahead.

DR. KLEMENS: Mr. Bradley, you said one thing that really gave me pause just two or three minutes ago. That was, you said, If we build this, we never generate anything, the ratepayers haven't lost anything if this never gets used or isn't used efficiently. But I think it gets back to the environmental thing. If we build this and

it doesn't do anything, or does very little, we've still impacted wetlands, filled wetlands, cut down forest, we've damaged the public trust in the air, water, natural resources of the state. We've created an impact for no benefit.

So that gave me great pause when you said that if this isn't efficient or doesn't work, the ratepayers aren't hurt. Well, the ratepayers aren't hurt, but the citizens of Connecticut, it's the public trust in natural resources is hurt if this is not something that is actually going to do better for us in Connecticut.

THE WITNESS (Bradley): Certainly. I'd like to address Dr. Klemens' question and then move back to yours, Mr. Chairman, if possible.

THE CHAIRMAN: We do apparently have more.

THE WITNESS (Bradley): Okay. The statement that the ratepayers are not at risk is a very true statement. The ratepayers of Connecticut are not at risk. The example of the facility not operating is simply an example to show that in a situation where an asset like this owned by an independent company is constructed, it has no impact on the ratepayers. In reality,

there is not any way in the foreseeable rational view of the power grid or the way the power grid works that a facility that's as efficient as Killingly is going to be near the very bottom of the dispatch stack with very little emissions, very low generating cost would not operate at an extremely high capacity factor. We're showing this facility to operate between 65 and 85 percent of the time with the vast vast majority of that being very clean natural gas and only ULSD in the case of emergency.

So that's the clarification of the no impact to ratepayers, but we do expect this facility is going to run at a very high operating load factor and provide significant benefits to the citizens of Connecticut.

Mr. Chairman, if I could respond to your question on the --

THE CHAIRMAN: You just spawned several others.

THE WITNESS (Bradley): That's okay. This is an ongoing discussion when we discuss it as well.

So back to your question on the demand response and energy efficiency and modernization

of technology. I think Mr. Paterno and I both will probably speak to that. But on a higher level, I think those are excellent programs, and I think everything is needed. As originally a generation planner in an electric utility, prior to entering the independent power business many many years ago, we looked at an integrated resource plan for our utility that was filed with the state commission on an annual basis. And as a part of that you look at supply side resources and you look at demand side resources. And what you see with demand response and those type of resources clearing the auction are really demand side resources which are very good at reducing demand. So you've got to meet it from the top down with demand and from the bottom up with clean dispatchable efficient generation. As those two come together, the generating cost becomes even more important because that's the pot of megawatt hours that you've got for your ratepayers to spread the dollars on, whether it's capacity payments from the forward capacity market or whether it's the cost of the energy that's generated. As you shrink from the supply side and the demand side, that becomes even more critical.

In terms of renewables, I think New England is doing a very nice job of implementing renewables, where possible, in terms of solar, in terms of bringing renewables in from New York on the southern side looking internal to ISO New England though. You mentioned investment in demand response. I think that's a very good thing for the state to continue to do. I think most people would agree.

Also though looking at renewables, as many of the ISO New England reports that we've provided have shown, the vast majority of the wind resource and the hydro resource, wind resources in Maine, I think 3,500 megawatts or so in Maine, the hydro resource comes in from New Brunswick. To get those resources into the bulk of ISO New England where the load centers are around the coast of Connecticut, around the Boston area, there's got to be significant investment in permitting in incremental transmission. Because right now you can put thousands of megawatts of wind in Maine and take advantage of that wind resource, but you can't get it here.

So in electric grid reliability terms, a resource that's efficient and generates at a

very low cost is great, but if you can't get it to the ultimate load, then it really doesn't -- it doesn't have that impact. So if ISO New England were to build a significant amount of north-south transmission to bring that wind from Maine down, then it becomes an extremely reliable resource.

The other topic before I hand it over to Mr. Paterno to add anything he wants was the technology. We look at technology. Technology is something that is continually improving. As an engineer, as particularly an industrial engineer, you had mentioned your stomach earlier; I'll mention my wife. She's like, I live a life of somebody who constantly wants to improve things.

So looking at this from that industrial engineering perspective, what we have to go on is the best manufacturing of electronic equipment that's available today. We do know that gas turbines will increase in efficiently. Batteries will increase in efficiency. Wind turbines will increase in efficiency. Technology out there and advancements are phenomenal. But right now, as far as NTE is concerned, as far as the Commission is concerned, as far as ISO New England is concerned, we have to work within the framework of

what we know are available and renewable resources now to meet the needs of Connecticut and ISO into the foreseeable future. And so that's kind of my thought on the technology.

Ethan, would you like to add anything, or Chris?

THE WITNESS (Paterno): Yes, just one quick thing to address the Chairman's points. And you make a great example, sir, on California, because I think California, probably along with Hawaii, is arguably the leading state in renewable integration and advancing quote/unquote clean technology programs, be it demand response, energy efficiency, renewables. In the particular case of California, battery storage, they've done phenomenal in putting out RFPs on behalf of the state electric utilities to try and attract that stuff into the market.

That said -- and I don't have any examples for you, and I apologize for that -- California continues to issue RFPs for new combined-cycle technology, not dissimilar to Killingly that we're discussing here today. And in addition to that -- and this gets back to the point Mr. Bradley made -- you get a unique

circumstance when you start to add large amounts of renewable generation to the grid and your electricity peak demand as well as average load starts to decrease. And in particular, that puts the reliability of the grid potentially at risk. What that means in sort of independent system operator parlance is you need more quick-start resources. And California has actually gone out there and created programs within its ancillary service market to ensure that it has those adequate amounts of quick-start resources to effectively manage the grid for intermittent solar and other types of renewable generation.

THE CHAIRMAN: Mr. Hannon and then Senator Murphy.

MR. HANNON: Thank you, Mr. Chairman.

This is a question about need, but it's looking at it sort of from a different perspective. Pilgrim Nuclear, when they shut down, did that come as a surprise to the industry?

THE WITNESS (Paterno): Not particularly, no. Pilgrim is similar to Vermont Yankee in that it's a smallish nuclear plant. It's a single reactor unit.

MR. HANNON: What was the primary

reason that they gave for closing the plant down?

THE WITNESS (Paterno): I'm paraphrasing here at the end of the day, because it was ultimately Entergy's decision to close it, I think they cited low natural gas prices.

MR. HANNON: So my question then is, if the State of Connecticut keeps going towards new gas-powered plants, what impact can that have on Millstone? And then doesn't that really create a need that nobody is really envisioning? And if Millstone ends up going the same way as Pilgrim, all the comments that you're making about some of the environmental benefits of the gas plants compared to oil or coal, that all goes out the window if you're shutting down the biggest nuclear plant in the area. So how would you respond to that?

