Transcript of the Hearing of

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Docket No. 192B
CPV Towantic, LLC, Motion to Reopen and Modify the June 23, 1999 Certificate of Environmental Compatibility and Public Need Based on Changed Conditions Pursuant to Connecticut General Statutes §4-181a(b) for the Construction, Maintenance and Operation of a 785 MW Dual-Fuel Combined Cycle Electric Generating Facility Located North of the Prokop Road and Towantic Hill Road Intersection in the Town of Oxford, Connecticut

Continued Public Hearing held at the Connecticut Siting Council, 10 Franklin Square, New Britain, Connecticut, on Thursday, January 29, 2015, beginning at 11:00 a.m.

H e l d B e f o r e:

ROBERT STEIN, Chairman

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Appearances:
Council Members:
SENATOR JAMES J. MURPHY, JR.,
Vice Chairman
DR. BARBARA C. BELL
LARRY LEVESQUE, PURA Designee
ROBERT HANNON, DEEP Designee
PHILIP T. ASHTON
DR. MICHAEL W. KLEMENS
DAVID LYNCH

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

For CPV Towantic, LLC:
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By: PHILIP M. SMALL, ESQ.
FRANCA L. DeROSA, ESQ

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Appearances (Cont'd.):
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Middlebury, Connecticut 06470
By: STEPHEN SAVARESE, ESQ.

Also present for the Town of Middlebury:
RAYMOND PIETRORAZIO

For the Connecticut Light & Power
Company:
NORTHEAST UTILITIES SERVICE COMPANY
107 Selden Street
Berlin, Connecticut 06037
By: JOHN R. MORISSETTE, ESQ.

For the Town of Oxford:
CONDON & SAVITT, PC
223 Wakelee Avenue
Ansonia, Connecticut 06401
By: KEVIN CONDON, ESQ.

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THE CHAIRMAN: Good morning, everybody. I'd like to call to order the meeting of the Connecticut Siting Council, Docket Number 192B, today, Thursday, January 29, 2015, approximately 11:05. My name is Robin Stein. I'm Chairman of the Connecticut Siting Council.

This hearing is held pursuant to the provisions of Title 16 of the Connecticut General Statutes and of the Uniform Administrative Procedure Act upon a motion to reopen the final decision of certificate of environmental compatibility and public need held by CPV Towantic, LLC, for the construction, maintenance and operation of a 785-megawatt dual-fuel combined cycle electric generating facility, located north of Prokop Road and Towantic Hill Road intersection in the town of Oxford, Connecticut.

On November 13, 2014, the Council, pursuant to a request filed by PV--P -- CPV Towantic, LLC, and the provisions of the Connecticut General Statutes Section 4-181a, Subsection (B), reopened the final

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decision rendered in this docket.

On June 23, 1999, the Council had considered and approved granting a certificate to the -- to the applicant's predecessor for the construction --

A VOICE: I'm sorry. We can't hear back here.

THE CHAIRMAN: We're working on getting the mics -- mics fixed, but if you -- there are -- there are a couple seats closer. So you can -- I see some seats. So if those in the back want to move a little bit closer, feel free, but...

So, again, to repeat -- and this was all stated at the -- at the public hearing that was held, so a lot of this is what you already heard.

Again, on June 23, 1999, the Council considered and approved granting a certificate to the applicant's predecessor for the construction, maintenance and operation of a 512-megawatt natural gas-fired combined-cycle facility located at the -- the same site in the Town of Oxford.

On March 1, 2001, the Council

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considered and approved a final site plan for the facility. The certificate for the facility is scheduled to expire on June 1, 2016.

A verbatim transcript will be made of this hearing and deposited at the Town Clerk's Office in the Oxford and Middlebury Town Halls for the convenience of the public.

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

The Council received a request from Middlebury Land Trust for a 90-day extension to provide expert testimony, dated January 21, 2015, and a request from the Westover School for a 90-day extension, dated January 23, 2015.

I will ask our staff attorney and executive director, Attorney Bachman to comment.

MS. BACHMAN: Thank you, Mr. Chairman.

We do have a schedule for additional prefiled testimony and exhibits to

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be submitted on or before February 3rd. However, we don't anticipate completing the hearing by the end of February and have scheduled additional hearing dates for March.

I would recommend that we deny this request, in part, as it relates to a 90-day extension, but to grant it, in part, as it relates to a 30-day extension to allow for additional prefiled testimony and exhibits to be submitted on or before March 3rd.

MR. ASHTON: So moved.

DR. BELL: Second.

THE CHAIRMAN: I have a motion. We have a second.

Any discussion?

Okay. All those in favor of a 30-day extension, signify it by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstention?

The motion carries.

The Council has also received a request from Jay Halpern for a moratorium on further consideration of the project.

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Again, our executive director may wish to comment.

MS. BACHMAN: Thank you, Mr. Chairman.

As -- as we've had the experience with the wind petitions, it is clear we do not have any authority to issue a moratorium, and therefore, I recommend the request be denied.

MR. ASHTON: So moved.

DR. KLEMENS: Second.

THE CHAIRMAN: A motion, a second.

Discussion?

All those in favor signify by saying aye.

THE COUNCIL: Aye.

THE CHAIRMAN: Opposed? Abstentions?

The motion carries.

The Council has also added 15 items to the administrative notice list, which is -- which are listed as Roman numeral ID, items 17 through 31.

Does any party or intervenor

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have any objection to the administrative notice items?

(No response.)

THE CHAIRMAN: Hearing and seeing none, they are admitted.

We now begin with appearance of the certificate holder, CPV Towantic, LLC, to swear in -- I guess they have additional witnesses.

Attorney Small.

MR. SMALL: Good morning, Mr. Chairman, members of the Council, staff. We have two witnesses to be sworn in, Tanya Bodell and Jon Donovan. If they would please stand.

J O N D O N O V A N,
T A N Y A B O D E L L,
called as witnesses, being first duly sworn by Ms. Bachman, were examined and testified on their oaths as follows:

THE REPORTER: Ms. Bodell, could you spell your name, please.

THE WITNESS (Bodell): T-a-n-y-a-B like in boy-o-d-e-l-l.

THE REPORTER: Thank you.

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DANIELLE POWERS,
ANDREW J. BAZINET,
D. LYNN GRESOCK,
FREDERICK SELLARS,
CURTIS C. JONES,
having been previously duly sworn, were examined and testified further on their oaths as follows:

MR. SMALL: And starting with you, Ms. Bodell, would you please state your position and affiliation.

THE WITNESS (Bodell): Yes. My name is Tayna Bodell. I am the Executive Director of Energyzt, which is an energy business advisory firm.

MR. SMALL: And please spell that?

THE WITNESS (Bodell): Energyzt is spelled E-n-e-r-g-y-z-t.

MR. SMALL: Thank you.

And, Mr. Donovan, would also state your position and affiliation?

THE WITNESS (Donovan): My name is John Donovan. I'm vice president of engineering and construction at Competitive

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Power Ventures.

MR. SMALL: Thank you.

We have, Mr. Chair -- we have a few additional exhibits, I believe. You want us to introduce those now?

THE CHAIRMAN: Yes. Would you please go through the verification.

MR. SMALL: Okay. We will do that.

The Council program list is Exhibit N, CPV's Late-Filed exhibits. Mr. Bazinet, Ms. Gresock, Mr. Donovan and Mr. Jones, you're all listed as witnesses on certain of those interrogatories. Were the ones for which you're listed prepared by you or under your direction in each case?

THE WITNESS (Bazinet): Yes.

THE WITNESS (Gresock): Yes.

THE WITNESS (Donovan): Yes.

THE WITNESS (Jones): Yes.

MR. SMALL: Thank you.

Do any of you have any corrections or changes to those exhibits?

THE WITNESS (Donovan): No.

THE WITNESS (Gresock): No.

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THE WITNESS (Jones): No.

THE WITNESS (Bazinet): No.

MR. SMALL: Okay.

And do you each adopt them as your testimony here today?

THE WITNESS (Bazinet): Yes.

THE WITNESS (Gresock): I do.

THE WITNESS (Donovan): Yes.

THE WITNESS (Jones): Yes.

MR. SMALL: Mr. Donovan, Exhibit 11 is your resume. Was that prepared by you or under your direction?

THE WITNESS (Donovan): Yes, it was.

MR. SMALL: And is it true and correct to the best of your knowledge and belief?

THE WITNESS (Donovan): It is.

MR. SMALL: And do you adopt that as your testimony here today?

THE WITNESS (Donovan): Yes, I do.

MR. SMALL: Thank you.

I believe, Mr. Chairman, I believe that's it for the additional

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exhibits.

THE CHAIRMAN: Does any party intervenor object to the admission of the new exhibits?

(No response.)

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

(Exhibits II-B-1 through Exhibits II-B-10: Received in evidence - described in index.)

We'll now continue with cross-examination by staff.

Mr. Perrone.

CROSS-EXAMINATION

MR. PERRONE: Thank you, Mr. Chairman.

Referencing the Late-File Exhibit 2B, I noticed that there are several notice of presumed hazard documents, dated November 17, 2014. How is it determined which structures on the property required those letters and which didn't?

THE WITNESS (Gresock): The determination of which received that designation is basically based upon elevation

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and height. The -- all of the structures that penetrate the VFR horizontal surface were -- were determined to require additional review in order to determine its effect on the air navigation.

MR. PERRONE: Did any other structures such as the water tanks, require those letters?

THE WITNESS (Gresock): There were a series of filings that were made. All of the features of the project that -- that were above the height of that surface were filed for, and all of them were issued the presumed hazard notifications to allow for that additional review.

MR. PERRONE: It appears that one of the letters for the administrative building may be missing. I see one for the southwest corner, the northwest corner, and two of them for the southeast corner. Would you be able to check on that?

THE WITNESS (Gresock): We'll check on that. Thanks.

MR. SMALL: And if it's missing, we will file it is a Late-Filed

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exhibit.

MR. PERRONE: Thank you.

Regarding the public notice of an additional FAA study, dated January 21, 2015, it says "Stack 1" on it. Does that only include Stack 1 or does it include other structures?

THE WITNESS (Gresock): All of the structures were included in -- in that circularization and the public notice process.

MR. PERRONE: Now I'll turn to visibility questions.

I understand, in your visibility analysis, an average tree height of 50 feet was used to be conservative. But, in your opinion, what would be a rough estimate of the average tree height?

THE WITNESS (Gresock): Tree heights vary in -- in the region, of course. But as we were out on the site flying the balloons at stack top height, which is 150 feet above the finished ground elevation, it seemed as though trees would be much taller than 50 feet in general.

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It's hard to estimate height, but I -- I would say something more like 70, 75 feet seems -- seems more accurate in -- in the immediate vicinity. It varies of course.

MR. PERRONE: Sure.

Regarding the seasonal visibility, could you explain how the bare earth model works? For example, does that only consider variations in ground elevation and neglects vegetation?

THE WITNESS (Gresock): That's correct. The bare earth model would account for topography and terrain, but it wouldn't account for vegetation. It also would not account for any structures that would block line of sight.

MR. PERRONE: And I understand photographs of balloon visibility were provided at various spots on the viewshed map. How would those photos indicate that the analysis was conservative, because it appears that the locations chosen seem to be in the seasonal visibility area, but then some of the photos you see views above the tree line where it appears year round.

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THE WITNESS (Gresock): What we tried to do is during the balloon flight is travel along all of the nearby roadways to see if there were locations where the balloons would be visible. We believe that the lack of visibility in most locations is reflecting a lot more obstructing vegetation than the model would predict.

We find that a lot of the roads in the vicinity have tree lines right along the roads that would tend to block the line of sight. So we believe it is showing that it's conservative because there are many fewer places where the balloons were visible than the model would have expected, but those were intended to be representative and reflective and just a point of indicating what the -- what the views would be.

MR. PERRONE: Now, turning to Late-File Exhibit 2-I regarding retirements, specifically, the SNL generation supply curve.

Is it CPV Towantic's position that this basically shows the dispatch of the plant? It basically would be performed in

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that order, starting with the plant more to the left?
THE WITNESS (Bazinet): Yes, that's correct.
MR. PERRONE: Thank you. That's all I have.
THE CHAIRMAN: We'll now continue with the cross-examination by members of the Council.
Dr. Bell?
DR. BELL: Thank you, Mr. Chair.
Continuing along the line of Mr. Perrone's question on visibility, are all -- were all the cited roads that you traveled, which you report in Exhibit 2-E, late-filed, starting with Towantic Hill Road, Prokop Hill Road, and so forth, are those all marked on Figure 1?
THE WITNESS (Gresock): Yes. Figure 1 illustrates, in yellow, the roads that Tetra Tech drove on in order to view towards the site to determine whether the balloons could be seen.
DR. BELL: I see. So they're

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not named, but they're indicated in yellow? A few of them are named, but not all of them?
THE WITNESS (Gresock): Yes.
DR. BELL: Would that be correct?
THE WITNESS (Gresock): That's -- that's correct.
DR. BELL: Okay. So it's notable that the photos are all taken, let's say, south and west of the proposed project and not in the northern areas. So then, it's your contention that you did look along those roads in the northern areas, but were unable to see the balloon. Is that what you're saying?
THE WITNESS (Gresock): That's correct.
DR. BELL: I see. Okay.
THE WITNESS (Gresock): And -- and, of course, along public roads is -- is the only place that we were able to -- to drive and to look.
DR. BELL: Okay. Thank you.
In the Tetra Volume, on page 39, it's written that field

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investigations did not reveal any flora or fauna listed as federal or state endangered, threatened or special concerns.
My question is: Did Tetra do field investigations recent -- well, before the Tetra report, or does the report refer to investigations done for the original proposal, or years ago, 15 years ago? Or are you referring to consultation with the DEEP? Or what does that -- did those field investigations refer to exactly?
MR. SMALL: Dr. Bell, that's -- that -- Mr. Gustafson is probably the best witness for that. As you know, he's not going to -- he's not available. We're hoping he's available for February 10th. So could we defer that question for him?
Because he did -- the honest answer, he did -- and Ms. Gresock explained he did the field work.
THE WITNESS (Gresock): That -- that's correct. And under my direction, and included in the Tetra Tech report are -- are documents from All Points Technology Corp., and -- and they are the

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ones that went onto the site and -- and did the more recent examination of whether those species were -- were present.
DR. BELL: Okay. I -- I was aware that Mr. Gustafson wouldn't be here, and I didn't mean to ask specific questions about them. I just wanted to know what the reference was, and you've given me the reference, so I understand. Thank you.
Now I'd like to ask a completely different question. My understanding is that you have qualified for the FCM next month. How is it that you can apply without any approvals from the Council? How do you -- how do you, under that circumstance, make any representations about performance?
THE WITNESS (Bazinet): So the qualification process is a process that begins in June of each year, and it concludes in September with what's called a "Qualification Determination Notification" from ISO New England, and that takes into consideration all critical path items on the project, including the permitting process,

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construction, procurement, et cetera.
So you file all that information with your associated qualification package, and it's the ISO's determination whether or not they think you'll be there in time to meet the capacity commitment period, beginning June 1, 2018, in this case.
DR. BELL: I -- I see.
So that -- in that qualification process, you did or did not include the extended deadline that you're asking for in terms of construction?
THE WITNESS (Bazinet): We did. We noted that we would be filing applications with the Siting Council, the Connecticut DEEP, noting that changes would be required from the existing certificate to implement the new design. And that -- that process was expected to unfold over the -- over a period of 6 months or the 180 days, that short a timeline.
DR. BELL: But my question is the 200 and -- the 2019 extension that you're looking for?

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THE WITNESS (Bazinet): So the June 1, 2019, extension is contemplating that the project doesn't move forward in FCA9. And in the event that the project -- I'm sorry -- and for that reason we would still like to pursue the project, continue the permitting process and move it forward in FCA-10, which would be a June 1, 2019, delivery date.
DR. BELL: So then you would -- you'd have to qualify separately for FCA10?
THE WITNESS (Bazinet): We -- we would have to reenter the qualification process, that's correct.
DR. BELL: Thank you.
My next questions have to do with the CEA report. And I'm going to pick up on Mr. Ashton's questions from the last hearing when he was questioning you about the gas availability.
On page 16 of the report, you are -- you refer to certain projects that are, you say, are advancing to increase the gas supply into Connecticut.

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The first one that you mentioned is AIM. We know about that one. That's mainly sponsored by the LDCs. And they made a -- they suggested that they could do even more than what they're doing, but that was turned down. So we understand that.
The Tennessee project, you note, is already fully subscribed. So now we get to the one that I'm going to ask about because I'm a little bit confused. You -- it seems to be that you're saying there are two parts to the third one. One is expanding the Algonquin Gas Transmission Pipeline and the Maritimes and Northeast pipeline.
Now, is the first one that you mentioned, the -- expanding the Algonquin Gas Transmission Pipeline, wouldn't that be just the same as the AIM project which Spectra is doing?
THE WITNESS (Bazinet): So the AIM project is a project that is moving forward, received its, I believe, final environmental impact statement just recently from FERC. But they have a -- a separate project in its planning stages, as well,

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called "The Atlantic Bridge Project," which would be exactly very similar to AIM in that it wouldn't be a complete rebuild or anything, but it's incremental improvements to their system to support additional capacity on -- on their system.
DR. BELL: Is it through Connecticut?
THE WITNESS (Bazinet): It would be all along the Algonquin Interstate Pipeline System, which runs from Lambertville all the way up to the Maritimes Interconnection in Northeastern Mass.
DR. BELL: But so far they haven't filed with FERC for that?
THE WITNESS (Bazinet): Not that I'm aware of, no.
DR. BELL: And would that connect with the Maritimes and -- and Northeast Pipeline or -- why are they mentioned in the same breath in this report on page 16?
(Pause.)
THE WITNESS (Bazinet): I'm sorry. I -- I understand the question now.