THE WITNESS (Paterno): You're 100 percent correct, sir, in that sort of hypothetical example. I would say Millstone is slightly different in that it is a bigger facility. So one of the biggest things that affects nuclear plant economics is effectively the fixed-cost burden. And just sort of playing the hypothetical on that, I know for one particular nuclear plant in PJM

they have 150 security guards or something like that at any given time. So there's tremendous fixed-cost burdens on that which decrease as the size of the plant increases obviously.

So would Killingly, all else equal, decrease the economics of a plant like Millstone? I don't think anybody here would disagree that it won't, because we're saying Killingly is going to put downward pressure on energy and capacity prices. However, would it cause Millstone to retire? No, I do not think so.

MR. HANNON: I'm not just saying this one plant.

THE WITNESS (Paterno): No, of course.

MR. HANNON: But if the focus of Connecticut is to continue to bring on gas-fired power plants, don't you reach a tipping point at some point in time? I mean, if you have other plants that are saying that the economics to compete with natural gas just don't work anymore, so other sources other than coal or oil are also closing down, isn't there a potential risk of that there also?

THE WITNESS (Paterno): I think you could see that, certainly. In sort of modeling

parlance, what we're talking about is an overbuilt scenario, which we saw in a lot of the U.S. kind of in the mid 2000s. I think a lot of developers have learned from that because, to be honest, they lost a lot of money doing it, not NTE here, but there's other sort of developers that have been doing this 15, 20 years.

So my opinion on that would be that the market would stop the combined cycle entry before you got into a situation where electricity prices and energy and capacity prices got so low that you'd see a nuclear plant such as Millstone retire.

MR. HANNON: Thank you.

THE CHAIRMAN: Senator Murphy.

SENATOR MURPHY: Mr. Bradley, we understand that it's a very efficient proposal that you have before us. We went through the Towantic thing, which had gotten their permit 16, 17 years ago, and we recently had the hearings on changed conditions. And, of course, what they're building is a lot different than what was before us. So we kind of understand, in our limited way, some of the technologies and what you have.

You've given us a great summary of how

things work, but really the bottom line is I really haven't heard anything that tells me that, from what I know about the present system and Towantic coming on and Bridgeport coming on, that if Killingly doesn't happen, the ISO and the Connecticut grid for the next ten years will need you. That's my problem. I don't know where you fit in.

I mean, you gave us a very apt and wonderful lecture of the system and how it works and how you would fit in, if you're approved. But do we really need to add Killingly to the mix we already have approved? And that's really the question that I have before me, and I don't know that it's been answered.

THE WITNESS (Bradley): I think you do. And I think to answer that question very --

SENATOR MURPHY: Well, that's what I'm looking for.

THE WITNESS (Bradley): Right, I think that's -- yes, Killingly is needed. Killingly is absolutely needed for all of the reasons that we have discussed, the potential retirements at risk, 2,000 megawatts potentially retiring in Connecticut on top of what's retired. Yes,

Towantic and Bridgeport are coming in, certainly, but demand response, the need to provide resources that are flexible for demand response, for renewables, the need to provide a resource to Connecticut that's reliable in the wintertime --

SENATOR MURPHY: Tell me, if Towantic and Bridgeport were online, would we be in that situation right now?

THE WITNESS (Bradley): You would still be in that situation, yes. Those resources will help, but as ISO New England has said, those resources are already contemplated by ISO New England. So President van Welie at ISO New England knows that those resources are in their resource mix, and just a month or so ago still promotes, still put up that same sheet showing the expected 2,000 megawatts of retirements in Connecticut, the at-risk retirements for another 6,000, discussed the wintertime reliability issues, discussed the need for fast-start generation for renewables. So yes, those are the reasons that you need Killingly. There could be a very definite reliability problem on the system in the 2020, 2021, '22 time frame if facilities such as Killingly do not come online due to the

increase in demand response, the increase in renewables, the further reduction in generation from the older oil-fired facilities. The fact that many of the very efficient combined-cycle facilities that are in Connecticut now don't have ULSD back-up. Many of the facilities in ISO New England don't.

SENATOR MURPHY: That's back-up. Mr. Silvestri went through that. It's really short-lived. I'm surprised that ISO New England puts that in a different category. I mean, it's basically two days and then you start really trucking the stuff in, you know.

But anyway, go ahead. I'm sorry.

THE WITNESS (Bradley): So to answer your question, yes, those are the reasons that Killingly is needed. If you look at just pure megawatts on the system, the at-risk retirements occur in Connecticut specifically. Connecticut and the ISO as a whole are very close in the ratio of at-risk generation with both having in the 25 to 30 percent range of generation at risk. And especially if you look outside of Connecticut even, the Burrillville units that have cleared the last auction, the next Burrillville unit may very

well clear the next auction. That's going to continue to put downward pressure on the older generation whether Killingly is in the market or not. So you're going to have those same factors.

SENATOR MURPHY: Doesn't Burrillville have a boiler problem?

THE WITNESS (Bradley): Yes, sir, it does. It absolutely does. So the reasons that we've outlined are the reasons that Killingly is needed.

And then the final reason goes back to, I think, if I've kept track, your first question that we are coming to here last, and that is related to need as far as the forward capacity auction goes and how the forward capacity auction defines need. The ISO clearly states that clearing the forward capacity auction is an indication of need for the region.

SENATOR MURPHY: I'm glad you said it was an indication. I was pleased with one of your earlier answers to staff about it was just one of the ingredients.

THE WITNESS (Bradley): It is one of the ingredients, absolutely.

SENATOR MURPHY: As I read your

application, it appeared to be the only ingredient.

THE WITNESS (Bradley): No, it is one of the ingredients.

SENATOR MURPHY: That did not get lost on me.

THE WITNESS (Bradley): Yes, exactly.

And then in response to your question about the determination of need through the function of the forward capacity auction and the sloped demand curve that we discussed, I want Mr. Paterno to kind of talk through that, if that's okay?

THE WITNESS (Paterno): Yes. And I would just sort of echo my earlier comment that the sloped demand curve is ISO New England's way of recognizing that capacity, new power plants in excess of the minimum amount that they require for system reliability, does have a value. And the way they structure that demand curve is as you add more of those power plants in excess of the target, capacity prices go down, and those savings accrue to Connecticut ratepayers at the end of the day.

And keeping within the capacity auction

framework just for a second, when I think about the need of the facility, I think it also serves a need in protecting Connecticut ratepayers perhaps from higher electricity prices. So one of the big things and the interesting thing that happened --

SENATOR MURPHY: The consumers will love that.

THE WITNESS (Paterno): If you go back a couple of capacity auctions ago, and I'm going to throw out some numbers, and please stop me if I get too technical. So we just had FCA#10, right? So let's go back to I believe it's FCA#8. FCA#8 actually saw quite a bit of retirements at the end of the day. And what actually happened was capacity prices spiked. They went to an all-time high of, give or take, $15 a kW month. And that was a function of a whole bunch of capacity retired, and the market couldn't necessarily catch up to that in time, the market being power plant developers such as NTE. Those $15 capacity prices are going to be felt by Connecticut ratepayers at the end of the day.

So that's a long-winded way of saying I think there's a merit to having a cushion basically of excess capacity above the minimum

amount that you otherwise might require to run the system.

SENATOR MURPHY: Thank you.

MR. SILVESTRI: I appreciate the comments up to this point. I've heard generation, you know, varying things, old, new and in the middle, demand side management, conservation types of things. What I haven't heard yet concerns any new or upgraded transmission line, anything coming in from Hydro-Quebec or the other line from Lake Champlain going down to New York. And right now Connecticut is a net exporter of power. And if you start bringing in transmission into different areas that we export to, what does that do with the whole power mix that we've been talking about?

THE WITNESS (Paterno): Great question, and one that I get asked often in my line of business, which is what's going to happen -- let's use Northern Pass as a good example, if that's okay. Northern Pass, if it comes in, it puts downward pressure on energy. I'm sorry. Northern Pass would be about 1,000 megawatt HVDC transmission line originating on the Hydro-Quebec border of Canada terminating in New Hampshire. It's being put forth by Eversource, and it's

contemplated they'll have a long-term contract with Hydro-Quebec, which is the electric utility of Quebec.

Certainly if you think about those type of projects, they'll put downward pressure on energy and capacity prices. But I think in the environment that we see right now, which is low natural gas prices, as well as lower capacity prices, and maybe what we saw a couple years ago, I think the economics of those projects are challenged. And I think there's some support in the market on that as well.

And I know it's not entered into the record, but there was recently an RFP held by the Connecticut State Electric Utilities. And in the press release that I read on that, they made a big thing talking about how the large-scale hydro projects, the Canadian transmission lines, hadn't been accepted in that RFP. So I think the economics of those projects are still challenged in the environment.

DR. KLEMENS: Mr. Chairman, I have a question.

THE CHAIRMAN: Okay.

DR. KLEMENS: There's one thing in all

of this that we've been talking about or haven't talked about, and that is predicated on what you just said, cheap or low-cost natural gas. Low-cost natural gas is largely, I think you would agree, the result of shale gas fracking. And I'm seeing increasingly states that are cutting down on fracking, banning fracking.

What is your sense that we're all chasing this low natural gas and this is just a bubble, and that in ten years or so when there's increased awareness of some of the impacts of fracking, fracking becomes more complex and more difficult, that all this cheaper gas is going to disappear and we may have driven out, as Mr. Hannon said, nuclear in the interim? Is it the best long-term energy strategy for the state to depend so heavily on gas when there's so much controversy about how gas is being obtained from the ground?

I think this is troubling. And I certainly don't believe -- you say this is a dual-fuel generation, but I think earlier Mr. Silvestri sort of had you sit there and lay out how many tank loads you'd have to do to keep this thing going. I mean, this dual-fuel is

really crisis back-up; it's not really a dual-fuel in that sense where you would have the ability to switch between the two fuels. It's one type of fuel with an emergency back-up, much as we have back-ups on cell towers that last a few days. So I don't really think this is a dual-fuel in what I would call where you'd be able to switch seamlessly back and forth for extended periods of time between one or another fuel source.

And please do answer the question about the fracking because that concerns me that we're depending on building so much of this on the concept of cheap abundant natural gas.

THE WITNESS (Bradley): I'll address the issue on fracking relative to the generation mix, and then I think I'd like to have Ethan, Mr. Paterno, step in on that. And then maybe on the air permit for the dual-fuel maybe, Lynn, you want to talk about how we can use fuel when gas is curtailed?

But on the big picture generation, if you look at information provided by any utility like ISO New England, really any type of reliability entity, no entity is going to promote extreme reliance on one fuel. And so that's why

things like, as we discussed, demand response, solar, wind, natural gas, all have their place. ULSD as an emergency fuel has its place. Nuclear energy certainly has its place. In the Northeast coal doesn't have nearly as large of a place as it does where I come from where there's a tremendous amount of coal-fired generation. You're very fortunate in that area.

But looking at the reliance on natural gas, it is a price signal. And if you look at now burning -- what are the options other than natural gas for developing additional generation resources? Certainly nuclear is a current option. There are some nuclear plants being built. Is that the most cost-effective option right now for New England? Most likely not. Look at coal and oil as a new generating source? Definitely not the preferred option.

So when you look at where natural gas is in the resource mix as the best available new technology for electric generation and the best available fuel source from the perspective of price, availability, emissions, it's the fuel of choice. I think if you take that a step further -- and this will segue into, I think,

Mr. Paterno's addition on this -- if you look at various entities such as the Energy Information Administration and various experts in this area, they see a significant supply of gas within the U.S. for the very very long future providing energy independence for the U.S. for something that's much cleaner than coal.

So I don't think any of the information that we have seen has indicated that gas is going to not be available in the future. Certainly as demand increases for natural gas, as demand increases for any commodity, the price will go up. That price will go up, that price will come down, there will be equilibrium points in supply and demand, but natural gas is the desired fuel of the future from an availability perspective and a cost perspective.

Ethan, do you want to add to that?

THE WITNESS (Paterno): Yes. I'm certainly not going to say whether fracking is good or bad. That's a land mine that I'm not going to touch. I'm not an environmentalist. But I will say I think Mr. Bradley made a great point that if not natural gas then what else. Nuclear, I think to a large degree, is off the table. The

one active nuclear plant under construction, Vogtle, which is down in your neck of the woods, is five times overbudget and looking at some costs of about $10,000 a kW, which will be ten times the cost approximately of what we're talking about in this particular project. And at the same time there's a lot of clean energy initiatives being put forward, as we discussed, which I think are great and they're helping make a better environment. That's energy efficiency, demand response and renewables.

But my own personal view, which Mr. Bradley would echo, that I think is supported by ISO New England, is that you get problems at the end of the day in managing the reliability of the system as you add that stuff. And if you have problems, I don't know if there's a better solution to solve those problems than projects like Killingly.