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The Maritimes and Northeast Pipeline expansion, along with the AGT expansion, is something that's even more preliminary than the Atlantic Bridge. That -- that was a joint venture that was announced amongst Northeast Utilities and Spectra Corporation, I believe, in the third quarter of 2014, or the fourth quarter of 2014.

The -- the status of that project, we're -- we're not sure where that sits at this point.

DR. BELL: Thank you.

My next question on the report is: Are you familiar with the most recent draft of the state's Integrated Resource Plan which came out last month?

THE WITNESS (Bazinet): Yes.

DR. BELL: And have you submitted comments on it during the comment period?

THE WITNESS (Bazinet): The -- we will be submitting comments. They're due by February 11th, I believe.

DR. BELL: And can you explain

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why your version of the future picture for energy in Connecticut differs from the IRP's version?

THE WITNESS (Powers): In what aspect specifically?

DR. BELL: Well, I'll give you a quotation from the IRP --

THE WITNESS (Powers): Okay.

DR. BELL: -- which is in the executive summary on page 3.

The -- quote, The 2014 IRP projects that Connecticut will continue to have plenty of capacity through 2 -- 2024 and beyond due to ample in-state generation, low-demand growth and a new transmission built to reduce congestion.

And in a note on the same page the IRP says: "Connecticut is also expected to have enough local fast start generation capability to meet it's localized -- it's locational forward reserve market requirements through 2024. This is Connecticut specific."

THE WITNESS (Bazinet): So that statement refers to capacity in

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Connecticut. And capacity is, by definition, a regional product in ISO New England. And due to the fact that Connecticut is an import-constrained zone, if the rest of the pool, for example, is short of capacity, then Connecticut, NEMA -- Northeastern Massachusetts -- excuse me -- and southeastern Mass and Rhode Island for this coming off, it would all be deemed short of capacity as well; in other words, those import-constrained zones can never settle below the rest of the pool because of their designation as a import-constrained zone.

So while it's true that excess capacity may exist within the state of Connecticut, the region being short also causes pricing and Connecticut to be effectively deemed short.

THE CHAIRMAN: But if I can interject. I think that runs counter to your arguments which say the problem is more in Connecticut, and Connecticut is where we need to develop more capacity.

THE WITNESS (Bazinet): So there's really two -- two items at play here.

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We -- we believe the region needs new capacity, as well as Connecticut, and that's because the State of Connecticut is relying on in excess of two gigawatts of generation that is 50 to 60 years old, not reliable with respect to actually delivering energy, and is -- is precisely what the program that ISO New England has developed. The Pay for Performance Program is aimed at provide -- incentive -- incentivizing generators -- I'm sorry -- to come in and replace that capacity.

So while it's true that Connecticut is in a surplus situation today, that's not expected to be the case in the near future. And because of the regional shortage, Connecticut is also suffering from the same price spikes that the rest of the region is suffering from, which is consistent with the statements made in the draft IRP.

DR. BELL: The draft IRP, of course, has different parts that I haven't referred to. I referred to the executive summary. So we'll leave that question and the matter of whether it's consistent or not

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in abeyance for a minute.
But I will pursue your answer, your argument, and simply ask you: Would your argument still apply after the completion of the first NEEWS project, which ups Connecticut's import capability, and after the incorporation of the Lake Road gas plant into the Connecticut supply picture, which it hasn't been, until the second NEEWS project that we approved?
THE WITNESS (Bazinet): Yes. So while Connecticut's local sourcing requirement will be met and will be enhanced by the presence of that project, it doesn't change the fact that the region is still short of capacity, and as a result, Connecticut is going to feel the same price impacts of that shortage.
DR. BELL: I'm not contesting that the region is short of capacity. I think -- that was never my question. My question simply had to do with Connecticut, and I thought you answered it with respect only to Connecticut. But now, I'm asking the question still with respect to Connecticut.

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Is -- is it -- does ISO consider Connecticut import restrained with the incorporation of Lake Road into the -- into our electrical picture, our state electrical picture, which it hasn't been before, and also with the improvements from the NEEWS project which would increase import and export limits?
THE WITNESS (Bazinet): Yes.
DR. BELL: That's ISO's position?
THE WITNESS (Bazinet): That -- that's correct. The incorporation of the NEEWS project was felt as of, I believe, 2017. That will be felt as of 2017, so that -- that Interstate Reliability Project, the segment of the NEEWS that you're referring to that incorporates Lake Road into Connecticut, is deemed to be in effect as of that date. So, yes, the answer is yes.
DR. BELL: Now, I'd like to go to transmission because you mention that -- well, because the quotation that I just read from the IRP mentions that Connecticut has made investments in transmission to improve the flexibility of its own supply picture.

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At one point in the CEA Report, it's argued that transmission solutions take as much as five years to implement. You outline to Docket 272 and Docket 217, which were the Plumtree to Norwalk and the Middletown to Norwalk projects some time ago. And you -- you -- so you sketch with those and you say those took five years, whereas new generations, a new generation solution, such as the proposed CPV project, can happen much faster.
But my question is: Isn't 2014 to 2019 also five years?
THE WITNESS (Powers): You know, projects vary in the time they take to get built. They can -- generation, in some cases, can take as long as transmission. In this case, you have a resource that's already near infrastructure and ready to be built.
So it -- you know, it's -- it's an open-ended question as to whether or not transmission would take longer in this case. Connecticut has made great strides in getting transmission projects built.
The most recent ISO New

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England study on local needs in Connecticut show that there's still additional transmission that needs to get built that hasn't even been designed yet or proposed.
THE CHAIRMAN: I can't -- I can't resist, though, interjecting that the original project was approved around 2000, and 15 years later still hasn't been built.
So just -- I don't really know if that requires a response, if you want to, but that certainly flies in the -- sort of counter to your argument about how fast these projects move forward.
THE WITNESS (Bazinet): So -- so I think -- I think what the -- the five-year cycles are referring to is the completion of development and planning. And in this particular case, this project has been in the planning stages for quite some time, but it's been ready for construction for quite some time but for market factors that have prohibited that.
The impetus to move the project forward now is based on a market signal, a pricing signal, that there is need

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for new generation in ISO New England. And assuming this process is resolved in the time frame that we projected on our schedule, the implementation of the project will take -- take place well within the five-year time frame.

DR. BELL: Thank you.

We'll move to a different question. On page 22, you're talking about their removal of the -- or not -- you're talking about often reviewed trigger prices, and in that context, you're talking about certain resources that would or would not be considered in the -- to -- to be exempted from certain parts of the ISO market and very complicated, but my question is quite simple.

You mention "resources with state-mandated contract built pursuant to a state directive." That's a quote from what you have on page -- the type of resource you're referring to on page 22. Can you give us a couple of examples of such resources just so we understand? What are these resources that are -- are receiving out-of-market inputs that would -- are

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considered not appropriate to exempt from -- from the ISO rule?

THE WITNESS (Powers): This -- this particular facet of the market where there's no exempt -- exemption stems from an issue down in PJM, where there were state efforts to get generation built, and they signed long-term contracts. Those generation assets actually bid into the market at a zero floor price.

So what -- what this is -- this is designed to do is say, regardless of whether you have a contract for the output of the power, you still need to bid in in accordance with the rules of every other generator, regardless of whether you have someone buying the output.

DR. BELL: I understand that this came out of a court case in PJM. My question is: Is there an example in Connecticut of a resource that was built with state-mandated contracts pursuant to a state directive that bid in at a zero or low market price on the basis of that state-mandated contract and could you -- if there were any

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in Connecticut, one or two, could you give me those examples?

THE WITNESS (Powers): We can -- we can follow up with some specific names of facilities. But there were some from Project 150, I believe, in the past, from Connecticut efforts to get generation built and signed contracts with utilities.

Kleen Energy, for example, had a contract for the output of the facility, and they -- they bid into the market without an exemption.

DR. BELL: And so effectively, in -- in -- well, have you -- do you have another example?

MR. SMALL: Dr. Bell, excuse me. On page 6 of our petition, there's several plants listed, Kleen Energy being one, Waterbury Generation, the two GenConn projects, and the SCG New Haven Harbor Peaker. Those were -- those were examples that we listed. And then, Ms. Powers also mentioned the Project 150 as well.

So there -- there are a number of them that the Council should be -- you

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know, has had lots of experience with.

DR. BELL: Okay.

And so you're saying, under this new market rule, that they would not be required -- they would not be allowed to bid in at a low price?

THE WITNESS (Powers): That's correct.

DR. BELL: And what price would they be required to build -- to bid in at, sort of, you know, just generically?

THE WITNESS (Bazinet): So that's subject to a unit specific analysis, and that -- that -- there's a threshold set by the Internal Market Monitor for ISO New England at which a review process begins.

So assuming they would -- a specific resource, whether it's combustion turbine technology or combined cycle -- cycle technology, would elect or would like to bid below a certain price threshold, as set by ISO New England, the internal market -- market monitor for ISO New -- New England would need to review that bid and -- yeah -- and -- and they would need to approve that.

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As an example, that -- for combustion turbine technology, that limit is now roughly -- I think it's, like, $13 and change per kilowatt month. So anything below that would be subject to review by the Internal Market Monitor. For combined cycle technology, that set at $8.87 cents per kilowatt month -- I'm sorry -- for new resources.

DR. BELL: All right. Thank you. I understand that.

Back to the report on -- on another part of it. On pages 18 to 25 are a section of the report where -- that -- that describes that the existing fleet of generators in New England isn't performing up to par. And you quote, on page -- on one of those pages -- an ISO white paper saying that, quote, On average, New England's non-hydro plants delivered less than 60 percent of the additional power required by ISO.

In sum, at times of greatest need, many resources are delivering far below the performance ability represented in their

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supply offers.

MR. SMALL: Just for reference, that's on page 25 of the Concentric Energy Report.

DR. BELL: Thank you.

The suggestion is that these resources can improve by vary -- in various ways, among others, and those are listed on -- also on page 25. One is by upgrading to dual-fuel capability, signing firm gas contracts, adding fast-start capabilities, or just improving their maintenance and staff practices. So those are four examples of what their existing resources could do.

So, basically, these pages, 18 to 25, which ends with this -- in this culmination of what ISO charged them with, basically says that the existing generators in New England can do a lot better with what they've got. And, arguably, the new market rules have been put in place to reward them for doing better. That's the price signal -- one of the price signals that they're getting with the new market rules.

My question is: Why can't the

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capacity problem in New England be solved by getting the existing generation to perform at the level of a hundred percent of their claims in the forward capacity market, or perhaps just up to 84 percent, which is what -- which is the level of delivery that you say, on page 33, has been accomplished by demand response resources?

THE WITNESS (Powers): I think there are some things they can do to improve. I think there's -- there's some improvement in maintenance practices and things like that. There are just some realities with some of the generators that we have in existence today. They're in the 40- to 60-year-old range. The technology just is not -- it's -- it's old technology that's not capable of being fast-start.

You've got a lot of nuclear units. You've got a lot of coal units, older oil units. And regardless of how robust they make their maintenance practices, the design of those units is not such that you can make them quick-start.

They also have realities in

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terms of their fuel. We had frozen coal piles. We had people running out of oil because they have -- they only have a certain amount in their tanks.

So there -- there are things you can do to improve, but there are just realities with the existing generation fleet that you can't overcome with -- with improving processes.

DR. BELL: Well, we have some experience in Connecticut, for instance, with generators that can easily go back -- well, maybe not too easily -- but with some expense can go back to do dual-fuel capability, which they all -- gas plants which all have that capability, but then came to us and asked to have relief from switching back to oil. That could be accomplished with investment.

You talk about frozen coal piles. With investment, coal -- even coal piles -- and we don't have very much coal in Connecticut, so we shouldn't even be talking about this really. So maybe we should just leave that aside.

But there -- there are plants

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that have, in Connecticut, built peakers in place of old coal fired originally, maybe, or -- then oil-fired units, like, Middletown has built peakers, and so forth. So I'm -- I'm hearing what you say about the, sort of, physical limitations of what they can do, but with investment, they can actually invest and create new -- they can put in new engines. They can create new opportunities.

So I'm still not quite understanding why the existing generators, if given a correct signal, which they certainly are being given now, couldn't -- if they're only at 60 percent, couldn't really ramp up their performance quite a bit.

THE WITNESS (Bazinet): So there -- there's very little that a plant, an old oil-fired steam boiler can do to reconcile its performance with the Pay for Performance Program being implemented by ISO New England. There's a couple reasons for that.

The projects that they would need to implement are extremely capital intensive, and there is no definitive cost

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recovery mechanism for those capital programs that they would need to implement. There -- there's a Pay for Performance Program which has penalties as well as incentives.

That -- the nature of that program is that, in these scarcity events they project, 20 to 40 hours a year there are scarcity events. They implement a -- incentive to the tune of somewhere between 2,000 and 5,400 dollars per megawatt hour, in rough numbers, and it scales up over time.

Whether you're off -- you're -- no matter what the excuse is for your unavailability or nonperformance, it doesn't matter if -- if it's because of economic dispatch. So these -- these plants are 12 to 14,000 heat rate plants. And just by nature of that, they just don't run a whole lot. And when they do -- or pushing the button, I should say, is a tenuous proposition.

So they're -- they're faced with 20 to 40 hours a year of potential penalties to the tune of 2,000 to 5,000 dollars a megawatt hour depending on the

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year. And that's just something they can't resolve by upgrading the unit.

They could, as you noted, replace units. But in that instance, it would be effectively building a new plant as we're recommending here today.

The -- the Towantic Power Plant would be the most efficient unit in New England, based on its design criteria, and would be, on average, an overperformer in this new regime.

DR. BELL: Thank you.

I just have one more question along these lines. I understand that dual-fuel capability is important in the picture that we're in in New England. But in a -- in an even larger picture with regard to seasons or gas availability at the moment, or other issues that have to do with dual-fuel capability, we have New England that's between -- somewhere between 40 percent and 50 percent dependent on natural gas for its electricity. And we have Connecticut that's somewhere between 30 percent and 40 percent dependent, depending on what you count in and

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so forth, but I think those ranges or -- those are -- you mentioned ranges like that in -- in the reports, and I think those are fair ranges.

And these -- this amount of dependency, particularly the larger amount of dependency in New England, which is where Towantic is really operating, has become a problem for a great many people who are looking at the energy markets.

And my question is: In this picture, how does the addition of a large natural gas plant help achieve fuel diversity?

THE WITNESS (Powers): I -- I think it's one answer to a myriad of issues we have in New England with the types of generation we're building. I think this is a dual-fuel -- dual-fuel unit that will make steps towards becoming more diverse.

You know, one of the issues with the market is it -- it doesn't send the signal for a particular type of resource. It sends a signal for -- as the ISO is -- is striving to do here, dependable flexible

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generation.
So, you know, the ability of New England to achieve fuel diversity is -- is -- it's a difficult question because markets aren't designed to send signals for those. You know, we need X amount of coal. We need X amount of oil.
The fact that this is dual fueled does help the situation in New England, in terms of fuel diversity, and arguably, we have -- we have more work to do in that area. But -- but backup oil gets us on the path to where we need to go in terms of having flexible, diverse resources.
DR. BELL: Thank you.
Those are my questions, Mr. Chair.
THE CHAIRMAN: Thank you.
I understand Mr. Ashton has some additional questions.
MR. ASHTON: If I could find the microphone. Oh, there it is.
With regard to the issue of too much reliability on one fuel or another, what was the situation in New England a few

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years back, ten years back? What was the dominant fuel?
THE WITNESS (Powers): Ten years back it was probably -- God, we've been through coal. We've been through nuclear. We've been through oil. We seem to fall in love with a fuel every --
MR. ASHTON: Right.
THE WITNESS (Powers): -- ten years. Right.
MR. ASHTON: What -- what -- so what was -- was it oil?
THE WITNESS (Powers): I think it was probably -- was it oil?
Yeah.
MR. ASHTON: And how many times has there been an embargo placed on natural gas into New England?
THE WITNESS (Powers): I have no idea.
MR. SMALL: Are you talking about the New -- the two Arab -- new Arab oil embargoes, Mr. Ashton?
MR. ASHTON: Yes.
MR. SMALL: Okay. Thank you.