THE WITNESS (Bradley): And to make one addition to that, just by way of example before passing this on to Lynn, Mr. Paterno mentioned Vogtle and the fact that it is significantly overbudget. That's a very different power market design than in New England. In New England with

Killingly, as we mentioned, the ratepayers are not at risk for the development of Killingly. I can tell you in Georgia, as a ratepayer of Georgia Power in a non -- in a regulated bilateral market with a monopoly utility, I am very much at risk for that overrun at Vogtle, and the state Commission has already passed that overrun through to our bills. So that's why that in a market like that nuclear can work right now because the state regulators are willing to flow those costs through to the ratepayers. You don't have that situation here.

And now I wanted to pass it on to Lynn on the air permit question of oil versus gas.

THE WITNESS (Gresock): Dr. Klemens correctly characterizes the facility as predominantly a natural gas fired facility. Allowing the use of ULSD for up to 720 hours on a rolling calendar basis is a bit of an insurance policy to help safeguard reliability. And so you're correct that it's not what one would consider to be the kind of facility that operates equally often on natural gas and fuel oil. And as a matter of fact, we're expecting that in the air permit that would be issued for the project, we'll

include a fairly lengthy list of requirements to make sure that the reason ULSD is being fired is either for appropriate testing or to meet some need due to gas curtailment in other ways.

THE CHAIRMAN: I want to get back to the way we try to usually do things just to make sure everybody gets a chance. We are going to break at 4. We are coming back. So don't take this -- this, depending on your viewpoint, either fortunately or unfortunately, will not be the last meeting on this.

But I want to go to Mr. Ashton.

MR. ASHTON: Very quickly. We've had a lot of discussion about the U.S. gas resource base. You said nothing about the Canadian base, which is equally large and equally domestic in that it's not like oil coming from Nigeria or Indonesia or God knows where, which is subject to interruption. I have to smile, having a long history in the energy business, that we're worried about a preponderance of generation using natural gas. We used oil almost exclusively, and oil is the only energy source that has been interrupted. So I take the worry of natural gas with a huge grain of salt. I think it's the answer for the

future, and frankly the only answer here in New England.

Thank you, Mr. Chairman.

THE CHAIRMAN: Mr. Harder.

MR. HARDER: Thank you, Mr. Chairman.

I guess most of the concern I had, which is on the issue of need, has been discussed adequately. But I guess one of the points that I wanted to make was how you're presenting the issue of what capacity is available, what's not available, what might be available, which makes it kind of confusing.

I'm referring to this map. And some of the terminology here talks about 4,200 megawatts has retired or plans to retire soon. And then you talk about at risk for closing the other additional 6,000 megawatts, in total about 30 percent, could be gone by 2020. And I thought I heard you say -- and I think it was Mr. Bradley that made the comment about the at-risk facilities being those that are planned where there's some definitive knowledge that those facilities are going to be retired. So it seems like there's some mixing up of the terminology of at-risk and might be retired or possibly being

retired.

THE WITNESS (Bradley): Certainly.

MR. HARDER: And I guess the thought I had in mind is if some of the capacity that could be retired or is at risk is in that category because it's old, because it's inefficient, more expensive, and as new facilities come online those older, less efficient facilities drop out. And in light of some of the points that have been made about renewable energy, energy efficiency, energy conservation, batteries, I guess one of the questions we have to answer for ourselves -- and it's not necessarily a question that I'm posing to you that you could answer today -- but if there are facilities that might be a little less efficient for some period of time, why isn't it better to use them for a shorter period of time in anticipation of continuing improvements in efficiency and conservation and battery storage and perhaps other alternative means of generating energy rather than spending a lot of money and undergoing a lot of expenditures, not just financial, but environmental and whatever, to put in a new facility?

I'm thinking of it in simplistic terms

and thinking about it, you know, about buying a car. I have a ten-year-old car. Maybe I'll keep it for a couple of years instead of buying what would be a nice new efficient car by today's standards if I knew there's going to be something a lot better, a lot more efficient, maybe zero emissions and whatever just a few years down road. Even though it's going to cost me a little more to use that car for a few years, why should I buy a new one now and put myself in that position of being even less likely to be able to afford or less reason to buy that really efficient vehicle a couple years down the road?

THE WITNESS (Bradley): Sure. And I can respond to both of those things. I think first there's some confusion regarding the retirements versus the at-risk retirements. I wanted to address that first, and then we'll go to the other question.

I'm actually looking at Item 1 in the NTE administrative items, which is the 2016 Regional Electricity Outlook from ISO New England. That map that you provided is in this document. It's provided by ISO New England. It's in slightly different format in a number of

documents, but it's the same map with the same text.

So what you see -- let's look at Connecticut, for example. There's an X on Norwalk, which means that it is closed or is in the process of being closed. Bridgeport Unit Number 2 is listed as closed. So those two units that ISO New England shows as closed have announced in the process of retiring and have either retired or will retire very soon. And so those are units that are actually in the retirement process. The at-risk units, which will be Middletown, Montville, New Haven and Bridgeport 3 in that same map provided by ISO New England are included in that 6,000 megawatts that they label at risk by 2020.

And what that means is that from a reliability evaluation perspective ISO New England has looked at their existing resource fleet, and they look at the forward energy price projections, the forward capacity price projections, the operating and maintenance costs associated with those facilities, the emissions of those facilities, and have determined that these facilities that they label as at-risk, although

they're not in the process of retiring at this moment, are at a very high probability that they will be retiring or forced to retire by 2020. So that's the differential there.

So the two in Connecticut, Norwalk and Bridgeport 2, have retired or are in the process of retiring. The others that are labeled at risk are still generating but looking at their long-term viability. For a number of reasons they are not expected to be a long-term viable resource for the region.

So that comes to the question on technology and why not wait a little while for technology to advance. And that's a very good question. And if you look at a number of different forms of technology out there, electric generating technology continues to improve. Battery technology continues to improve. Wind turbine, solar technology, all continues to improve. But what you look at in terms of need that goes back to Senator Murphy's line of questions and statements as well is ISO New England in Connecticut looks at a near-term need, medium-term need and a longer-term need. So the near-term need is I would personally call the

near-term need now through, say, 2020 when the next forward capacity auction would occur. So that need has been taken care of through FCA#10 back. So starting with FCA#11 for 2021 for that foreseeable future, which is three years out, you're looking at serving that years capacity needs.

So even though you're looking at that now for three years out, the technology has to be available today to be installed, commercialized, approved by ISO New England, validated as a qualified resource by the Independent Market Monitor, IMM. So you're really looking at today's technology being applied three years out. Given that battery technology is advancing, all these other technologies are advancing, you're still looking at a fairly long-term window of, you know, 8, 10, 12 years, most likely, to get battery technology to the point that it's reliable for more than just a very short-term spike in energy usage or to get solar panels where they'll have more than a 20 percent operating, you know, load factor or capacity factor, as we discussed before.