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Some of our witnesses are --
MR. ASHTON: We've never had an embargo on natural gas because it's a -- it's a North American fuel, isn't that true, or substantially all?
THE WITNESS (Powers): That's right.
MR. ASHTON: And we've had how many embargoes on oil?
THE WITNESS (Powers): Numerous.
MR. ASHTON: And I think Mr. Small hit the nail on the head. He's very modest, though.
MR. SMALL: No, I think -- I think some of our witnesses, Mr. Ashton, are too young to remember them, unlike me.
MR. ASHTON: Okay.
And did we have a problem with a freeze-up affecting fuel deliveries in New England back 20-odd years ago because I -- you're -- yeah -- you're all pretty young for that, I guess. Remember New Haven -- New York harbor freezing up, Long Island Sound freezing so no fuel deliveries -- liquid fuel

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deliveries could be made? Is that correct?
THE WITNESS (Powers): Well, I -- I used to work at Bridgepoint, and we used to have -- the ships couldn't come in, in the wintertime with coal.
MR. ASHTON: Right.
So the fact that they may be leaning more on natural gas is not necessarily a problem, is it?
THE WITNESS (Powers): Correct.
MR. ASHTON: We avoid sending -- dependency on overseas oil from unstable governments. Natural gas is environmentally much better than oil and certainly better than coal. So it's not a bleak picture if you use natural gas, is it?
THE WITNESS (Powers): No. That's correct.
MR. ASHTON: Let me change the subject a little bit.
MR. SMALL: Mr. Ashton, just before you do that, I would just note that the question you asked about the current fuel mix versus prior fuel mixes, there are two figures in --

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MR. ASHTON: Yeah.
MR. SMALL: -- the Concentric Report. They are on page -- they're Figures 1 and 2, on pages 5 and 6.
MR. ASHTON: Okay. So -- so --
MR. SMALL: It gives the -- and natural gas has gone from 18 to 43 percent, and oil has gone from 34 percent down to 22 percent, as an example.
MR. ASHTON: So really, in -- in terms of resources for fuel, we have three choices: Oil, natural gas, nuclear -- four choices -- and coal.
I haven't seen many hands raised for coal-fired plants in New England. I know there's been a lot of testimony about how terrible they are. No one is building nuclear plants in New England. In fact, I think there are only a couple in the country that are being built. They've got some difficulties.
So the option for fuel diversity is nil in any quantitative -- in any serious quantity. Is that fair to say?

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THE WITNESS (Bazinet): Absolutely.
MR. ASHTON: Okay.
Let me go back to the plant. I asked a number of questions last time about various aspects of the plant. I want to continue that a little bit.
Have there been any soil borings taken on that site, and if so, what sort of soils do they indicate?
THE WITNESS (Jones): Good morning. It's Curt Jones from Civil One.
There were some soil borings taken on the site, oh, probably -- I'd have to look up the date, but it was a limited geological investigation.
There was some -- there was a few holes up in the north. The north end of the site indicated that's the ledge in the 35-foot-plus range. So, generally, as far as the excavation goes, we expect to be in glacial till with very limited quantities of rock encountered.
MR. ASHTON: And is that glacial till -- well, glacial till well

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drained, gravelly-type material?
THE WITNESS (Jones): No, sir.
MR. ASHTON: What is it?
THE WITNESS (Jones): It's a fine-grained sand and silty mixture.
MR. ASHTON: It has no commercial value or has some?
THE WITNESS (Jones): Very limited commercial value. It -- it is more suitable to mass fills, you know, to export it off the site. Moisture content becomes a problem because it's so fine-grained, it doesn't drain. And in order to compact it properly, it does have to be near the optimum moisture content.
MR. ASHTON: So do your major structures have to go down to bedrock for proper footing?
THE WITNESS (Jones): No, sir.
MR. ASHTON: So I'm a little bit confused. You don't need to go to bedrock, but the soil is not well-drained and not very stable. Is that correct?
THE WITNESS (Jones): No. No, I did not say unstable. The soils are stable

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but not well-drained. So there may be some dewatering, perhaps, during the excavation. Groundwater control will be necessary with temporary dewatering salts.
MR. ASHTON: So these would be spread footings or something like that?
THE WITNESS (Jones): That's my understanding. I haven't seen any detailed designs.
THE WITNESS (Donovan): Mr. Ashton, the feedback -- based on the Geotech Report, the initial Geotech report, and our review of our local and -- local engineering, the owner's engineer, we expect that the major foundations will be spread footer design and not pile supported.
MR. ASHTON: And the turbine pedestal would be pile or spread footing?
THE WITNESS (Donovan): Spread footing.
MR. ASHTON: Okay.
In reading the -- this is exhibit -- bear with me just a second -- the Late-File 2 which gets into the discussions

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of the FAA and conflicts over penetration of FAA space, we get into some very small penetrations.

Is there any reasonable way that those penetrations can be reduced so that you're not penetrating FAA space?

For example, the air handling, I think, is 6 feet, as I recall. Is that something that is given information available today, you go back and take another look at to see if you can get rid of the conflict?

THE WITNESS (Donovan): We would -- we would absolutely take a look at those items to see if there are ways that we can minimize our penetrations of that surface area.

The specific question you asked was related to the air intake structure. And for the air intake structure, we're at the minimum height. I mean, we have minimized the height of the air intake structure.

MR. ASHTON: Minimized it how?

THE WITNESS (Gresock): And -- and -- and we have looked very carefully at

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whether we have the potential to minimize. That's one of the reasons we relocated the stacks to be further from the airport. It's one of the reasons that we reduced the elevation of the -- of the finished site grade by 1 foot. But the VFR horizontal -- yeah -- and, of course, looked at reducing the heights of -- of various structures, including the air-cooled condenser and -- and some of the buildings.

But the VFR horizontal surface, which is the surface that's penetrated, is at a -- it extends 5,000 feet from the runway at a height of 876 feet above mean sea level. And given the -- given the requirements of the design, there wasn't a possibility of bringing -- bringing those features lower.

MR. ASHTON: There was no possibility of design change to bring them in, within, or there's no tech -- no practical change?

THE WITNESS (Gresock): We certainly considered it and -- and considered available -- available structures and

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orientations. No practical way was identified. And as we examined the surroundings of the site, we recognized that there are existing structures that already penetrate that VFR horizontal surface and that the ground elevation does as well.

We also know that the approvals that were granted by the FAA incorporated penetrations both into this area and additional areas previously. So --

MR. ASHTON: You're -- you're anticipating some of my next questions.

THE WITNESS (Gresock): Sure. Sorry.

MR. ASHTON: The tree cover around, you -- trees can grow up to, in some cases, in some places, a hundred foot or more high. And they would -- and if they did, in this instance, they would presumably all penetrate FAA horizontal airspace. Right?

THE WITNESS (Gresock): They -- they may well, right.

MR. ASHTON: And my friends at Connecticut Light & Power have constructed a double-circuit transmission -- quad

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circuit -- three-circuit transmission line right by the airport. And some of those structures, I presume, are in the -- penetrating the airspaces?

THE WITNESS (Gresock): We have surveyed five towers near the site that penetrate that.

MR. ASHTON: Okay.

And I wouldn't be a bit surprised -- I haven't done the investigation -- but I wouldn't be a bit surprised that there are other commercial structures that similarly penetrate it, so it is not an absolute.

Is a penetration an absolute prohibition against construction, in any -- in any circumstance?

THE WITNESS (Gresock): No, it's not.

The FAA identifies structures that penetrate as obstacles, and then they're further considered to determine whether or not there's risk associated with it.

MR. ASHTON: They well may just say just light the structure and that's

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enough.
THE WITNESS (Gresock): We certainly expect they will say light the structure.
MR. ASHTON: Okay. We don't know that, but we haven't got --
THE WITNESS (Gresock): Right.
MR. ASHTON: -- the FA here --
THE WITNESS (Gresock): Right.
MR. ASHTON: -- FAA here to query them.
THE WITNESS (Gresock): Right.
MR. ASHTON: So that's -- that remains to be seen.
One of the issues that was raised last time was the possibility of planes flying through the plume. And I -- I -- it may be that there are interrogatories on the way to you about the plume, but let me just poke a little bit at it.
Is the flight path of planes ordained, to your knowledge, or can it be adjusted depending upon specific circumstances?
THE WITNESS (Gresock): There

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are certain flight patterns and paths that are identified. Within some of those areas, there's a lot of latitude to avoid potential obstructions.
MR. ASHTON: Okay.
Are you aware of any power plants in Connecticut that are proximal to airports?
THE WITNESS (Gresock): There are several.
MR. ASHTON: And they are?
THE WITNESS (Bazinet): Brainard, Sikorsky.
MR. ASHTON: Brainard is Hartford.
THE WITNESS (Bazinet): Correct. And Sikorsky in Bridgeport.
MR. ASHTON: And let's -- let's talk about these for a second.
Brainard is Hartford, and what's the conflict at Brainard?
I'll be happy -- I'm not trying to rush you. I want competent answers.

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THE WITNESS (Gresock): Yeah. So, at Brainard, there are two existing stacks located within 2,790 feet from the approach end of Runway 20.
MR. ASHTON: And is even -- and is it even closer on the takeoff end?
(Pause.)
THE WITNESS (Gresock): Okay. So the -- the departure for Runway 2 is the same as Runway 20. So, yes, those -- those same stacks would -- would be approximate to both departure and takeoff.
MR. ASHTON: I must -- I got the -- the answer got lost in the air. Say it again?
THE WITNESS (Gresock): It's a single runway with -- with two different designations. In one direction, they would be taking off; and in one direction, they would be landing.
MR. ASHTON: Right.
And a plane approaching from the south would have pretty good clearance over those stacks, would it not, except for the MD -- the MDC's plant would be the

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closest one?
THE WITNESS (Gresock): Right.
MR. ASHTON: And for a plane taking off from the south to the north, that goes right by the South Meadow plant, doesn't it?
THE WITNESS (Gresock): There definitely are stacks, not only within the VFR pattern airspace for both horizontal and conical surfaces, but they're also within the circle to land on the runways.
MR. ASHTON: Yeah.
THE WITNESS (Gresock): And certainly positioned very close to where the planes would be coming out and going in.
MR. ASHTON: And do you know, roughly, how old that airport is and how old the conflict is? Do you have any idea?
I'll take the qualitative answer if you think --
THE WITNESS (Gresock): For -- for quite a while. For quite a while.
MR. ASHTON: Would you suspect that it might go well back before the first -- the Second World War?

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THE WITNESS (Gresock): Yes.
MR. ASHTON: Okay. I'll let it go.
What's another conflict, if you know?
THE WITNESS (Gresock): At Sikorsky, there is a very tall existing stack that's located 24 nautical miles -- I'm sorry -- 2.4 miles -- nautical miles from the approach end of Runway 11. And that's within the circle to land for Category D aircraft. It's within the conical surface.
And because it stands at -- at 511 feet above mean sea level, it -- it penetrates that conical surface for quite a bit.
MR. ASHTON: The top of the stack is 500 feet -- 511 feet up?
THE WITNESS (Gresock): Above mean sea level.
MR. ASHTON: Okay.
And do you know what that stack is? Where -- who it belongs to.
THE WITNESS (Bazinet): That's the Bridgeport Harbor coal plant.

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MR. ASHTON: So -- okay. And that's been there for a few years?
THE WITNESS (Bazinet): Since the fifties.
MR. ASHTON: I'm sorry?
THE WITNESS (Bazinet): Since the fifties.
MR. ASHTON: Fifty years? Okay. And Sikorsky goes back to the Second World War time too, something like that.
Any other conflicts you can think of?
THE WITNESS (Gresock): Those are ones we've looked at specifically. But I do know that we had identified that other airports exist in Connecticut, and of course, many other locations that have -- have stacks very close by.
MR. ASHTON: Would Tweed New Haven have a conflict with New Haven Harbor plant?
THE WITNESS (Gresock): That was -- that was one. We -- we didn't pull the information on that, but there is a stack near that one as well.

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MR. ASHTON: That's a tall stack, isn't it, about a 500-footer?
THE WITNESS (Gresock): Yes, yes.
MR. ASHTON: So the fact that there is a measure of conflict with an airport is not necessarily an obstacle to prevent it. Is that a fair conclusion?
THE WITNESS (Gresock): I think the FAA would always consider that it's an obstacle, but it isn't necessarily a safety --
MR. ASHTON: Okay.
THE WITNESS (Gresock): -- hazard.
MR. ASHTON: Does emission from the plume -- I may -- I'm going to ask some of the questions that may possibly be in an interrogatory already, but I'm -- I'm not going to be here for long, and I'd like to know what the answers are.
Has the -- have you done studies to look at the velocity of exhaust gases coming out of the stack as to what they are at the top of those 150-foot stacks and

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how that velocity changes as the effluent rises?
THE WITNESS (Gresock): We know what the velocity is as it exits the stack. We have not yet done studies to indicate how that changes with distance. But this project, of course, has been included in historical studies, both by SAIC and by MITRT in the past, that provided not necessarily exact numerical values at distances, but it evaluated the way in which the plume would exhaust from the facility.
And in taking a look at the inputs that were used in those prior models, our project information is lower in -- our current project information is lower in temperature and a little lower in velocity as well. And so we would expect that any impact would be similar or -- or less than what we're seeing in those historic reports.
MR. ASHTON: That's a nice answer, but it lacks crispiness.
What kind of velocities are we talking about at the stack exhaust, and temperatures?

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THE WITNESS (Gresock): The -- the exhaust exit velocity temperature is 183 degrees Fahrenheit.
MR. ASHTON: 183. Okay.
THE WITNESS (Gresock): And the exhaust exit velocity is 56.2 feet per second.
MR. ASHTON: Now, if I remember my 56.2 feet per second, that's something in the range of 30 miles -- that's not me -- 30 miles an hour, something like that? Thirty-five miles an hour?
THE WITNESS (Gresock): It's a little more than 35 miles an hour.
MR. ASHTON: Okay.
Do you know what the wind velocities were a couple days ago around this area?
THE WITNESS (Gresock): They were high.
MR. ASHTON: I'm struck with 35 in the context of a real life situation.
THE WITNESS (Gresock): I -- I was stranded in Ohio so I don't know what they were here.

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THE WITNESS (Bazinet): Gusts over 65 miles an hour.
MR. ASHTON: Okay.
So we're dealing with, at the stack exit -- at the stack exit, a temperature which is -- what was it again -- 150?
THE WITNESS (Gresock): A hundred and eighty-three.
MR. ASHTON: A hundred and eighty-three.
And a velocity that is not uncommon in the area of real meteorology. Isn't that fair to say?
THE WITNESS (Gresock): That's correct.
MR. ASHTON: Do you have an opinion -- and I would like more specific information, Mr. Small, as a Late-File, if you don't have it -- do you have an opinion as to how rapidly that temperature and velocity changes as you go from the stack upward vertically?
THE WITNESS (Gresock): Yeah. I think it -- it varies, of course, on the --

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based on meteorological condition.
MR. ASHTON: All right.
THE WITNESS (Gresock): And we can take a look at some of --
MR. ASHTON: That's fair. Let's talk -- let's talk still air, which is probably the worst --
THE WITNESS (Gresock): Yeah.
MR. ASHTON: -- worst case. Would you agree with that?
THE WITNESS (Gresock): The -- the MITRT -- yes, the MITRT model, back in 2012, certainly assumes that still air is -- is a maximum impact case, and took a look at this project from -- from the perspective of that very conservative view.
And in terms of the -- the median height of the plume above the stack, where they were identifying potentially severe turbulence, that median height ranged from 28 to 29 feet above stack top.
MR. ASHTON: Twenty-eight or 29 feet?
THE WITNESS (Gresock): Yeah.
MR. ASHTON: So you're up

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about 180 feet. Is that -- that correct?
THE WITNESS (Gresock): Right.
MR. ASHTON: My arithmetic is correct?
THE WITNESS (Gresock): And there, of course, were percentile events that had the plume extending even -- even farther above the stack top. The 90th percentile height ranged from 126 to 133.
MR. ASHTON: Has the project run the diffusion models on the plume looking at downstream diffusion?
THE WITNESS (Gresock): We have not run the fusion model.
MR. ASHTON: Okay.
Is it possible to run air models?
THE WITNESS (Gresock): Oh, did you say diffusion?
MR. ASHTON: Diffusion, yeah.
THE WITNESS (Gresock): Oh, diffusion.
MR. ASHTON: How the plume dissipates.
THE WITNESS (Gresock): Oh, of

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course we have done that as it pertains to the air permit.
MR. ASHTON: And has that been filed with the Council?
THE WITNESS (Gresock): It has.
MR. ASHTON: Okay.
I think that's it for, at least --
MR. SMALL: Mr. Ashton, just -- just -- the -- the MITRT and the SAIC documents that Ms. Gresock referred to are on Mr. Pietrorazio's administrative notice list, so they are -- they'll be part of your record.
MR. ASHTON: Okay. Thank you.
THE CHAIRMAN: Okay. Thank you.
Continue -- Dr. Klemens, do you --
DR. KLEMENS: I just -- thank you, Mr. Chairman.
I have a few questions. I'm going to hold most of my questions for when Mr. Gustafson is here on the 10th of

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February, but I do have some questions. Following on this discussion of the velocity of the plume, we discussed the concept of velocity -- of -- of meteorological velocity.
But in your -- do we have winds coming straight up from the ground as part of normal meteorological events at a 90-degree angle as from the stack?
Do you understand what I'm saying?
THE WITNESS (Gresock): No.
DR. KLEMENS: Well, when the winds blow across Connecticut, as they come they blow lateral -- they blow parallel to the ground or in some formation. As far as -- I don't think, when you have weather that it comes straight up from the ground, is that correct, unless it's a tornado or something?
THE WITNESS (Gresock): Yeah, not straight up, although there's uplift that -- that can occur. And, of course, I know that the MITRT model incorporates three years' worth of meteorological data to take into account the variability of that wind

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direction and speed.
DR. KLEMENS: But you also testified that this would all dissipate at the 28 to 29-foot level?
THE WITNESS (Gresock): That's the medium height -- median height of the plume above the stack that the MITRT report identified as -- as being an area where turbulence would exist.
DR. KLEMENS: Up to 28 to 29 feet above the top of the stack?
THE WITNESS (Gresock): Correct.
DR. KLEMENS: And I don't know much about air traffic control, but do you generally find planes flying 28 to 29 feet above an obstacle?
THE WITNESS (Gresock): Planes should not be flying in that airspace. The -- the VFR traffic pattern altitude in the area is 1700 feet above mean sea level, which would place planes at 720 feet above the stack top.
There's also a recommendation from -- yeah.