So Killingly serves a medium to long-term need. As time progresses those other

technologies will continue to phase in. The process in New England is there, but those technologies are not available today in a quantity that's really reliably economically achievable to meet the medium-term capacity and energy requirements here in New England.

Do you want to add anything?

THE WITNESS (Paterno): The only thing I would add to that is the comment on if you knew, which I think is a good one. For example, if I'm going to buy a car, Elon Musk tells me he's going to have the latest and greatest thing out in 2018. So I kind of know that, to the extent you can believe Elon. When it comes to some of these other technologies, I think battery storage is a great example, there's a lot of uncertainty there. And by no means am I battery storage expert. There's other colleagues of mine that are, but I've sort of gleaned enough around the water cooler to get the general gist of the situation. Current battery storage technology is primarily lithium ion based. Lithium ions, everybody's heard of the Samsung Notes that keep exploding or the Samsung 7s or whatever. That's the sort of concept there. From what I understand of the

future of batteries, it's really flow batteries which, from what I understand, is 10-plus years out, and nobody is exactly sure. That's a prognostication.

So to the point of using the most economically efficient and known technology, I think as it comes here today, the turbines that Killingly uses fit those needs.

THE WITNESS (Eves): But on the whole issue of technology, I mean, if you look back in the '30s and '40s when we were burning two and a half pounds of coal to generate a kilowatt hour, we had small facilities located within towns, within the load centers. As we moved out in time, we advanced the transmission system. In the mid '60s, mid '70s we started building much larger facilities out in remote areas and transmitting the power into town. However, we couldn't replace all the units that were inside cities generating as we came up with this new technology. So those facilities within the city continued to operate.

The first combined-cycle unit went into service in the mid '70s, which is a fantastic reuse of waste heat. We still, those old units that were local inside the cities, some of them

remained operational, some of them were replaced. The first advanced combustion turbine went into service in the late '80s. So as the technology advances, you can't replace all of yesterday's technology with today's. It's kind of a phase-out.

So as we advance in time, the units that are falling off are not the units that were built ten years ago; they were the units that were built 50 years ago. I mean, we still have some of those units operating, those small city units that have, you know, efficiencies in the 10 to 15 percent range even though these combined-cycle units are now operating in the 60 percent range. So as technology advances, what we're replacing is the very oldest technology that's operational.

So in your example about buying a car, I would think maybe a different analogy would be if you had a business and you had a fleet of trucks, and it was time for you to buy a new truck. The truck that you would probably replace is the oldest truck on your fleet that has lower MPG, has a lot of, you know, maintenance associated with it and things like that.

So, you know, as battery technology

comes on, it's definitely going to have its place. And as that works, the units that are going to fall off the generation are the older, more inefficient units that are, you know, expensive to maintain and inefficient to operate.

MR. HARDER: That's it.

THE CHAIRMAN: Mr. Levesque, do you have any questions?

MR. LEVESQUE: Sure. Probably for Tetra Tech. The visibility analysis, is it true that you only used five viewpoints? That's what it shows on your map.

THE WITNESS (Gresock): We evaluated a number of locations, took photographs, and did line of sight drawings in a number of locations, but did a limited number of visual simulations at locations where we thought the opportunity to be able to understand what the visual impact could be --

MR. LEVESQUE: I saw that. But, I mean, for such a large project we're used to seeing a lot more.

THE WITNESS (Gresock): It's always a balance. We could have produced more, but showing a lot more visual -- a lot more views that still

don't show anything other than trees blocking the view, on balance we decided that providing the terrain and the tree buffer information, providing some of the lines of sight information for some of the places where we didn't do visualizations, and then providing the visualizations would be most meaningful.

MR. LEVESQUE: As far as like the drawings and the graphs, it seems like the actual photographs with the stack and maybe the simulation of the plume might seem more convincing and accurate like to the members of the public.

THE WITNESS (Gresock): One of the challenges that you also face with an assessment like this is that the vantage points that we need to use for photographs need to be from public ways that are not on people's property. And I think one of the reasons we're careful to conclude in the analysis that even though the stack didn't demonstrate a lot of visibility with the particular vantage points we showed, we do think that there probably are some places from which the stack top may be visible. And so we want to be very careful to indicate that what we are able to evaluate isn't necessarily every view that

everyone would potentially see.

MR. LEVESQUE: Okay. Thank you.

My next set of questions has to do with the traffic and the roads probably, so I'm sure Mr. Hesketh and maybe Mr. Thibeault, because he's the local engineer, has good experience there.

Mr. Hesketh, there's no page numbers on your report. That would have been helpful for everybody to follow.

THE WITNESS (Hesketh): Sorry about that.

MR. LEVESQUE: So you said the roadway to the site has a speed limit of 25 miles an hour. Is that correct? It's on the second page of your report.

Mr. Bradley, the 50 or so trucks, tractor-trailers a day for oil delivery, in this region of Northeastern Connecticut near Rhode Island, Mass., Boston, wouldn't those mostly be on the coldest winter days?

THE WITNESS (Bradley): Yes, they should.

MR. LEVESQUE: When there's gas constraints?

THE WITNESS (Bradley): Yes. That's

correct.

MR. LEVESQUE: I want to remind everybody why you can't purchase enough gas on those days.

THE WITNESS (Bradley): Sure. I'll be glad to. The ability to burn ULSD as a back-up would occur whenever there was a curtailment of firm natural gas on the pipeline, in our case on the Algonquin pipeline. We know from speaking with Algonquin, our fuel supplier Emera, other entities that take firm natural gas from the pipe, that over the past three to four years there's not been a situation on the pipe where there's been a curtailment due to lack of gas.

Now, there have been situations where there were curtailments or reduction in flow in the wintertime during high demand because of what they would refer to as a force majeure on the pipe, which would means a problem with the compressor, some type of mechanical problem on the pipe that might limit flow. But those situations are very very few and far between, which is very important to understand when we're talking about the requirement to bring the trucks for the ULSD.

This is an emergency situation. It's

not expected to be any type of prolonged situation, and purely dependent on the pipeline physically not being able to deliver firm gas, which is very very rare.

MR. LEVESQUE: How about the competition from residential heating and commercial when it's the coldest days?

THE WITNESS (Bradley): Right. And as we had discussed earlier, residential heating, some forms of residential heating, hospitals, temperature critical firm loads that are behind LDCs, certainly have priority. But even in that case many times they're still sufficient to provide gas for power generation and other large needs such as that. Power generation is a very high priority need. Even looking at the various curtailments of firm, power generation is very high for no reason other than the exact same folks who need that gas. A gas-fired furnace really isn't any good if the electric fan on that gas-fired furnace won't operate. So it's all very high reliability.