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There's -- there are -- there are different heights for -- for different conditions. And -- and during -- I lost my notes.
Go ahead.
THE WITNESS (Bazinet): For -- for VFR conditions, the recommendation from the AOPA must be --
THE WITNESS (Gresock): And that's the Aircraft Owners and Pilots Association.
THE WITNESS (Bazinet): Excuse me. Yeah.
THE WITNESS (Gresock): Yeah. So -- so visual flight rule conditions means meteorological visibility must be clear enough to see. And there are two pattern altitude recommendations there that AOPA -- that Andy is referring to -- is a recommendation that aircraft fly at 1803 feet above mean sea level, which would -- which would be 823 feet above our stack top elevation.
The airport manager recommendation during VFR conditions is that

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the 1700 feet above mean sea level, which would be placing the minimum heights at 700 feet above stack top elevation. There is an IF -- IFR condition which is what aircraft would use when they're -- when they're using their various equipment instead of visibility. And the FAA defines a circling minimum descent area which would put traffic a minimum of 300 feet above the stack tops.

There is a hypothetical missed approach area condition that establishes the very lowest that we would expect any aircraft would be over the stack, which is -- which is at 277 feet above the stack. But that is a calculation that's based on using a whole series of worst-case assumptions in terms of climbing rate and -- and location, and also presumes that an aircraft would deliberately want to fly directly over the stack.

DR. KLEMENS: So from what I'm understanding, this -- the issue really is -- is the stack. The plume -- the plume is not really an issue. If a plane is over -- that close to the stack, there's other problems in its -- in its way it's flying. It shouldn't

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be that close to the stack, is what I'm saying. Is that --

THE WITNESS (Gresock): It shouldn't be that close to the stack, yes.

DR. KLEMENS: Yeah. And it's got a bigger problem if it's close to the stack probably than -- than 28 or 29 feet of plume, the risk of colliding with the stack. Correct?

THE WITNESS (Bazinet): Yes.

THE WITNESS (Gresock): It would be prudent for aircraft to not fly that close to the stack, yes.

DR. KLEMENS: Correct.

And so what I'm saying is this whole plume discussion is sort of, maybe, could be a bit of a red herring in the overall discussion?

THE WITNESS (Gresock): I think the FAA has been very consistent in their -- in their view that the risk of plumes causing a disruption of flights is -- is very unlikely.

DR. KLEMENS: And do you have any information on -- on plumes?

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You've discussed two other large facilities, one in Bridgeport and one in New Haven. Do you have any data on what those plumes are?

THE WITNESS (Gresock): We don't have specifics on their plumes, but we did take a look at the NTSB records to determine whether there had been any incidents reported at those two facilities, and there were none.

DR. KLEMENS: Do you have any records of a plume ever causing an air traffic -- an airplane --

THE WITNESS (Gresock): No.

DR. KLEMENS: -- crash?

Thank you. All right.

I'd like to move on, and this is probably for -- for Curt Jones. I'm going to keep most of the wetland questions for when Dean returns, but I would like to talk a little bit about the subterranean nature of -- of that. And I think you're probably best able, I think, to answer this.

You -- you have described this in one area, the bedrock is 35 feet below,

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but that's limited borings. Correct? You haven't done comprehensive borings at the site?

THE WITNESS (Jones): We -- we do have a geotechnical report that was prepared by Burns & Rowe back in January of 2001. And there were a series of tests.

In -- the report states that there were 23 test borings, three piezometers for measuring groundwater, and some resistivity tests, and 12 test pits which were excavated by a backhoe.

DR. KLEMENS: The depth to bedrock is?

THE WITNESS (Jones): It's not contained, but it's my recollection that it was greater than 30 feet.

DR. KLEMENS: So is this sort of like a large, sort of, dome or a rock formation which is overlain by this very fine silty water holding glacial till? Is that a correct characterization?

THE WITNESS (Jones): I -- I believe the proper term is a "drumlin."

MR. ASHTON: It is a drumlin?

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THE WITNESS (Jones): Drumlin, yes.
DR. KLEMENS: So do you have any sense of what the subterranean water flows are? Because the -- and I'm only asking this because I was kind of amazed that there was an attempt to fill a wetland on the site -- which I guess we'll get into at some point -- and that was unsuccessful to fill, which would indicate to me there's an awful lot, potentially, of subterranean water moving through that site.
THE WITNESS (Jones): So, as with most sites, the -- the soil conditions do vary, and there are some wetlands on the site. And I was talking in general terms about the overall characteristics when I was talking about the glacial till.
So within the glacial till, the -- the soil permeability is very low, so the water travels extremely slowly. So it tends to, you know, store up during the winter and -- and springtime, especially when we have heavier rain. And the -- and the groundwater levels will rise, you know,

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within the pores of the soil and then over -- in -- during the summer, the ground levels -- groundwater levels will drop significantly.
So as far as the transmission of water through the site, I would not character -- characterize it as being high, by any means. There are pockets where it tends to accumulate due to the annual rainfall.
DR. KLEMENS: So it accumulates in these pockets and then breaks out in these wetlands -- these breakout wetlands?
THE WITNESS (Jones): That's -- that's correct. I would also add that there are no large off-site drainage areas which contribute to the site. So the site is pretty much isolated by itself on -- on the hilltop.
DR. KLEMENS: And when you put a big foundation, how many -- how many acres is this foundation, roughly, in size?
THE WITNESS (Jones): There are a number of different structures.
DR. KLEMENS: Well, can you

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give a composite of how -- how much of that is going to be disrupted subterraneanly?
MR. SMALL: We can provide a Late-File exhibit on that, Dr. Klemens.
THE WITNESS (Jones): We have provided a Late-Filed exhibit showing the -- the mass grading that's showing on the site.
DR. KLEMENS: I'm interested in how many acres you're going to be -- you're going to penetrate down into this -- this sort of till. And where I'm going with this, I'd like to know, is what's happening to all the water, the water storage capacity? How will that be affected by the emplacement of these foundations, and what will the ultimate effects be -- and maybe that's a question for Dean -- on the water quality downstream in Jacks Brook where it drains?
THE WITNESS (Jones): So -- so there are about 20 acres of disturbance. And that, again, is shown on -- on our Late-Filed exhibit. We have performed detailed hydraulic calculations that have been submitted to control the postdevelopment runoff, as well as controlling of water

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quality, the sotrmwater quality that leaves the site. So we've -- we utilized the 2004 and 2002 state manuals and incorporated the best practices into the plans.
DR. KLEMENS: And I understand that. My question is that's with the sotrmwater on the surface. How have you factored in for what is going in or not going in and what's going on subsurficially? Because that's where I'm getting at, is what's happening subsurficially, and what will happen when we replace all that till with foundations, footings, in that? Where is this water going, or how much is there? And do you have a date on that?
THE WITNESS (Jones): So I think it -- it really gets into the -- the runoff. So rather than -- and first of all, it doesn't have a high coefficient of absorption because of the glacial till on the site. It's impermeable. There will be a change in the ground cover, and the runoff is controlled through detention ponds.
So, in effect, the groundwater table will be lowered on the site to some

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depth below the areas of the cuts and fills.
DR. KLEMENS: And what's the environmental impact of lowering the groundwater table?
THE WITNESS (Jones): Is specifically -- in what regard?
DR. KLEMENS: In regards to off-site. Off-site. We have a lot of -- there's a lot of material on the record, and a lot of people have been concerned about effects, the downstream receiving wetlands and water courses. So what would your -- what would that effect be of lowering the water table?
MR. SMALL: Dr. Klemens, we're getting into an area that we may best handle for a Late-Filed exhibit, because we don't have subterranean -- the effect on -- as I understand your question, is the effect on the subterranean water table and what happens with that water after construction, is that a fair description of what you're looking for?
DR. KLEMENS: I'm interested in whether -- if there's a lot of water being held in that drumlin in those soils --

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MR. SMALL: Yeah.
DR. KLEMENS: -- what will happen, where it's being diverted, how it will affect the downstream wetlands and water courses, and more importantly, how are you going to maintain the -- the quality of that water.
You talk about -- I'm just giving you what -- you're talking about having detention ponds, but that water is then going to be warmer than what's below. So how are you going to deal with thermal differences, water quality, quantity, and the thermal aspects of that water?
THE WITNESS (Jones): I think we could more accurately address all those questions through Late-File exhibits.
DR. KLEMENS: But that's sort of the universe of those questions is -- I'm trying to understand that.
THE WITNESS (Jones): Okay.
DR. KLEMENS: And the only -- the very last set of questions I have just really go back to some of the -- my colleagues' cross-examination, is you said

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that the impetus is the need for new generation at this point. There's -- there's an impetus to build this plant now.
THE WITNESS (Bazinet): Yeah. Yes. I'm sorry.
MR. ASHTON: So I must ask the question: Was there an impetus 15 years ago?
THE WITNESS (Bazinet):
Similarly, the -- there's been multiple, I -- I guess, over the course of the past 15 years in -- that you could characterize one being the case 15 years ago as well, yes.
DR. KLEMENS: And we've heard a lot of talk about regional benefits. Can you sort of articulate how this will benefit the people of Connecticut and -- that's my first question -- and more specifically, the communities that are near this plant, proposed plant?
THE WITNESS (Bodell): Tayna Bodell, executive director of Energyzt.
We were tasked with performing the benefits analysis of looking at the impacts on prices and emissions in the region

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of New England. We also were able to look at Connecticut, which is not included in the report, but we do have information on that. And what we found was, in New England, there's a benefit due to reduced prices of around $4.5 billion over the ten years we examined, 2018 to 2028. Carbon --
DR. KLEMENS: This is -- this is New England?
THE WITNESS (Bodell): This is New England, and it's what is in the report.
We have similar numbers for Connecticut as well. The benefits for Connecticut on prices is about a third of the benefits to New England. So around $1.5 billion in reduced electricity energy costs to the load in Connecticut results from putting this efficient, natural gas power plant onto the system.
DR. KLEMENS: Are there any -- but there's no specific pricing benefits that accrue to the communities near there?
THE WITNESS (Bodell): So because New England is a locational marginal pricing model, there would be benefits

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accruing to the community, as well, associated with the lower electricity costs. We do not have specifically right now what the local benefits would be. And we would need to look at how the New England zones are configured, but we -- we certainly could look more -- in more detail at the zone of the community.

DR. KLEMENS: I have no further questions. Thank you. I have no more further questions at this time, but I reserve my right to ask on the wetlands next time, please.

THE CHAIRMAN: Mr. Levesque?

MR. LEVESQUE: Ms. Gresock, you testified that, given the current turbines and production -- the size of the equipment that is chosen so far, you couldn't make the visibility and the bulk of the buildings and the stacks lessened. But if you had smaller production there and different sized turbines, would the buildings be smaller?

Are you giving her an answer?

THE WITNESS (Donovan): Well,

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I think one of the -- one of the benefits of this -- of the changed application is that we have reduced the height of the air-cooled condenser, for example, and also the height of the buildings.

MR. LEVESQUE: Can you make the building smaller by choosing a lower electric production?

THE WITNESS (Bazinet): Not necessarily. The -- in the prior certificated design, the visual impacts, in our opinion, are greater with the smaller megawatt footprint.

MR. LEVESQUE: Well, you said smaller because, after 15 years, the equipment is smaller and more efficient, not because the production was less.

THE WITNESS (Bazinet): The production out of the facility in the certificated project is 512 megawatts per hour compared to 785 megawatts per hour. That facility would have greater visual impacts due to the heights of the structures than what we're proposing today.

MR. LEVESQUE: And choosing a

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model that's more efficient, that's readily available, from Germany, from U.S., wherever, Mr. Donovan?

THE WITNESS (Donovan): I don't know if I understand your question. Could you repeat it, please?

MR. LEVESQUE: If you have smaller gas turbines, smaller generators, will your buildings be smaller or lower?

THE WITNESS (Donovan): No. No. The boilers, the HRSGs, may be slightly smaller, but on the order of just a few feet. But the stack heights would be the same height as what we're proposing. And the air-cooled condenser would be per the original -- the original application.

MR. LEVESQUE: Well, it's difficult to do an off-the-cuff design.

THE WITNESS (Donovan): Correct.

MR. LEVESQUE: And I didn't ask for a specific size.

Did you do -- did you submit a report -- and we talked about promoting dual fuel or the cost of oil is much less, like --

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like now. Did you submit a report on how many oil tank trucks per day you would need to use oil production for a few weeks or a few months?

THE WITNESS (Bazinet): So -- so the -- so -- so the -- the constraining factor is not the oil that we have stored on site. The constraining factor is the water availability. And --

MR. LEVESQUE: Just answer my question. Is it --

THE WITNESS (Bazinet): We could not support multiple weeks of production --

MR. LEVESQUE: Okay.

THE WITNESS (Bazinet): -- on oil.

MR. LEVESQUE: What's -- did you submit -- did you submit a port -- report, yes or no, on how many oil tank trucks you'd send there in a day?

THE WITNESS (Bazinet): We did not.

MR. LEVESQUE: Okay.

And then, Mr. Donovan, I -- I

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assume -- are the largest manufactured components that you'd deliver to the site via the interstate trucks, would they be the gas turbines?

THE WITNESS (Donovan): It's -- that's correct. The gas turbines would be among the largest components, but it's the gas turbines and the generators.

MR. LEVESQUE: And did you pick a route already for how they would be delivered, or do you know where they would be manufactured?

THE WITNESS (Donovan): They -- they would be manufactured -- the gas turbines would be manufactured in Greenville, North Carolina.

MR. LEVESQUE: Okay.

THE WITNESS (Donovan): The generators would be -- or South Carolina -- sorry.

The steam turbine would be manufactured in Schenectady, New York.

MR. LEVESQUE: Okay.

And did -- do you have a road

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engineering report on how those make their way from I-84 to the site?

THE WITNESS (Bazinet): No, we don't have a road engineering report. We have an expectation for the route that the equipment will probably be delivered, but no -- no road engineering report.

MR. LEVESQUE: If you get a chance to -- which towns would it pass through?

THE WITNESS (Bazinet): So -- so the expectation is that the equipment would be delivered via Interstate 84. And I believe, as you get off that exit, you're technically in Southbury, and then you're quickly -- as you take a left off the exit, within the Oxford town limits.

MR. LEVESQUE: Okay.

And did you talk to the engineers, the town engineers, of those two towns to get your survey of the weight limits of the bridges and the roads for the route?

THE WITNESS (Donovan): In the coming months we'll be doing -- when -- once we select a contractor to build the facility,

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they'll be doing a more in-depth heavy haul survey to determine the exact route.

MR. LEVESQUE: Okay. But you -- you selected your turbines and your generators before checking --

THE WITNESS (Donovan): Correct.

MR. LEVESQUE: -- if they'll let you go across those bridges?

THE WITNESS (Donovan): That's correct.

MR. LEVESQUE: Okay.

And if they -- they don't permit you to go across those bridges, what do you do?

THE WITNESS (Donovan): We find a different route. It's -- it's pretty typical to -- to approach it this way, and part of it is driven by the -- the need to select the technology to support the permitting earlier in the process.

MR. LEVESQUE: Sure.

And if -- if -- if it's approved as now proposed, and all the permits are in, if the roads need improvement, would

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the company ever consider volunteering to improve those roads instead of asking the towns to do it?

THE WITNESS (Bazinet): Absolutely. We use -- we have no intention of leaving irreparable or, you know, damaged roads as a result of delivering equipment to the site.

MR. LEVESQUE: Okay. Thank you.

THE WITNESS (Bazinet): And that's typical of how we've executed projects in the past.

MR. LEVESQUE: Thank you, Mr. Chairman.

THE CHAIRMAN: Thank you. Mr. Hannon.

MR. HANNON: Thank you, Mr. Chairman.

My questions really focus in on the original application that was submitted.

For example, on page 5, Bullet 2.1, the first comment, there is more energy -- this is the first bullet -- more

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efficient energy output, saving fuel and reducing greenhouse gas.

However, my question on that is on page 24, in Tables 4-4. If I'm reading it correctly, it looks like there's an increase in greenhouse gases. So can you explain the difference between what's in the table and what's in the comment on page 5?

MR. SMALL: I'm sorry. Which document are you on?

MR. HANNON: The application form that originally came in.

THE CHAIRMAN: Exhibit 1.

MR. SMALL: Oh, exhibit 1. Yeah. Thank you.

MR. HANNON: So on page 5, under 2.1, the first bullet, it talks about reducing greenhouse gas in the new proposal. On page 24, Table 4-4, if I'm reading it correctly, it looks like there's a significant increase in greenhouse gases. Can you please explain the difference?

THE WITNESS (Seller): Sure. Yeah. Greenhouse gases, of course, are a regional pollutant -- or, in fact, a global

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pollutant. The improvement in efficiency results in fewer greenhouse gases per megawatt hour of generation that the facility would be responsible for.

So, obviously, if the facility is larger, on an absolute basis, there's more greenhouse gases coming from that facility, but the differences in megawatts between the larger facility and a smaller facility would have to be met by another facility. And all of the other facilities have a lesser efficiency, and therefore, would be generating more greenhouse gases per megawatt hour.

So there's a set amount of megawatt hours of -- of energy that has to be generated in ISO New England to meet the demand. And by going to a larger more efficient turbine overall, there would be less greenhouse gases emitted over the region.

And since greenhouse gases are basically a global pollutant, it doesn't really make much too much difference where they're generated from, from an environmental

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perspective.

MR. HANNON: So then on Table 4-4, the greenhouse gases that you're referring to, are you incorporating all those above it, or is it a separate line item that you're dealing with?

THE WITNESS (Seller): That would be a separate line item. What -- what -- the Table 4-4 shows what -- what the difference in greenhouse gas emissions on an absolute annual tons per-year basis would be between the two different turbines. It doesn't take into account the fact that, with the smaller turbine, you'd have to make up that additional energy from someplace else.

MR. HANNON: Well, I can appreciate that, but I'm looking at the total difference. It does state that, under the new unit, although it may be lower greenhouse gas emissions per kilowatt, because there are more kilowatts, you are generating more greenhouse gases. I'm just saying that seems to conflict with the statement that's on page 5 that says "reducing greenhouse gases."

There's no, sort of, asterisk

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associated with per kilowatt hour. You say on one page that it's reducing greenhouse gases, on another it's more.

THE WITNESS (Seller): It's reducing greenhouse gases on a regional basis. Greenhouse gases are generally regulated by the United States Environmental Protection Agency, as well as the Connecticut Department of Energy and Environmental Protection on a pounds-per-megawatt-hour basis because they recognize that it's -- it's a global pollutant.

MR. HANNON: Okay.

On page 9, 2.3, stack location and position -- this is more of a question -- you just have a statement there, the second paragraph: "This movement of the stacks will avoid lateral navigation obstruction."

My question is going back, and I'm looking at the original finding of fact back in June of '99. Is this the same as the circle to land minimum, or is this a different situation out on the site where there may be an issue with the FAA?

THE WITNESS (Gresock):

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Previously, there were additional areas that were penetrated by the stack locations. So shifting the stacks further to the east avoided the potential penetration of the Runway 18 LNAV procedure primary area which was -- was previously penetrated.

Lowering the base elevation of the site to 830 feet above mean sea level from 831 feet above mean sea level avoided the potential penetration of the expanded Category A circling approach for the airport.

MR. HANNON: Okay.

But is that the circle to land minimum? I'm just trying to make sure that --

THE WITNESS (Gresock): Yeah.

MR. HANNON: -- you're using one term in 2015. There was another term used in 2 -- in 1999. I'm just trying to make sure that they're one and the same.

THE WITNESS (Gresock): Yes, with -- within that area, the circle to land minimum would apply.

MR. HANNON: Okay. Thank you.

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On page 18, it is a question dealing with the wetlands, but I think this may be something that can possibly be answered with Dean not being here. If not, I can wait until he gets back.

But there's a reference on here about March 2013, Army Corps compensation mitigation will -- which in accordance with the Connecticut In-Lieu Fee established between the Army Corps and the Audubon of Connecticut.

But then, on page 34 -- let's make sure I get the right number there -- you make a comment about, in addition, the Army Corps and the DEEP have established a new program that allows for an in-lieu payment. The agency has not done that. So can you please explain the discrepancy there?

And -- and, guys, before you answer, let me also -- this may be moot because the reason I'm even raising the issue is because I believe somebody said at the last -- or at the hearing in Oxford, that you were no longer talking about fee in-lieu of mitigation, or are you actually doing a

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mitigation?

THE WITNESS (Bazinet): That's -- so we're doing a combination. So we are -- everything you said is true, and further, the -- the current status of that application is that we're contemplating the use of wet ponds for mitigation in combination with the In-Lieu Fee Program, and that's been a recommendation that DEEP has made to the project.

MR. SMALL: I would just note, Mr. Hannon --

MR. HANNON: Yes.

MR. SMALL: -- that the DEEP letter that was filed yesterday or the day before, mentions what the agency requested --

MR. HANNON: Okay.

MR. SMALL: -- that we -- we contemplate doing.

MR. HANNON: On page 26, water usage, 4.1.2.1, this is just more of a question. I think you're -- you're saying that the maximum amount of water that would be provided by Heritage is the 218,000 gallons per day. Is that correct?

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THE WITNESS (Bazinet): The -- the maximum amount that they'll commit to is 218,000 gallons per day, to the extent that there are available supplies above and beyond the 218,000 gallons per day on a -- analyzed on daily basis, then they -- they could make that available.

MR. HANNON: And has a connection been made with Connecticut Water to possibly increase that amount of water?

THE WITNESS (Bazinet): The connection with Connecticut Water has been made, but that contemplates that connection.

MR. HANNON: Okay.

And then you said the balance of what you need will be stored on site. Correct?

THE WITNESS (Bazinet): We will be using on-site storage to supplement our needs during oil firing. The -- the balance of what we need is kind of a -- I mean, you could argue we need a lot more depending on how -- how many continuous oil-firing hours you'd like to support.

MR. HANNON: Understood.

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Then a question I have on page 29, now you're talking about an off-site regenerated ion exchange system instead of on-site. Where are you proposing to have the ion exchange system, and what type of water may be coming from that, as the water is processed, so that you can actually run it so it's clean enough?

THE WITNESS (Bazinet): So -- so the -- the creation of the demineralized water will be a similar process. It will just be that demineralized trailers will be used to create that water and populate the tank inventory, if you will. Those are noted on our site plan filed in the application as item 7.

MR. HANNON: No, I understand that. But you're saying it's now going to be off-site generated. Where?

THE WITNESS (Bazinet): We can provide you some more detail for -- in a Late-Filed exhibit on where -- where the trailers would be regenerated. It would be contracted through a third-party resource, and we just don't have that detail available

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right now.

MR. HANNON: Okay. If you do that, that would be great. Thank you.

On page 30, 4.1.2.3, you talk about two detention ponds in the corporation of low-impact development principles. Is that primarily, like, the grass swales that are being proposed on site, or are there some other things I'm missing?

THE WITNESS (Jones): Well, the grass swales are the primary component, yes.

MR. HANNON: Okay.

Is there anything else that's considered low impact that you're proposing?

THE WITNESS (Jones): I'd -- I'd like to review the plans and provide that in detail as a Late-Filed exhibit, if you'd like.

MR. HANNON: Okay.

And on page 37, groundwater, talk about providing secondary containment for all aboveground storage tanks. I'm assuming that that's at a minimum, 110 percent capacity?

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THE WITNESS (Gresock): That's correct.

MR. HANNON: Thank you.

On page 39, at the top of the page, the first full sentence: "No brooks or streams are located on the project site."

This may be a matter of semantics, but if I'm not mistaken, I think that you discussed a -- an intermittent channel. To me, it's basically one and the same, and I believe that's associated with Wetlands 1.

So if there is that intermittent channel, or as I would consider it to be an intermittent stream, I'm not sure that this statement is really accurate.

MR. SMALL: Mr. Gustafson can address that.

MR. HANNON: Okay. This is part of Tab A.

There's a -- a letter sent to Steve Edwards at the Department of Energy and Environmental Protection which talks about -- this is on the third page -- a letter from Naugatuck POTW confirming that it has the

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ability to accept the proposed discharge, will be forwarded to DEEP as soon as practical.

Following up on that, there's a letter from the Borough of Naugatuck, dated September 19, 2014, where they voted unanimously to authorize John Batorski to approve and review their discharge permit application. Has that been done?

THE WITNESS (Bazinet): Yes, it has.

MR. HANNON: And are there some results on it? I mean, I didn't see anything in response to that.

THE WITNESS (Bazinet): Phone conversations had taken place between myself and John Batorski. Upon request of the -- the noted letter, the -- the information that you see, dated September 19th, is what was provided.

MR. HANNON: Okay. That's fine. We can break.

THE CHAIRMAN: Yeah. We're going to give Mr. Hannon a break now. We're going to break for lunch at one o'clock.

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We'll resume promptly at 1:45, 45 minutes.
(Whereupon, the witnesses were excused, and a recess for lunch was taken at 12:59 p.m.)

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AFTERNOON SESSION
1:45 P.M.

JON DONOVAN,
TANYA BODELL,
DANIELLE POWERS,
ANDREW J. BAZINET,
D. LYNN GRESOCK,
FREDERICK SELLARS,
CURTIS C. JONES,
having been previously duly sworn, were examined and testified further on their oaths as follows:

THE CHAIRMAN: Okay. Good afternoon.

Now continue the cross-examination, Mr. Hannon.

MR. HANNON: Thank you Mr. Chair.

One of the things I wanted to touch on briefly, go back to page 24, on Table 4-4.

In listening to a lot of the comments of the public hearing, one of the concerns was the emissions of particulate

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matter. And I just want to make sure that I'm understanding this again correctly.

4-4 is taking the combination of the emissions, not so much based on per ton, but the total that's being generated on the site. So is it correct that on the particulate matter there's about a 43 times per year difference based on the new technology?

THE WITNESS (Seller): That's correct. The -- although the -- the new machine is larger, it's particulate emission rate is superior, and on balance, they would be 43.3 tons per year less with the new larger machine.

MR. HANNON: Okay. Thank you.

On Tab B, the wetlands report on page 5, Wetland 2 description, in the first line, I believe, that there's an error there. I believe the -- it's the eastern edge of the wetland that's located in the northwest corner of the site.

MR. SMALL: I'm sorry, Mr. Hannon. Where are you on page --

MR. HANNON: Page 5, the first

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sentence under Wetland 2 description. It says: "The majority of Wetland 2 is off-site with only its western edge located in the northwest corner of the site."

I believe that should be with only its eastern edge.

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

MR. HANNON: Tab C, getting more towards the -- the back end of things, page A19. Again, this goes back to part of the question I had earlier about the low-impact development activities.

So you've got the grass-lined swales, but then, looking at -- bear with me on this one -- I believe it is way towards the back, but it's Map C310.

Is it Civil 1 that prepared it?

THE WITNESS (Jones): Yes, sir.

MR. HANNON: Okay.

I guess part of the question I have there is that it states that -- and there's -- at an elevation of 823, there is a

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modified riprap emergency overflow from Retention Area A. If I'm reading that correctly, that's supposed to drain directly into the grass swale.

I -- I haven't seen any type of design that would be able to take that water flow effectively without severely eroding the banks over there. So I'm just trying to figure out exactly what the process would be there. Because, typically, I -- I will admit I haven't seen the emergency swales or these emergency spillways unloading into a grass-lined swale, which is being used to improve water quality.

THE WITNESS (Jones): Yes, sir. Are you referring to the detention pond in the northern side of the site there?

MR. HANNON: No. It's Retention Area A, the one on the southern end of the site.

THE WITNESS (Jones): The southern site. So the overflow from that is the two pipes on the westerly side of the pond. So those flows will -- the outlet flow will be split into those two pipes.

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MR. HANNON: Well, those really aren't overflow pipes. Those are at the base elevation of the detention basin. You've got the emergency spillway on the eastern side which is at an elevation of 823 --

THE WITNESS (Jones): Yes.

MR. HANNON: -- which is going directly into the grass-lined swale. And my concern is, if you're getting the water up at a higher enough elevation, and you're pouring water into a grass-lined swale that's not designed to take water coming in at a 90-degree angle, I can see some significant erosion over there. So I'm just curious as to what's being planned in that area.

THE WITNESS (Jones): Okay. So the emergency swale -- excuse me -- the emergency spillway is intended to accommodate flows in excess of a hundred-year storm. And I'd be glad to take a further look at that, and to be able to handle flows in excess of a hundred-year storm, should that occur. Typically, the hundred years --

MR. HANNON: Well, I'm more

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concerned about blowing out the spillway.

THE WITNESS (Jones):

Yeah. So, typically, that hundred -- hundred-year storm is the designed storm, and we certainly could add some armored protection across that in -- in the event that there would be a storm greater than -- than the hundred year.

MR. HANNON: Okay. Then, while we're actually on that page, keeping that one sort of out and also -- it's Figure 6. It's a map, right across on page 30. Looking at figure 6, it -- to me, based on the elevations, it looks like the berm elevation is at 830.

On C1 -- I'm sorry -- 3 -- C310, that's at 824, so which is it?

THE WITNESS (Jones): I'm sorry. Figure 6?

MR. HANNON: Figure 6. It's in --

MR. SMALL: In the main body of the report, Mr. Hannon?

MR. HANNON: Yes. It's right across from page 30 -- page 30. So it's

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4.1.3. There, it looks like that the berm is actually at an elevation of 830, but the Map C310 shows the berm to be at an elevation of 824. So I'm just trying to make sure that I understand which map is correct on this.

THE WITNESS (Jones): Can you give me those numbers and locations again for Figure 6, please?

MR. HANNON: Sure. Figure 6 is across from page 30.

THE WITNESS (Jones): Yeah, I have figure 6 now. Thanks.

MR. HANNON: Okay. And then, towards the -- the back, it's Map -- or page C310?

THE WITNESS (Jones): Yes.

MR. HANNON: Okay.

There, you have a statement, there's a 12-inch berm, elevation 824, and the topography goes down from there. Okay?

THE WITNESS (Jones): Yes.

MR. HANNON: If you're looking at page -- or Figure 6, the berm is at an elevation of 830.

THE WITNESS (Jones): Yes.

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MR. HANNON: So I'm just trying to make sure that I understand which one is the correct number.
THE WITNESS (Jones): The Sheet C10 -- C310 is the correct drawing. It's a newer drawing and which supersede the information on Figure 6.
MR. HANNON: Okay. Thank you.
And you might want to keep C310 out, because I've got some other questions, but I want to go back on some other issues first, and then we'll get back there.
On page A22, it says: "CPV will monitor stormwater management facilities during construction."
It doesn't say anything about postconstruction. It just says they'll monitor during construction for invasive species, and I don't think that's adequate.
I mean, so why monitoring only -- and also, why only monitoring the stormwater management facilities when the invasives could be across the entire site? You're talking about 20 acres of disturbed

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land that takes up the site. I didn't see anything related to long-term monitoring and treatment of invasive species after construction.
And then, the other question is the sixth bullet at the bottom of page A22. It talks about soils being excavated. You know, it could conceivably have some invasive plant seeds, things of that nature, in there, and they'll be stockpiled separately, but what's going to happen with those stockpiles of soil?
MR. SMALL: Those are probably -- those are very good questions. They're probably best directed to Dean Gustafson.
MR. HANNON: Okay. That's -- that's fine.
MR. SMALL: Or, you know, we tried to capture them, have him prepare the answer for those at the next hearing.
MR. HANNON: No, that's fine. Fully -- and I fully understand that some of these questions may be better dealt with by Dean, and I'm fine with that.

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Okay. How do I describe this one.
Well, this -- this is part of the All Points Technology submittal, dated August 22, 2014. But this does go to some of the comments that I believe you had made earlier.
My question was: Were any test pits dug on the site? And I believe you made a comment there were 23 test pits dug.
Is that information available anywhere in terms of what was actually found in those test pits?
And the reason I'm asking is I'm looking at it more from a soil perspective, in terms of whether or not there was any modeling testing done to see where the high groundwater table was and how that may or may not impact the storm drainage system that's being proposed on site.
MR. SMALL: Mr. Hannon, we're checking to see if that's somewhere in this report. If it's not, we'll -- we'll provide the document as a Late-Filed exhibit.
MR. HANNON: Okay. And I

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didn't see it. So if it's there --
MR. SMALL: Right.
MR. HANNON: -- that's fine. And I know there were comments made about a number of borings, a number of the test pits, but I don't remember seeing anything about any of the data associated with the test pits, and that's what I'm particularly interested in.
MR. SMALL: We're -- we're not finding it. So that's a document, Mr. Jones, that you were referring to in your discussion with Dr. Klemens?
THE WITNESS (Jones): Yes, sir.
MR. SMALL: The geotechnical. Well, we will submit that as a late-file.
THE WITNESS (Gresock): I think there's a distinction between the geotechnical report and what he's talking about related to the soil shovel test pits.
MR. SMALL: Okay. Okay.
Which are -- are you looking for --
MR. HANNON: I'm looking

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specifically for the information in terms of where the test pits were, what they were reviewed for. I mean, I understand the borings were probably done to determine where ledge was, but I -- I also want an answer as to where the test pits were and what they were reviewed for?