MR. LEVESQUE: Would you ever produce because of the peaking price, those higher spikes we've been seeing?

THE WITNESS (Bradley): No. Our air permit does not allow us to burn ULSD for economic purposes.

Is that correct?

THE WITNESS (Eves): That's correct.

MR. LEVESQUE: Mr. Hesketh, did you find out?

THE WITNESS (Hesketh): Yes. We've indicated in the report that there are portions of Lake Road which are posted at 25 miles per hour, and there are portions of Lake Road posted at 35 miles per hour.

MR. LEVESQUE: And how about are there any "no trucks allowed" limitations or signs?

THE WITNESS (Hesketh): Yes. The section of Lake Road between Route 101 and Forbes Road is posted for no trucks, that's correct.

MR. LEVESQUE: And then you said that there was one other -- there's another possible development that would add traffic to the area. Is it Questar Fueling Company?

THE WITNESS (Hesketh): Yes. As part of our preparation of the report, we included the other potential approved but not yet constructed developments which may add traffic to the area,

and Questar is the one development which we identified through town records and the Office of the State Traffic Administration which might add traffic to the vicinity.

MR. LEVESQUE: Is that a fuel wholesaler or --

THE WITNESS (Hesketh): I'm not exactly sure what kind of development it is. We obtained the size of the facility, and assuming it was an industrial-type facility, generated traffic for that, and then added it to the roadway network.

THE WITNESS (Mirabito): I'm not quite sure what type of facility it is, but we do understand from that town that that project is not proceeding.

MR. LEVESQUE: Okay. And also you had comments in your report -- and I'm sorry I don't have the page -- about the curve in the road being 26 feet instead of 40 feet wide and probably inadequate for all these construction vehicles and tankers if it was to be built?

THE WITNESS (Hesketh): There is a section of Lake Road which -- well, Lake Road west of Forbes runs about 22 to 24 feet in pavement width. Sections of Lake Road east of that are 30

to 40 feet in pavement width. So we have proposed to provide some improvements to upgrade that roadway to a 30-foot minimum width to soften the curvature of the roadway just west of Forbes Road to better allow truck traffic to access the facility. And in conjunction with that, we would propose to relocate the truck restriction to a point immediately west of our site driveway to allow vehicles accessing our site to do so.

MR. LEVESQUE: So you entered discussions with the town to pay for those and design?

THE WITNESS (Hesketh): Well, the design of the improvements of the roadway would be the responsibility of the applicant, the developer here. We will work with the town to provide the appropriate geometries, roadway widths, pavement subsections and the like. So we're in the process now of conducting field surveys in that section so we can identify the appropriate improvements.

THE WITNESS (Eves): I'm not sure I heard your question, but NTE will be paying for those improvements.

MR. LEVESQUE: That's what I was inquiring about. Thank you.

THE WITNESS (Eves): Yes, sir.
MR. LEVESQUE: Is there any bridges that would be inadequate all the way to the highway?
THE WITNESS (Hesketh): Bridges --
MR. LEVESQUE: Like for your cranes.
THE WITNESS (Hesketh): Well, there's an existing industrial park located on Lake Road between I-395 and the proposed site which has a significant volume of tractor-trailer truck activity. So we believe that the roadways will be sufficient to accommodate the traffic loads that we are proposing.
MR. LEVESQUE: How about your boilers and those things, it might be the biggest thing they've seen.
THE WITNESS (Hesketh): Well, those are generally delivered -- large-scale items like that have to be delivered on trucks which are permitted by the state. So the loads will be distributed over a certain number of axles. When those types of vehicles are delivered, we'll coordinate that with state police to make sure that they're done safely.
MR. LEVESQUE: You have to do a

detailed study on safety for the bridges?

THE WITNESS (Rega): Yes, that's right. We'll certainly do that detailed logistic study when the time comes. We have to identify exactly the paths that they will be coming down. Obviously, the proximity to 395, we expect that that will be used, but then of course, yeah, there will be a detailed logistic study completed at that time.

MR. LEVESQUE: And the trailers for fuel, where would they come from, Providence Harbor? They may not come on 345. The fuel oil, which port would they come from?

THE WITNESS (Rega): I don't know exactly where the trucks would come from. I was anticipating they would come down 395, but we haven't identified a specific port yet.

MR. LEVESQUE: Does anybody know?

THE WITNESS (Bradley): No. There are a number of different suppliers for ULSD in the area. I would agree with Chris. Everything that we've looked at, they'll come 395. We may very well have supply agreements with multiple suppliers. Some could come from the north, some could come from the south, depending on where

their terminal is, either at a port or a pipeline gathering station or something like that. They could come from a variety of sources.

THE WITNESS (Hesketh): And due to the restriction of truck traffic on Lake Road west of the site, contracts with those suppliers would include the fact that they would have to approach the site from 395 and east of the site staying off that section of Lake Road.

MR. LEVESQUE: Well, for a matter of safety, they'd want that too, right?

THE WITNESS (Hesketh): It would be the appropriate thing to do, yes.

MR. LEVESQUE: Okay. Thank you very much.

THE CHAIRMAN: Mr. Hannon.

MR. HANNON: Thank you. Mr. Chairman.

I do have a number of questions, but some of the questions I had originally worked out were changed, I guess, about a week or a week and a half ago when the revised maps were submitted. So I'm probably going to have to have a little bit of time at the next meeting to go through some of those issues.

I guess probably the easiest way do it

is in Volume I on page 41 you state you've got a million-gallon oil tank on site. NTE expects with proper maintenance the ULSD can be stored for two or three years. What do you mean by "proper maintenance"?

THE WITNESS (Rega): So for the most part that will be recirculation of the fuel, it will be keeping it at the proper temperature, and also the addition of certain additives to keep any sort of biological growth from happening in that tank.

MR. HANNON: So during the winter months when it's colder, I'm assuming there's heat involved in it to try to maintain the oil so that it actually flows?

THE WITNESS (Rega): That's correct.

MR. HANNON: And then what I was kind of surprised at is, based on NTE's responses on Question Number 31 on page 13, I was surprised to see how you would possibly get rid of the oil coming close to the end of its useful life, and that would be by selling it back to suppliers. That's the first time I've really heard that.

So I just want to make sure that there would be no reason for burning the oil as a way of

getting rid of -- you have other ways of removing that oil so that you can replenish it with something that has a longer shelf life, if you will.