THE WITNESS (Gresock): And are you talking about geotechnical test pits, or are you talking about the test pits that Dean would have dug to support the wetland delineation, or both?

MR. HANNON: I'm not even looking at a wetland area.

THE WITNESS (Gresock): Okay.

MR. HANNON: I'm looking at the soil conditions associated with the upland soils, because both the Paxton and the Woodbridge are susceptible to having hardpans, which explains why there may be a high groundwater table.

So I'm curious as to what the testing of the soil might have been, in any of those test pits. And if there weren't test pits done where the detention basins are

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proposed, that's something that should be done, because I just want to make sure that what you are proposing is not going to be underwater to start with.

THE WITNESS (Jones): Okay. Understood.

MR. SMALL: Again, we'll file that document as a Late-Filed exhibit.

MR. HANNON: Okay.

This may have just been a slight omission. In terms of the stormwater management and erosion control report, on page 5 -- this was dated September 2014. It's just more of a question. There's a laundry list of erosion sedimentation control measures that are being considered here, but it does not take into consideration the use of straw waddles, which was included on page A23, because, in all honesty, that may be something that you're probably better off using rather than hay bales and/or silt fence. But that's not captured here, but it is on the laundry list of erosion control measures on page A23. So that probably just needs to be there.

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And the balance of my questions really go back to the Map C310. There was a comment made, I believe, at the public hearing that an oil-water separator was to be installed on site. Did I hear that correctly?

THE WITNESS (Donovan): That's correct. Yeah.

MR. HANNON: Where?

THE WITNESS (Donovan): Just give me a few moments.

MR. HANNON: Uh-huh.

THE WITNESS (Donovan): I have to find my way.

We don't have that. We don't have the location handy right now.

MR. SMALL: Again, we can -- we can provide that in a Late-Filed exhibit.

MR. HANNON: All right.

Well, this is -- this is part of the reason why I'm asking is because I'm looking at the drainage system from Stormwater Renovation Area B. It looks as though there are two outlets at that structure. One identifies an outlet

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structure with an invert elevation of 821. That's fine. That's, I believe, also sort of the base elevation of that detention pond.

There's another pipe that is a 24-inch RCP, a little bit to the left of it, but it doesn't show that there is any type of head wall. It doesn't show there's any type of basin. So how are you proposing to have that system installed?

THE WITNESS (Jones): So that additional 24-inch pipe that you're referencing is the hundred-year storm overflow. And we could provide greater detail on the installation of that, if you'd like.

MR. HANNON: So, I mean, is there any type of a head wall associated with it or, I mean, some type of gravel protection for the incline? I mean, I'm -- I'm just curious --

THE WITNESS (Jones): We could provide that detail.

MR. HANNON: -- as to how you're proposing to do that.

THE WITNESS (Jones):

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Certainly.
MR. HANNON: Okay. And the reason I'm -- I'm bringing up these issues, and why, in particular, I'm interested in where the oil-water separator is located, is your taking the water from Renovation Area B and it's, in essence, being piped down towards the drainage easement. You're taking a chunk of the water from Renovation Area A, and you're also running that in from a different direction into a small area.
You've got some slopes that are ranging from 8.9 percent down to 2 and a half coming in from one direction. The other direction from the Retention Area A is 14.3 and 5 percent. And I have some doubts as to whether or not those pipes ending in a riprap area is going to survive. I mean, there's a lot of slope there. There's a lot water coming in through there. So I'm just curious that that's not going to create a problem with what is being proposed for the outlet, actually, into that drainage easement.
THE WITNESS (Jones): And -- and that's on the easterly --

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MR. HANNON: That's on C310.
THE WITNESS (Jones): -- on the easterly into the drainage easement?
MR. HANNON: That is correct.
THE WITNESS (Jones): So those -- all those calculations for velocities are contained in the report. We did find that the velocities are -- are below the scouring velocities.
MR. HANNON: Okay. But, from my perspective, this may also be a good area to be locating the oil-water separator before it goes off-site.
The other question is also related to the drainage area. I mean, based on what is on this map, it talks about drainage easement in -- in favor of Lot 9A, and it looks like there's a lot of water going there that's not associated with Lot 9A. Do you have the authority to drain that water there?
THE WITNESS (Jones): Are you -- are you saying from 9A across that driveway to the south, or is it 9B?
MR. HANNON: There's a note --

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there's a note on the map that says: "Drainage easement in favor of Lot 9A."
THE WITNESS (Jones): Yes.
MR. HANNON: Now, is lot 9A only that 6-acre parcel that is --
THE WITNESS (Jones): Yes.
MR. HANNON: Okay. So my question is: If the easement for draining water there is in favor of Lot 9A, does that take into consideration draining the entire site to that point?
THE WITNESS (Jones): So I think it's a little bit of a legal question and an interpretation of the easement would -- you know, the easement language would probably be consulted.
MR. HANNON: Absolutely correct. But I'm saying, based on what's here, it says the easement -- drainage easement is in favor of lot 9A.
THE WITNESS (Jones): Yes.
MR. HANNON: So I'm just trying to make sure.
THE WITNESS (Jones): So, in addition, we -- we would note that there is

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no increase in runoff going over into that area.
MR. HANNON: Are you talking about maximum flow or total?
THE WITNESS (Jones): I'm talking about the flow rate.
MR. HANNON: Yeah, I'm talking about total.
THE WITNESS (Jones): Uh-huh.
MR. HANNON: On a couple pages later, on Map C320, I just want to make sure that I understand what you mean by a "photodegradable net" that's used in, like, the erosion control blankets.
THE WITNESS (Jones): So these are the type of netting that's -- that will degrade in time and -- and not be permanent.
MR. HANNON: Okay. So is that using more of a woven material or a plastic material? I'm assuming it's a woven material then.
THE WITNESS (Jones): Woven, yeah.
MR. HANNON: Okay. Thank you. I think I am done for the time

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being. Thank you.
THE CHAIRMAN: Thank you.
Mr. Lynch.
MR. LYNCH: Mr. Chairman, I'd like to, first of all, apologize to you and the council members and the applicant because, due to a personal situation, I'm not really up-to-date on the proceedings. I have some catching up to do. So I just wanted to explain that.
But that having been said, I do have some clarifications from some of the early testimony this morning. And I walked into the middle of Mr. Ashton's cross-examination on the air traffic flight patterns, and I heard 300 feet and 270 feet. Could -- could you go over that again, if you don't mind.
THE WITNESS (Gresock): The air traffic restrictions that exist vary under visual flight rule conditions and under instrument flight rule conditions. VFR traffic pattern altitude, as recommended by the airport manager, is at 1700 feet above mean sea level, which would have the aircraft

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no lower than 720 feet above stack top.
There's also a VFR traffic pattern altitude that is recommended by the Aircraft Owners and Pilots Association, which is at 1803 feet above mean sea level, which would be aircraft at a minimum of 823 feet above the stack.
There is an instrument flight rule condition for the circling minimum descent area which could result in aircraft circling above at an elevation -- a minimum elevation of 1,280 feet above mean sea level. So that would be a minimum of 300 feet above stack tops.
And then, as we've been considering the way in which aircraft might use the space that's within the vicinity of the project, there is a hypothetical that a missed approach -- a missed approach area is quite large. And there's a hypothetical that missed approach movements could result in aircraft being at a height -- a minimum height of 277 feet above the stack, which is something that was calculated using a series of conservative conditions about climbing

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rate and location, and -- and assumes that an aircraft circling would choose to do so over the stack, as opposed to in other locations.
MR. LYNCH: Thank you. I came in the middle. I didn't get all the numbers. I have them now. Thank you very much.
The second clarification I'd like to get is on the -- the benefits to Connecticut and the benefits to the region costwise. And my question is: Are -- did -- were these submitted also to ISO New England for their verification?
THE WITNESS (Bazinet): No, they were not.
MR. LYNCH: And, lastly, again, just a clarification. If my teamster buddies are right in the -- in transporting a wide or heavy load, this all has to be done in -- in the afternoon? It cannot be done in the evenings, if you're transporting the turbines?
THE WITNESS (Donovan): We haven't determined that yet. We haven't determined the day of -- the time of day to -- for the deliveries and the transport.

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MR. LYNCH: Well, from what my teamster buddies tell me, it has to be done during the day. It can't -- wide loads can't go at night.
THE WITNESS (Donovan): Okay.
MR. LYNCH: That's why I'm probably just -- thank you, Mr. Chairman.
THE CHAIRMAN: Okay. Thank you.
Okay. I guess it's my turn.
Starting with Exhibit 1, page 17, the last sentence above stormwater, it says that -- well, it said, in 2010, to permit the project -- required to obtain RGGI allowances each year to match its annual CO2 emissions. Could you please elaborate on that.
THE WITNESS (Seller): Yes, sir, Mr. Chairman.
RGGI is the Regional Greenhouse Gas Initiative, and that is a carbon or, specifically, carbon dioxide cap and trade program that several of the northeastern states have voluntarily joined.
That cap and trade program

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results in auctions of allowances of -- of carbon dioxide. And any power plant greater than 25 megawatts would be required to purchase a CO2 allowance for every ton of carbon dioxide that it emits on a -- on a real basis. So it's on -- based on actual emissions.

THE CHAIRMAN: Okay.

And on page -- and I guess I understand a little bit better your tables on page 24. But on page 26 -- well, at some point, you say that your -- with your new technology, you would totally comply, I believe, with all regulations.

But then, on page 26, you state that to comply with the requirements of nonattainment of source review for nitrogen oxides, you have offsets -- and I think you have other offsets. So how do -- what is the extent of the offsets, and why do you need offsets, and where would you get them, if, in fact, you're in full compliance?

THE WITNESS (Seller): Sure. Thank you.

The offsets that are referred

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to there are part of nonattainment new source review provisions. Because Connecticut, like most of the Northeast, is not attaining the national ambient air quality standard for ozone. And as a result, any facility that is to be permitted within that region must obtain nitrogen oxide allowances per the Connecticut Department of Energy and Environmental Protection's rules.

So this doesn't relieve the project from meeting all other air quality standards or air quality requirements. It's an additional requirement that's placed on all new facilities to obtain offsets. And the rationale behind that is ozone is not directly emitted from a power plant. In fact, very, very few sources directly emit ozone.

Ozone is created in the atmosphere by a series of photochemical reactions from a number of precursor pollutants. And nitrogen oxide is the most important of those precursor pollutants. So the United States Environmental Protection Agency and Connecticut Department of Energy

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and Environmental Protection require new sources to obtain offsets that meet certain criteria.

And they are -- basically, they have to be offsets from existing -- from actual emissions from a previously permitted power plant or -- or other source. And they have to be in -- in excess of any other emission reduction requirement that have been -- been applied to those sources, and they must be federally enforceable by being incorporated into the permit that the facility will receive.

THE CHAIRMAN: Where -- where --

THE WITNESS (Seller): And they -- they have to meet certain geographical requirements. The offsets have to come from the same or contiguous nonattainment area of -- of equal or greater nonattainment severity.

THE CHAIRMAN: Have you determined where you would get the specific offsets from?

THE WITNESS (Seller): The

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facility currently holds 177 offsets from -- from before, and those offsets are still valid. There will be an additional 57 offsets that are required prior to operation, and those would have to come from either Connecticut or an upwind state, a contiguous nonattainment area, most likely from Long Island, for example, or New York.

THE CHAIRMAN: So it's not -- you don't get them from an existing power plant?

THE WITNESS (Seller): What happens is, when a facility makes a reduction in emissions, either by shutting down and surrendering its air permit or by applying emission controls above and beyond what's required by law, they can qualify to generate something called "emission reduction credit."

And so when a facility shuts down, it will -- it will receive an emission reduction credit. They then can sell that emission reduction credit to a new facility who can convert the emission reduction credit into an offset.

THE CHAIRMAN: Okay.

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We talked about particulates. That's obviously of concern, even though compared to the previous proposal is reduced, but it's still -- do you -- have you mapped sort of the dispersal, so people would get a sense of where these -- maybe it's in here and I missed it -- where these particulates actually would land?

THE WITNESS (Seller): Yes. We've generated something called "isopleths." We can certainly provide those to you. But I can sort of characterize them generally now, and we'll provide the isopleths as a Late-Filed exhibit.

The maximum concentrations of -- of particulates, specifically PM 2.5, the highly respirable fine particulates, occurs immediately at the fence line of the facility and drops off --

THE CHAIRMAN: Is that by coincidence or --

THE WITNESS (Seller): Well, it's because -- from a number of -- of factors --

THE CHAIRMAN: Okay.

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THE WITNESS (Seller): -- because of the height of the stack, which is relatively short compared to some other facilities. It's not unusually short but on the lower end of height. But more importantly, because the conditions that result in the highest concentration of particulate would be when there are extremely light wind speeds. And -- and under those conditions, the maximum concentration winds up being very, very close to the stack.

So the maximum concentrations that are predicted by the model, basically right at the fence line, those concentrations are the ones that are then used to demonstrate compliance with the ambient air quality standards, which the facility does.

The concentrations drop off extremely rapidly with distance from the fence line in all directions. So by the time you get to, say, the town of Middlebury line or the Naugatuck State Forest or the Quassy Amusement Park or the Westover School or Oxford Greens, those levels are extremely small, a minute fraction of not only the

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ambient air quality standards, but of existing particulate levels.

THE CHAIRMAN: Okay.

I -- I personally think it would be very helpful to -- to see those -- the modeling of however you --

THE WITNESS (Seller): Sure.

THE CHAIRMAN: And as far as SO2 and the nitrogen oxide, they get dispersed in the air. Where -- where do they end up?

THE WITNESS (Seller): Very, very similar situation. Those -- the maximum concentrations of those pollutants would similarly be at the fence line and drop off rapidly with distance in all directions.

THE CHAIRMAN: Then maybe -- it's always been my understanding that the issues of acid -- acid rain, which affected, for example, the Adirondacks and Catskills, didn't come from any close by power plants. They came from Ohio and other places.

So are you telling me that, in this case, these things don't get dispersed and end up -- my guess would be, based on

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that analogy, which may be incorrect, in the Atlantic Ocean, which already has some issues with acid -- acidity?

THE WITNESS (Seller): That that's correct. The -- all of the emissions, yeah, get dispersed. In this particular case, the maximum concentrations of sulfur dioxide would be right at -- at the -- at the property boundary.

A lot of the sources that you referred to, in the Midwest, tend to be older coal-fired power plants that have extremely tall stacks, some as high as a thousand feet. And in those situations, the -- the exhaust plume can -- can actually get right into a cloud and transport a considerable distance before it's -- it's deposited.

So, in addition to having to demonstrate compliance with the ambient air quality standards, all new power plant sources have to -- new and existing power plant sources have to participate in an acid rain cap and trade program, similar to what we talked about before and -- as far as getting allowances. And that market-based

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cap and trade system has driven down the total of loading of sulfur dioxide basically in the United States by a considerable fraction, which has resulted in improvements to acid rain.

One of the -- the biggest differences, of course, between a natural gas-fired power plant and those coal plants with the very, very large stacks as in a natural gas power plant, and it's only a tiny fraction of the sulfur dioxide that a large coal plant would be.

Similarly, when -- when this project was -- was originally approved, the amount of sulfur dioxide was a lot higher because it was prior to the introduction of ultralow sulfur distillate fuel oil, and it was originally approved with -- with just regular low sulfur fuel, so sulfur dioxide would have been considerably higher.

THE CHAIRMAN: Okay.

Since you said most of the pollutants would end up no further than the fence line, is there either a need, and if there is, a way to clean it up? I mean, do

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we want these -- you know, if it rains SO2 it turns into sulfuric acid. I mean, do we want these things to -- or is it -- I just don't understand.

THE WITNESS (Seller): Yeah. There's always going to be maximum point of impact. In this case, the maximum point of impact is near the fence line, but that number is an extremely small number. It's -- it's an insignificant fraction of what the current ambient air quality levels are.

As -- as an example, the maximum impact, on an annual average basis, of sulfur dioxide would be .03 micrograms per cubic meter, compared to an ambient air quality standard of 80 micrograms per cubic meter. So you can see that there's an incredibly insignificant fraction of that standard.

THE CHAIRMAN: Okay. Dr. Klemens, you had a --

DR. KLEMENS: I have a follow-up question on this. It's a very interesting discussion. I noticed, on the western boundary, the fence line, there's

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Wetlands 2 and 3 which, I understand, have been designated to be very important wetlands in the APT report.

Can you tell me what, if all the particulate or all the significant amount of particulate matter is falling either at the fence line or in -- within the fence line, that would be in those biofiltration -- those two stormwater ponds. What happens when it hits the water, and where is that water going, and how are we going to protect both those two wetlands, as well as the water that's being held within the fenced compound?

THE WITNESS (Seller): Again, Dr. Klemens, there's, of course, always going to be a point of maximum impact somewhere. And the way that the air regulations are is it has to demonstrate that, even at that point of maximum impact. There is no detrimental effect.

The -- the concentrations of sulfur dioxide being as low as -- as they are, .03 micrograms per cubic meter, and the impact concentration of particulate on an annual average basis being 0.2 micrograms per

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cubic meter compared to an ambient air quality standard of 12 would indicate that the ambient concentrations are very low. And we would not expect a lot of deposition from a gas-fired power plant.

DR. KLEMENS: In -- in wetlands, because we're not talking just about falling on the Earth. We're now talking about falling on wetlands and in stormwater ponds which have the ability to concentrate and do other things with those pollutants.

THE WITNESS (Seller): Correct.

Again, the concentrations and the deposition are really very, very small. And then, beyond that, under the Prevention of Significant Deterioration regulations, we also did analyses of impacts to soils and vegetation, and looking at the most sensitive vegetation. So that would certainly include vegetation that would be expected to be in a wetland system.

DR. KLEMENS: So, in your professional opinion, the waters that are

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going to leave the site and eventually go downhill into the -- Jacks Brook and ultimately the Naugatuck River, those are not going to be polluted by these concentrations of particulate matter?

THE WITNESS (Seller):

That's -- that is my testimony.

DR. KLEMENS: Thank you, sir.

Thank you, Mr. Chairman.

THE CHAIRMAN: On the air navigation -- and I'm only going to ask a couple of questions because I think we're going to have more extensive discussion with several of the intervenors, but -- and this information -- we may already have it -- but is this, the airport, is that primarily -- is it private, is it commercial, is it both?

THE WITNESS (Gresock): The airport is owned by the Connecticut Airport Authority and has a number of different type of aircraft that -- that fly out of it. I have statistics for 2012, where there were 47,987 total operations, and there were 128 single engine, 8 multiengine, and 31 jet

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aircraft based at the airport in that year, plus one helicopter.

THE CHAIRMAN: Okay.

And can you, if you haven't already, can you provide the flight pattern for the -- for the runways? Because, to me, that's more significant than people flying up overhead at whatever the altitude you mentioned.

THE WITNESS (Gresock): So an illustration of the various flight pattern areas would be helpful?

THE CHAIRMAN: Right, particularly -- primarily for landing, because --

THE WITNESS (Gresock): We can -- we can certainly do that. It always helps to be clearer with a picture.

THE CHAIRMAN: All right.

And I guess this is more of a comment than a question, although you can respond. But I am -- the fact that there are already penetrations -- I think that's what you call -- or obstacles, I'm not sure its necessarily a good idea to add. And the fact

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that other airports have penetrations dating 50 years ago, I don't think is necessarily a good analogy. So I just -- I just mention that. I think, at some point -- and obviously, this is for the FAA to ultimately determine. An airport, if it's now technically unsafe, it may become less desirable to fly in and out of if you're having to -- to deal with an increasing number of penetrations.

THE WITNESS (Gresock): And it is something that we'll be waiting for the FAA to study. But I will say that the same situation existed in -- in their evaluation and their review the -- the last time. And those stacks, at this height and at a -- at a location that impinged on additional areas, has been valid for the project stacks as recently as 2011, and went through the same -- the same review process, the same circularization and public review. So we'll -- we'll see.

THE CHAIRMAN: Thank you.

Just on -- on the issue of water supply and use, again, page 26. I

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think you mentioned that the -- in general, the water demand is less than of the previous. There's a substantial increase if and when you have to use the oil as a fuel.

And I think that may have been also noted -- I'm not sure -- in the -- I'm not sure -- in the letter from the Department of Health, but that is a question of what there seems to be. And it seems to be, the answer is, well, hopefully, we only -- we will only need the oil for a very limited amount of time.

But if, all of a sudden, there are issues with gas supply, that -- that limited amount of time might be significant. And then your reserves that you have are, I think, could be an issue.

THE WITNESS (Bazinet): So in -- in thinking about what would be the appropriate water supply for exactly those conditions, we conducted a pretty detailed analysis of our expected dispatch for operation over last winter using historical values.

Last winter was, in the last

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25 years, one of the two worst winters on record and experienced from, at least a gas supply interruption standpoint or curtailment, effectively unprecedented. So in -- in doing that, we came up with an expected dispatch profile of 541 hours in 15 separate instances, of which we would have been able to satisfy all 15. And in only two instances would the dispatcher request have been longer than the 52 hours that we would be able to support.

THE CHAIRMAN: Okay.

Mr. Hannon has a follow-up.

MR. HANNON: It talks about, again on page 26, 720 hours of -- of, I guess, operating by oil. Is -- is that part of the application from the resource review program? Is that a limit that's in the application itself?

THE WITNESS (Gresock): Yes, that's -- that's the number of hours to which we -- we would be restricted under that permit.

MR. HANNON: And are there any exceptions or exemptions from that limit?

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THE WITNESS (Gresock): No.

MR. HANNON: Thank you.

THE CHAIRMAN: Also, on the subject, a letter, dated January 8, 2015, from the Department of Public Health, it states on the bottom of the first page that -- where is it -- the water company, which is Heritage, whatever, H -- HWC, it says they have enough -- a limited supply of water available to provide for this project, and therefore, they need additional source. And that, in 2010, the Department of Public Health issued a sale of excess water permit to the Connecticut Water Company in Naugatuck.

So is that -- is that -- do you agree with that -- that statement, and therefore, is it therefore correct that your main water provider doesn't even have enough water to satisfy your needs without getting this additional water or am I misreading it?

THE WITNESS (Jones): I'm sorry. As I was looking for the document, could you just reference the --

THE CHAIRMAN: January 8, 2015, Department of Public Health, actually it's to the Siting Council. And the fifth bullet on the bottom of page 1 talks about the original -- CP -- CPM notes that HWC -- and these are not my requests to initial everything -- but has a limited supply of water available to provide to the project.

Have you found it?

And therefore, says, you need more. And they, apparently, in 2010, the Department of Public Health allowed this to happen. And I think it just begs the question, particularly if we run into very dry years, which we haven't for a few years, but we certainly have in the past, if you're having to, you know, get water from one place which has to get water from another place, what is the impacts going to be on aquifers and the rivers?

THE WITNESS (Bazinet): So the -- the issue that you're referencing is not unique to Towantic as a member -- or as a customer of Heritage Village Water Company. And there has been a commitment letter that's been issued from Heritage Village that is

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conditioned on exactly that interconnection that's referenced.

So that -- with that, they've reviewed their water supply plan. And my understanding is that they're in the process of updating that currently. But factoring in the what -- the -- the project's requirements over the long term -- I believe it's 50 years is what they look at -- there's -- assuming that that interconnection exists, there's sufficient supply for the project and all of the other customers -- excuse me -- of Heritage Village, for that matter.

THE CHAIRMAN: Do we know when that updated report is going to be available?

THE WITNESS (Bazinet): No. No, I don't. My understanding is right now they're in the middle of a -- a rate case that's consuming the -- the lion's share of their time. But their report, I believe, is in draft form.

THE CHAIRMAN: And just also to reiterate what I stated previously, the last page of that letter, the last sentence, the sentence does raise the issue that the

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water demand has increased for -- in some operational modes. And I assume that's mainly when the oil is used.

But, I guess, they're asking you to demonstrate that you're optimizing water conservation opportunities. And I assume you intend to respond to the public health, that you're -- everything else seems to be, you know, state of the art, up to date. But the one area -- one of the areas where there's a significant increase in usage happens to be in the -- in the need for water when your oil is being used.

THE WITNESS (Bazinet): So -- so we've -- while that's absolutely true, we've taken every effort to incorporate conservation measures into the project, substantially on the discharge side, as well as the supply of water side. We -- we unfortunately cannot change the water demands of the facility while ultralow sulfur distillate is the fuel that's being operated on.

What we've done to try to mitigate our impacts during those conditions

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is limit the amount that we would take on a daily basis from Heritage Village to no more than what was previously approved. So that, obviously, creates a balancing act between managing a continuous production capacity. But we felt that, in doing that, and analyzing the worst, you know, one of the two worst winters on record over the past 25 years, we've -- we've fairly accomplished minimizing the amount of water we would take relative to the expected oil-fired operation for the facility.

THE CHAIRMAN: I'm now going to Exhibit 2, I guess, your market analysis. I know that these were mentioned, but I think -- I'm not sure you gave them as much weight as perhaps you should have. And that has to do with improvements and the combination of energy efficiency, conservation -- which I would put in bold and highlight -- distributed generation, the use of microgrids and fuel cells, all of which, if I have read the information correctly, are actually reducing the demand, not increasing it in the state and, hopefully, in the

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region.

So do you want to comment, because I'm concerned that you really did not give enough attention to the demand side. It was too heavily on the supply side.

THE WITNESS (Powers): And you're correct. Those -- those measures are all making --

THE CHAIRMAN: I'm correct that they didn't or --

THE WITNESS (Powers): I'm sorry. Correct that those are all making important contributions to reduction in demand. But the Connecticut IRP, the draft IRP that was just released, as well as ISO New England, is still projecting, I think, about a half a percent a year increase in demand. So it would be higher but for those types of -- of measures being successful.

THE CHAIRMAN: And one could also argue that, if we continue to invest in those programs, it could also be lower over the next 10 or 20 years?

THE WITNESS (Powers): You know, it's -- it's hard to say. I mean,

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it's --

THE CHAIRMAN: You don't have to answer. That was probably more of an opinion, but one which this person -- individual -- I also want to bring your attention to something, and that, I think, the Council is very proud of, and that's the 10-year forecast of Connecticut electric loads, which staff, and Mr. Perrone is the prime author -- and I'm not going to say how good he is because somebody might steal him some day -- but in a couple of -- in this report, which, I think, in many ways is similar to ISO, it -- I think it states that in the -- in the future, the planning future, that there really is no need for additional generation, certainly in Connecticut.

And I know we've been back and forth and you've -- you've commented, but when you add in those demand changes, and also the large investments with -- in transmission facilities, which this Council has been involved in the approval of them, it really -- it really is hard to -- or I have trouble making the case that this plant is

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really needed, at least on the issue of market.

Now, maybe the issue of the environment, and if this really results in closing down of other older plants, but in the market, from these reports we have, I'm -- I'm at somewhat of a loss of really seeing the need. And, you know, part of our job is to balance need with the impacts.

THE WITNESS (Powers): I think from, and as Andy has mentioned before, from a regional perspective, I think it's -- it's clear that we do need generation. From -- from a local perspective, in terms of pure megawatts, the -- the state of Connecticut has enough pure megawatts to meet reliability requirements.

I think the piece that -- that we're missing that we haven't talked about, there's -- there's two pieces of reliability. There's megawatts, which is the adequacy of generation in the ground, but there's another piece of resource adequacy -- or adequacy, which is security, which is the ability of the system to sustain instantaneous changes.

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So -- and that's what the transmission improvements were designed to get at, was the security piece of reliability.

And I think the most recent ISO Southwest Connecticut needs assessment showed that, while there have been great strides in addressing local reliability requirements in terms of security with the addition of transmission, there -- there are still some local concerns that ideally are addressed with transmission, in addition to local generation, that gives the ISO more flexibility to dispatch resources and to address instantaneous disturbances on the system.

THE WITNESS (Bazinet): I'd like to add one small piece to that -- and I apologize for any redundancy -- but the economic impacts of the regional shortage is felt across the region and in Connecticut, specifically due to the nature of Connecticut being an import-constrained zone.

And furthermore, that's emphasized by the Connecticut Department of Energy and Environmental Protection's letter

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to the Council. And the paragraph noted energy supply context, where they reference that estimates of generous -- generation capacity in New England that will be lost to retirement over the next five years vary from a conservative 3200 megawatts for known, formally announced retirements, up to 8,300 megawatts of capacity being at risk of retirement in that same period. And that's per ISO New England's estimate.

So the addition of our plant, it's not just us on an island saying this is needed. I feel like the Department of Energy and Environmental Protection sees it that way as well, as well as ISO New England.

THE CHAIRMAN: Okay. We just got it. I haven't had a chance to read it yet -- maybe you haven't, either -- a letter from the Department of Energy and Environmental Protection on some of these issues. But I can't talk and read at the same time. I have certain limitations.

MR. SMALL: But that's a letter, Mr. Chairman, that we were referring to. That's -- it discusses this issue

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directly.

THE CHAIRMAN: All right.

Mr. Lynch.

MR. LYNCH: Just as a follow-up. You keep mentioning the region. Could you define "the region"? Does it include the tristate area of New York, or is it only New England?

THE WITNESS (Bazinet): Just New England.

MR. LYNCH: Thank you.

THE CHAIRMAN: And Dr. Bell.

DR. BELL: Just a follow up on when we're talking about the New England region needs, and so forth. Isn't it true, I believe -- and I'm not sure which page it's on in your CEA report, but it -- I -- I believe it's in there, and it certainly would be something that you would know from other sources, ISO, that the two most constrained regions in New England are in Rhode Island and southeastern Massachusetts, which is basically the Boston area. If anybody has been to the Boston area lately and looked around, you can see the huge amount of energy

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going into all those construction projects all over Boston, and then we get into the past of how much energy they needed for the Big Dig, and so forth and so on.

So this is not -- this is common knowledge. And that seems to be what -- where ISO says the two most constrained regions are for now and the foreseeable future. So, really, all that -- the regional impetus is towards providing energy for Rhode Island and -- well, northern Rhode Island, which is, again, feeding into the Boston area and -- and southeastern Massachusetts.

So my question is: Even at a regional level, quite apart, we discussed Connecticut and the lack of need in Connecticut, but even at a regional level, a gas plant in, arguably, west central Connecticut, where the transmission difficulties we know are east-west difficulties, not north-south difficulties -- and that's what the Council has been trying to remedy, both in -- in the Middletown to Norwalk peak and Plumtree peak and in the

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NEEWS projects, which are all oriented towards east-west transmission.

Given the need in east of -- to the east, and given the lack of -- or constraints -- let's put it this way -- constraints, east-west constraints in the transmission system, when you look at it that way, it doesn't seem to be that a plant in west central Connecticut is the best place to serve the most constrained regions in New England.

THE WITNESS (Bazinet): There's quite a few topics there, so I'm going to try to start in reverse order with the last.

So electrically, this plan's location is deemed to be in southwest Connecticut. And while it's true that many of the projects -- transmission projects that have been completed to relieve the east-west transfer, notably, including Lake Road as a new -- effectively, a new generating resource in Connecticut, Connecticut remains an import constrained zone just like northeastern Massachusetts and southeastern Massachusetts.

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Southeastern Massachusetts and Rhode Island was 4FCA9 -- to be conducted on Monday actually -- is newly -- is a newly deemed import constrained zone.

So there's two distinctions I'd like to draw: The -- the distinction between, one, an import constrained zone; and two, the actual supply demand balance within that zone.

And you're absolutely on the money that Connecticut, when you look at it in isolation as an import constrained zone, has a surplus of capacity. And northeastern Mass, as recently as, I believe, '13, was short of capacity. And SEMRI, Southeastern Mass and Rhode Island, is expected to be short of capacity for this auction. The rest of pool -- so the rest of the region is also short of capacity.

In fact, in FCA9, at a minimum, the rest of pool needs to procure 2,000 megawatts of new capacity to satisfy the net installed capacity requirement which is the target -- effectively, the target reserve margin for the entire region. That

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can come from anywhere in the region.

The last point I'd like to make is that, although -- and again, I apologize if I'm -- if this is a bit redundant -- but that -- there's been a lot of discussion and -- in the ISO New England world and others, around the expectation for future retirements. And while Connecticut can reliably say that it's -- or can accurately say that it's meeting its local sourcing requirement today, that's not the expectation for the very near future.

It is expected to -- if -- in other words, if the 2500 or so megawatts of 55-plus-year-old generation were to retire, it would quickly find itself drastically short. And the planning horizon for projects like this for transmission is such that that shortage would be -- would persist for quite some time, and prices would respond to that.

So the proposal that we put in front of you is, one, satisfying both the regional need, and as a result, a need that translates to Connecticut, but a forecasted need is -- I'm sorry -- a regional current

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need, but a forecasted local need as well.
DR. BELL: I thank you for your answer. It's a complicated matter. There are many factors. I just have one follow-up.
When I have made statements or asked questions that's in relation to the -- it's with the IRP in the background, as I stated to begin with. And I do note that the IRP has in it strategies for how to meet the need going forward on these various fronts that you've been mentioning.
And I put it to you, have you seen, in the IRP -- and they have, I think it's eight resource strategies that they -- that they give for how to meet any needs that they see. And my question is: Have you seen anything in those strategies that mentioned the word "gas plant, large gas plant"?
THE WITNESS (Bazinet): You'll have to pardon me while -- while I find the reference in the document.
THE WITNESS (Powers): So I think it addresses several strategies in the executive summary for ensuring the -- the

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future of Connecticut in terms of reliability. And -- and a lot of these are things that -- that Connecticut and the ISO are promoting and are already doing. I think the one that's important to look at is be prepared to procure new generation.
You know, the market is a very, especially now, very fluid. So Andy mentioned retirements. If you look at the picture today, there's a lot of risk associated with that picture. You've got retirements that are a major risk. While demand response has made, you know, great, great strides in the market, there's a lot of uncertainty around 3,000 megawatts of demand response in New England, with the FERC ruling on whether or not those can play in the markets, as well as how much will come in going forward.
So the -- the IRP specifically states that if the -- if the capacity market can't attract new resources just by setting price signals, that Connecticut will have to be prepared to procure new generation as well.