THE WITNESS (Rega): That's correct, yes. We would not burn it just to get rid of it.

MR. HANNON: Okay. Because if an air permit was ever issued, that would also be one of the requirements, because I think you have certain limitations. So I just want that on the record.

THE WITNESS (Rega): Yes.

MR. HANNON: On page 45 you talk about NTE will procure emission reduction credits to offset emissions. Can you just explain why you need that? I think it's probably something that's been discussed at a number of the meetings, but just for the record can you please explain why you would need those credits?

THE WITNESS (Sellars): Sure. Under the Clean Air Act Nonattainment New Source Review rules, any new major source or major modification above a certain threshold is required by the Clean Air Act to obtain emission offsets for that pollutant in a ratio based on the ozone nonattainment classification. In this case that

would be a ratio of 1.2 to 1. So based on our maximum potential to emit the maximum permitted amount, we would have to buy 1.2 times that in emission reduction credits that would be converted into emission offsets by the DEEP.

MR. HANNON: Thank you.

On page 48, if I'm looking at this diagram correctly, it looks like the HRSG steam cycle blowdown and sampling wastewater, that goes down to the sanitary sewer line, correct?

THE WITNESS (Rega): That's correct.

MR. HANNON: The reason I'm asking the question on it is because in a recently-approved docket by the Council another company was actually able to go in and recover and reuse all of the HRSG blowdown. So have you looked at that, and is that a way of possibly reducing some of your water needs?

THE WITNESS (Rega): It is theoretically possible. But my understanding of that docket, that company decided to do that because of a restriction that they had in the amount of wastewater that they could generate. Not having that restriction here, that type of cycle and technology has certain risks associated

with it. And that plant, of course, is not operating yet, but they are recovering that. They are going to attempt to recover that. But there are operational concerns with that type of cycle, but again, they did that because of a restriction that they had on their wastewater discharge.

MR. HANNON: Okay.

THE WITNESS (Rega): It's an unusual design.

MR. HANNON: Okay. Another question I have for you. On page 51 it sort of ties in with the discharge, so maybe it's the same thing in which you were just responding to. You're talking about an average of approximately 30,000 to 45,000 gallons per day of wastewater under the natural gas fired operation, and the same project previously in Oxford they were talking about discharging 6,480 gallons per day, which included stormwater. And after the stormwater was removed, they were down to about 4,000 gallons a day, I believe. So I'm just trying to get a better understanding as to the variation in terms of how your volumes are much higher than what they're proposing.

THE WITNESS (Rega): Yes, and it really

is the same response. It came down to, again, my understanding, a restriction on their wastewater discharge. And I would certainly have concerns about the viability of maintaining that sort of level of wastewater. I've seen their diagram. I've seen their process. But again, we did not have that same restriction here on wastewater.

MR. HANNON: Also at page 61 the application talks about the types of solid waste that will be generated at the site. And I believe it was also mentioned earlier today that there is an existing house on the site that would need to be demolished, assuming this project goes forward. Has any thought been given to, instead of just going in there with the bulldozers and taking the house down and leaving no brick standing, about sort of dismantling that unit and trying to recycle as much of the material in that house as possible, seeing as how there is a building material reuse center in Putnam? It's relatively close by.

THE WITNESS (Rega): I think it's a good point. I can't say it's something that I've thought about, but certainly something that can be taken into consideration. Thank you.

MR. HANNON: I think one of the things that has been mentioned is a little bit of blasting. And if I read correctly, with some of the newer material that came in, there will be some rock crushing on site?

THE WITNESS (Rega): There will, yes.

MR. HANNON: And is that going to require an air permit, or are you bringing somebody in that already has a license for it?

THE WITNESS (Rega): We'll certainly bring somebody in that has a license for that. I'm not too familiar with exactly what their permitting requirements are, but we'll certainly bring a licensed contractor to do that work.

MR. HANNON: Okay. Like I said, with some of the erosion sedimentation control, that I want to hold off on because I need to go back and take a look at some of the newer material. But I think people realize we need to look at that rather closely.

The pipeline replacement -- this is on page 161 -- I know you're talking about going in -- and I guess this would be Eversource that would be responsible for doing it -- replacing the existing pipe with a larger diameter pipe within

the existing right-of-way. One of the areas where I was a little concerned, I guess, is when it comes to the Quinebaug River crossing. Is the old pipe being left in there? Is there enough room then within the existing right-of-way to be able to bore another pipe in there within the same right-of-way? And then what would happen with that pipe that's left under the river?

THE WITNESS (Bradley): I know from our conversations with Yankee Gas that they intend to lay the new pipe beside the existing pipe. So they would not have to remove the existing pipe in order to lay the new pipe.

I do know also they've discussed that in the vast majority of that right-of-way, their preliminary plan is to remove the existing pipe after the new pipe is complete and in service. As far as the particular portion where it goes under the Quinebaug River, I do not know. They have not discussed that piece specifically.

Lynn, you might -- could add something to that.

THE WITNESS (Gresock): I think it's our understanding that they're planning to bore it and not remove the existing pipe but to leave it

in place, assuming that there's more disruption potentially associated with removing a pipe than would be otherwise the case. But I imagine that as they develop more design details, we'll know a lot more about that.

MR. HANNON: Thank you.

Switching to Volume 3, Appendix G. In the updates, the memo to Jim Grillo, there's information about an auxiliary boiler. Can you just give me a better understanding as to what the use of that auxiliary boiler is for and when it would be used?

THE WITNESS (Rega): So the auxiliary boiler would be used really primarily for start-up. So prior to start-up, there are a number of operations that we would have -- prior to starting the gas turbine unit, I should say -- to keep things warm, to keep things cold, steam seals on the steam turbine. And what it really does is facilitate much faster start-ups so that we can get the unit up quicker, we can vent minimally any sort of steam before we sort of get it online, and then get it up to emissions compliance very quickly within about 30 minutes. That's what it facilitates.

MR. SILVESTRI: I'm under the impression that the auxiliary boiler will also keep the HRSG warm during periods of turbine shutdown. Is that correct?

THE WITNESS (Rega): Correct, yes. So if we're down for a considerable amount of time for turbine maintenance, which has happened occasionally, then it's called a cold start-up. So for that cold start-up, we would then sparge the boiler, it's called, to sort of warm it up, again, to facilitate faster start-ups.

MR. SILVESTRI: How long would a shutdown or maintenance be predicted to be, days, weeks?

THE WITNESS (Rega): The longest shutdown we would anticipate is probably 30 to 45 days.

MR. SILVESTRI: At what point would the aux boiler be shut down and the HRSG remain cold?

THE WITNESS (Rega): Sorry. I just want to clarify. So when we shut down for an outage, we wouldn't have the aux boiler running then.

MR. SILVESTRI: So that would be off?

THE WITNESS (Rega): It would be off.

We would look to cool down the equipment so we can get in there and maintain it, and then it would be started up just prior to restarting the unit.

MR. SILVESTRI: And restart times for cold and hot start-ups would be 35 and 30 minutes?

THE WITNESS (Rega): Yes. Correct.

MR. SILVESTRI: Thank you.

MR. HANNON: Who's placing the 4,600 hour limitation on the boiler, is it you, or is it the agency?

THE WITNESS (Gresock): We've established that based upon what we believe is a generous reasonable usage, and it's consistent with other permits that have been issued in the state.

MR. HANNON: And I haven't heard this discussed. We've talked about one of these air issues earlier. But if you would be so kind as to just explain specifically what it means when you're talking about exceeding significant impact levels of pollutants. Because I think there may be a misconception as to just exactly what that means.

THE WITNESS (Sellars): Yes. Thank you for that question. And there's generally a lot of

details and confusion about many aspects of the air quality permitting process.

The air quality compliance modeling demonstration process is an iterative multi-phase process. And what the Clean Air Act requires is that an applicant for a new facility demonstrate that the proposed action, whether it's a new facility or a modification, does not -- taken into consideration existing air quality levels, contributions from other sources in the area, plus the proposed source, all added together, will not cause or significantly contribute to a violation of one of the National Ambient Air Quality Standards.

So one of the first steps in the modeling is to model the proposed source by itself. And using the metric of the highest predicted concentration over the five years of meteorological data that would apply to the model, compare those results to something called a Significant Impact Level.

A Significant Impact Level is not a health-based standard. It has no bearing whatsoever to any health criteria. It is a screening level below which a facility would be

deemed to not significantly contribute if there were a violation. So what that first piece of analysis does is it determines for which pollutants, which averaging periods, and over what geographic area do we have to look at other contributing sources in that cumulative impact assessment.

So if the predicted concentration is below that Significant Impact Level, it is deemed to have screened out of any further analysis. So if in the case here for, say, the annual sulfur dioxide standard the predicted concentration is well below that significant impact level, so compliance with the Ambient Air Quality Standard is assured. There's no reason to do any further analysis.

The Significant Impact Level analysis then determines the radius within which certain sources have to be included in that cumulative impact analysis. So it will take something called the Significant Impact Area, which takes the receptor that the model predicts concentrations at that is furthest away from the stack and draw that size circle around the stack. And that doesn't mean that all of the area within that circle has

pretty good concentrations above that Significant Impact Level. In fact, there are usually just a few receptors here and there. But it draws that circle, and it says basically that any facility that would be above any stack that had actual emissions above 15 tons per year that falls within that circle needs to be included in our inventory of other sources that we do the cumulative impact analysis for.

From within 20 kilometers of the source we'd be looking at stacks with emissions greater than 50 tons per year would be deemed significant enough to be included in the modeling. And then between 20 kilometers and 50 kilometers of the stack you would have to look at all stacks that had actual emissions greater than 500 tons per year. So it's kind of a screening process that you then look at every stack in those radiuses and determine which facilities need to be included in the cumulative impact analysis.

The Significant Impact Analysis at first also determines which receptors that you have to include, so which points in space does the project have the potential to exceed that Significant Impact Level. And those receptors and

those other sources are all then modeled together in a cumulative analysis adding in conservative background and then comparing that sum total to the health-based National Ambient Air Quality Standards.

MR. HANNON: Thank you. I just had a couple of other really quick questions. In the appeal of and responses to Municipal Regulate and Restrict Orders on page 15 under Question 4, you talk about notifying the fire marshal, the town manager and other appropriate town staff if there is any type of spill. Is there a specific reason why you eliminated DEEP?

THE WITNESS (Gresock): Only because this was written to the town. Of course, we will notify DEEP.

MR. HANNON: Just checking.

The last one. This is on the response of NTE Connecticut to Council Question 61 on page 31. You talk about the generator step-up transformers will have concrete containment structures to capture any spills or leaks. Is there any discussion about coating that concrete with epoxy or any type of material so that it doesn't leak through?

THE WITNESS (Walsh): Could you repeat the question, please?

MR. HANNON: Sure. The question was would both generator step-up transformers have containment measures in the event of any leaks of dielectric fluid. And the answer was, yes, both generator step-up transformers will have concrete containment structures to capture any leaks or spills.

My question is, has there been any thought to coating that concrete with some type of epoxy material so that it doesn't leach through the concrete?

THE WITNESS (Walsh): In the course of the typical project development, each instance where any containment is will be evaluated on an individual basis, but off the top of my head, no, I don't believe we've considered that at this stage; but if it is required, it will be deployed.

MR. HANNON: Just a suggestion you might want to consider.

THE WITNESS (Walsh): Yes.

MR. HANNON: I think I'm done for today.

THE CHAIRMAN: Okay. I think we're

done too.

THE CHAIRMAN: The Council announces that it will continue the evidentiary session. We still have a couple more questions from the Council members, and then we'll continue the cross-examination with the other parties. So the continuation will be held at this office at Ten Franklin Square in New Britain on Tuesday, November 15, 2016 at 11 a.m. in the same hearing room one.

Please note that anyone who has not become a party or intervenor, but who desires to make his or her views known to the Council, may file written statements with the Council until the record closes.

Again, copies of the transcript of the hearing will be filed at the Killingly, Putnam and Pomfret Town Clerk's offices.

I hereby declare this portion of the hearing adjourned. Thank you for your participation. Drive home safely.

(Whereupon, the witnesses were excused, and the above proceedings were adjourned at 4 p.m.)

CERTIFICATE

I hereby certify that the foregoing 203 pages are a complete and accurate computer-aided transcription of my original stenotype notes taken of the Council Meeting in Re: DOCKET NO. 470, APPLICATION OF NTE CONNECTICUT, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A 550-MEGAWATT DUAL-FUEL COMBINED CYCLE ELECTRIC GENERATING FACILITY AND ASSOCIATED ELECTRICAL INTERCONNECTION SWITCHYARD LOCATED AT 180 AND 189 LAKE ROAD, KILLINGLY, CONNECTICUT, which was held before ROBERT STEIN, Chairman, at Ten Franklin Square, New Britain, Connecticut, on November 3, 2016.

Lisa L. Warner, L.S.R., 061
Court Reporter

I N D E X

I n d e x: (Cont'd)

APPLICANT'S EXHIBITS

(Received in evidence)

I n d e x: (Cont'd)

I n d e x: (Cont'd)

I n d e x: (Cont'd)