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DR. BELL: Yes. If you look at the actual -- I think you're following the executive summary, and it does say that. If you actually look at the text behind which, you know, is multipages, at the end there, the question is: To what extent would they want to procure fossil fuel generation?
The point that you're making about the demand resources being cast into doubt is a big problem, but it does not have to do with procuring new generation in -- in a conventional sense. It has to do with figuring out how to get demand response back into the market. So that is -- that's a very big question. And I don't -- I certainly don't have any knowledge about an answer.
The other problem has to do with the matter that you also mentioned in your report, which I asked a question about earlier. That is resources that won't be able to enter the market in the way they have in the past because they might be handled through state mandated contracts. And -- but that's a question we're not dealing with here because we're dealing with a proposal for a

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new plant.
So I'm just commenting, but I don't have -- I'm not suggesting that it's material at this instant.
Thank you.
THE CHAIRMAN: Senator Murphy.
MR. SMALL: May we respond on that? Can we have just one moment?
Just a brief response.
THE WITNESS (Bazinet):
Just -- I'm sorry. One other -- and I apologize. I know I'm reading from materials that you -- the Council hasn't yet had an opportunity to review. But, again, from the January 28th letter from DEEP -- Connecticut DEEP -- excuse me -- the addition of a 785 megawatt net output of natural gas-fired power from a dual-fuel capability plant will -- will both shore up the supply needs of Connecticut and the region and improve the reliability of the electric system. Further, the ability of the proposed facility to quickly ramp up or ramp down, et cetera et cetera.
So I mean, I -- it's -- it's

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our belief that -- at least the Department of Energy and Environmental Protection sees the same need and believes that a natural gas-fired generation project would be beneficial to the region as well as the State of Connecticut.

And I'll just note that this is as of January 2015, whereas, you know, as is the case with all studies, you begin, and by the time you're, you know, done, you could restart because the assumptions made may or may not be stale due to short-term market influences.

The other point that you made there was the risk -- well -- I'm sorry -- the nature of state sponsored contracts. And the risk associated with moving forward under that type of program is -- well, it's unknown, or it's not defined at this point, so it's up to the market to respond to market need currently. And the proposal that we've kind of put -- put forth is premised on a market-based solution that effectively mitigates that potential risk.

THE CHAIRMAN: Senator Murphy.

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SENATOR MURPHY: This is in kind of follow-up to some of the responses made about retirements and potential retirements. And your Late File 2I -- and you provided the list of retired facilities and potential retired facilities.

And my question really is whether you put the two Norwalk Harbor projects in both -- on your list.

THE WITNESS (Bazinet): I'm sorry. Could you repeat the question?

SENATOR MURPHY: It's in reference to your -- your Late File 2I. You attached a list of those facilities that have retired and those that are potentially retiring. And you've made reference to the numbers that were retiring.

SENATOR MURPHY: And so forth.

And in the retiring facilities, you had two Norwalk Harbor facilities. And in the potential retirements, you have the two Norwalk Harborside facilities.

MR. SMALL: Mr. Murphy --

SENATOR MURPHY: Yeah.

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MR. SMALL: -- I see -- I may be missing it, but I see the Norwalk Harbor units in the potential retirements.

SENATOR MURPHY: Yeah.

MR. SMALL: I don't see them -- oh, wait.

SENATOR MURPHY: They're -- they're next to the -- the third and fourth from the bottom.

MR. SMALL: Oh, I see that. Yes, I see.

THE WITNESS (Bazinet): That -- and that is an error. The -- they should only be the retire -- existing retirement section.

SENATOR MURPHY: And the Montville units, potentially retire, I thought they were down. I thought they had been --

THE WITNESS (Bazinet): There -- there are still capacity resources that ISO New England relies on.

MR. ASHTON: Montville 5 was gone ten years ago.

THE WITNESS (Bazinet): Yeah.

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There's --

THE WITNESS (Gresock): Well, we'll double-check those. I know the Montville -- I know the Montville units submitted retirement requests, but they're not yet officially retired. They still have, I think, two more years on their capacity obligation.

MR. ASHTON: They've only got half a boiler.

SENATOR MURPHY: I mean, they're really not doing anything, so you really should -- okay. Well, you'll -- you'll check on it and give us another thing?

THE WITNESS (Powers): Yeah.

MR. SMALL: I just want to read -- the date is ISO date, which may be different than physical retirement date. I think that might be the disconnect you're -- you have.

SENATOR MURPHY: But when you answer the questions and indicate the number of megawatts, and so forth, it does make a difference whether they're really there or they're not.

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Thank you.
THE CHAIRMAN: And I've got one -- one more question at this point. Several places you mentioned as an obvious benefit is that, if this plant were to be constructed and go into production, presumably, where there are more -- less efficient plants would go out, that it would lower the wholesale market price.
I think the people, other than the companies that sell the wholesale to the retail market, but I think the people really want to know is it going to have a real impact on what they're paying for electricity.
Do you have any examples anywhere that can make this point?
THE WITNESS (Bodell): Tayna Bodell again.
The numbers are not in the report but, obviously, we could provide those. The estimated reduction in electricity prices for the region is two to four dollars per megawatt hour and escalating over time. And for Connecticut, it's three

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to five dollars per-megawatt-hour reduction because of the addition of this facility.
And that is as high as it because of the tight supply-demand constraints that are anticipated under the announced retirements and the projections of the New England ISO.
MR. SMALL: And we'll -- we'll do a Late-Filed exhibit with the Connecticut benefits -- specific Connecticut benefits of the facility.
THE CHAIRMAN: Okay.
But I just want to know, are there -- are there more questions from the Council?
MR. ASHTON: I have some.
DR. KLEMENS: We go now?
THE CHAIRMAN: Well, I was hoping to make it -- but it's not going to work -- make it clean because we have to have people come up and set up. But we'll take a -- we'll take five minute break now, and we'll ask a few more questions, hopefully, from the Council, and then we'll go to, I guess, it's the Town of Middlebury.

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(Whereupon, a recess was taken from 3:05 p.m. until 3:12 p.m.)
THE CHAIRMAN: Ladies and gentlemen, the five minutes are up. Let's get back to -- before we get to the Town of Middlebury, which I hope we will very shortly, we have some questions first from Mr. Ashton.
MR. ASHTON: We lost our applicant.
THE CHAIRMAN: Well, ask them anyway. If they can't answer, it will be duly noted.
MR. ASHTON: I probably can. Some of these are more mechanical.
In the Interrogatory 2-D, for dog, they talk about efficiency winter, summer average, unfired, duct-fired, and so forth. And it talks about LHV and HHV.
Do you know what those abbreviations are, and can you explain them for the untutored?
THE WITNESS (Donovan): Sure. I can -- I can take this. The LHV is -- it's -- LHV stands for lower heating value,

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and HHV is higher heating value. It's all in how the -- the fuel is purchased.
MR. ASHTON: And what does the difference mean?
THE WITNESS (Donovan): The difference between the two is in the condensables of the -- the fuels. It's a Btu content of the fuel on a BTU-per-pound basis.
MR. ASHTON: And LHV means you do or do not consider condensation?
THE WITNESS (Donovan): You do not.
MR. ASHTON: HHV means you do?
THE WITNESS (Donovan): That is correct.
MR. ASHTON: Okay. Thank you.
When we're talking about Connecticut being self-sufficient as far as generation goes, what assumption is made regarding the connection to Long Island, the deep fee tie at New Haven and the Norwalk cable. So are there exports or imports or zero flow?
THE WITNESS (Bodell): To answer that, I would have to look

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specifically at the load flows in the way that they flow in the model. They may change over time, depending on the capacity, but I would have to get back to you.

MR. ASHTON: So your answer is you don't know?

THE WITNESS (Bodell): Right now, no, I do not know.

MR. ASHTON: And can you answer that in a late-file?

MR. SMALL: Yes, we can.

MR. ASHTON: Okay.

I may have asked this question before. If I have, please forgive me.

Can the unit be fired partially on oil, partially on gas; in other words, could one unit be fired with oil, one unit fired gas in a shouldered situation?

THE WITNESS (Donovan): The answer is yes.

MR. ASHTON: Okay. That's it. I'm not looking for -- it's fairly simple.

Has there any comparison -- has there been any noise study made of the noise generated by the plant versus noise

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generated by the airport, and especially, flights overhead?

And if it's a simple yes you have, late-file it. If you haven't, is there any way it can be done reasonably?

THE WITNESS (Gresock): No. We have no comparative study like that.

MR. ASHTON: Any update on the gas supply? Anything new in the last month?

THE WITNESS (Bazinet): Well, I can provide you with a more detailed explanation of how we approach the process, if that's --

MR. ASHTON: No. Is there anything new that FERC has now approved, another BCF per second pipeline coming into New England or something like that?

THE WITNESS (Bazinet): Not that we're aware of.

MR. ASHTON: Okay. The answer is no.

Has -- has there been any consideration to drawing water out of the Naugatuck River, as well as, or in lieu of Pomperaug?

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THE WITNESS (Bazinet): No.

MR. ASHTON: Has there any consideration been given to establishing a nearby impoundment where a large volume of water could be stored for later use?

THE WITNESS (Bazinet): We -- we haven't considered it. We could look at it.

MR. ASHTON: You -- you could look at it?

THE WITNESS (Bazinet): Yes.

MR. ASHTON: It would probably mean an additional property acquisition. I don't think you're going to do it on 26 acres.

THE WITNESS (Bazinet): Understood. But, I mean, we could analyze the -- the feasibility of it, is, I guess, what I was referring to.

MR. ASHTON: I think a quick and dirty look at it might be worthwhile.

In looking at the discharge of water from the plant, there are at least four power plants, to my knowledge, that establish an NPDS discharge plant on their own

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property. You know, it gets rid of the oils and stuff like that. But they also found that where the -- the products of corrosion coming out of a plant that were -- would be removable by these little sewage treatment plans, has that been considered for the -- in your case here?

THE WITNESS (Bazinet): So we're -- we're recycling all of the heat recovery steam generator blowdown so that those --

MR. ASHTON: And you take out the metals that you pick up then?

THE WITNESS (Bazinet): They would be --

MR. ASHTON: And go through a decontamination process, an exchange or whatever, maybe?

THE WITNESS (Bazinet): That's correct.

MR. ASHTON: Okay. That answers that.

And, in your opinion, is the cost of having inadequate -- the societal cost of having inadequate capacity, how does

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it compare with the cost of having a little surplus in the capacity?
THE WITNESS (Bazinet): So just to clarify, the -- you're generating capacity as a region or --
MR. ASHTON: If you have to curtail load because of a shortage in capacity, what's the societal impact of that versus having -- society having to carry a long picture where you have excess generation?
THE WITNESS (Powers): Well, I -- speaking from a market perspective, I think, as we've seen in past capacity auctions, when you're a little bit long, it provides incremental reliability benefits and your prices are, you know, reasonably low.
When you go short, even just a little bit, and in the last auction we went short a lot, but with the structure of the market, even when you go short a little bit, prices rise to the cost of new entry. So you're paying significantly more money when you're a little bit short than when you're a little bit long.

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MR. ASHTON: Thank you. Those are my questions.
THE CHAIRMAN: Thank you. Dr. Klemens.
DR. KLEMENS: I have a general observation. As you're going to be producing these late-files, there's been a lot of discussion at the large scale. Last time, there was the discussion about what the cost and the savings would be.
Would it be possible to take some of these concepts and distill it into the most basic level, the single ratepayer, and what it means to them? It would certainly, I think, be helpful to me to understand, and I think to many of the citizens that have asked questions, what does it mean to them?
Likewise, with the issue of the particulate pollution, the Chairman wanted to see maps of where it was going. And I think it really is to respond to the huge volume of citizen concern that we've received. Is there any way you can think about the lowest -- the lowest common

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denominator, the individual homeowner, what this means, and I think it would be helpful. That's the comment, as you do these late-files.
I have two comments on C310. Again, when you're colleagues go through and start asking questions, you have more questions. And on C310, two things came up, and I'm bringing this up because possibly this is something that Dean should address. You'll have to address this through a late-file also.
But as I understand it, correct me if I'm wrong, this facility sits at the crest of a hill. Is that correct?
THE WITNESS (Bazinet): The -- it's -- it sits -- the --
THE WITNESS (Jones): So I more accurately describe it as in a saddle where to the north and south it rises up slightly, and to the east and west it drops off slightly.
DR. KLEMENS: Well, to the east and west. Can we say that water is flowing off the site in many different

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directions now and feeding many different wetlands?
THE WITNESS (Jones): The water is flowing off the site in many different directions. That's shown on our -- on the drainage area map.
DR. KLEMENS: Okay. So what I'm seeing here now on -- on your stormwater management plan, is that you are capturing all the water on the site and discharging it to a single discharge point. Is that correct?
THE WITNESS (Jones): That's not correct.
DR. KLEMENS: Could you tell me where the --
THE WITNESS (Jones): So there are several discharge points.
DR. KLEMENS: Oh, I don't see them. I see the two detention ponds all being taken to one point into that swale that Mr. Hannon was so concerned about.
THE WITNESS (Jones): So we'd like to submit as a Late-Filed exhibit our drainage area map showing pre and

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postdevelopment drainage areas and the discharges from each of those areas pre and postdevelopment. I think it would directly address your question.

DR. KLEMENS: Well, my question is maintaining the preexisting hydrology and not capturing all the hydrology from the site and putting it in one wetland.

THE WITNESS (Jones): That's correct.

DR. KLEMENS: I'm particularly, again, concerned about the contribution of Wetland 1, which I believe you're proposing to fill?

THE WITNESS (Jones): That is being proposed to fill.

DR. KLEMENS: Well, there's water coming out of that which feeds directly into Wetlands Number 2 and 3. So how are you going to maintain the hydrological balance in those wetlands post development?

THE WITNESS (Jones): We would like Mr. Gustafson to -- to answer that for you.

DR. KLEMENS: That will be

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answered by Mr. Gustafson or answered by the late file, or both?

MR. SMALL: Probably -- probably a combination of the two, Dr. Klemens.

DR. KLEMENS: Okay. Well, I wanted to get that question out there for you to address. Thank you.

And the only other question I have, I notice you're talking about the photodegradable -- photodegradable netting -- the netting. Is that approved by the DEEP? Because I know there's a lot of concern about this kind of netting and entanglement of wildlife.

THE WITNESS (Jones): That -- that's why it's photodegradable.

DR. KLEMENS: Okay. Fine. Thank you for that clarification.

THE CHAIRMAN: Thank you. Mr. Levesque.

MR. LEVESQUE: Just a few questions about water supply.

Does the Heritage Village have a water treatment plant?

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THE WITNESS (Bazinet): Yes, they do.

MR. LEVESQUE: And all the studies you have, or reports about how your -- your contract would work and -- and the study of the supply of the water that you -- that you want to buy from them, have you submitted that in this app?

THE WITNESS (Bazinet): So there was a response to interrogatory that described how we would meet our water demands during oil-fired operation. The balance of the year, during gas-fired operation, there is no -- there is no, you know, need to balance continuous hours of oil-fired operation with water supply.

MR. LEVESQUE: Okay. And then your water needs for nonpotable are supplied from that treatment plant?

THE WITNESS (Bazinet): All of the facility's water requirements are supplied by Heritage Village.

MR. LEVESQUE: After the filtration plant?

THE WITNESS (Bazinet):

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It's -- there -- it's all potable water, so yes.

MR. LEVESQUE: Is there a way -- have you studied a way -- can you -- can you use nontreated drinking water for the needs of the electric production?

THE WITNESS (Bazinet): Yeah. Yes, we could. The end result of the water would need to be demineralized, which we'd take care of on-site, but, yeah. So -- so yes, the answer is yes. We've looked at it, and, yes, we could use it.

MR. LEVESQUE: Have you looked into -- like, in California, on this they have -- they're even suppling drinking water from treated sewage effluent plants. Have you looked into finding it from other supplies?

THE WITNESS (Bazinet): We did. We conducted a detailed analysis about a year or two ago and looked at both supply from Waterbury, their -- their existing wastewater treatment facility, as well as the Naugatuck wastewater treatment plant.

It was done in a slightly

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different context, but the -- the end -- the end result was the same, in that the feasible -- while technically feasible, the routing plan to get from Point A to Point B was just not -- just not something that we -- we deemed was a viable option.

MR. LEVESQUE: Is the Naugatuck one closer?

THE WITNESS (Bazinet): Actually, Waterbury had -- there -- there are more direct routes to Waterbury using the existing right of way -- rights of way. But, yeah, it's not something that I think would be looked upon favorably.

MR. LEVESQUE: How about prefiltration plant water from Heritage?

THE WITNESS (Donovan): I mean, one thing that -- that Mr. -- in -- in response to Mr. Ashton, I think, is -- we should have highlighted further was we are incorporating a number of recycling methods inside the plant, innovative things to -- to reduce the water consumption and the water discharge to an absolute minimum, far lower than comparable projects.

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MR. LEVESQUE: Okay.

But did you check about getting water from the Heritage effluent plant, or is it a matter of cost?

THE WITNESS (Bazinet): Yeah, I'm not certain what that -- no, we didn't examine that plant specifically.

MR. LEVESQUE: Because they -- they have a sewage district, too.

THE WITNESS (Bazinet): Yeah, my understand is that's --

MR. LEVESQUE: They're one of the only two regulated public utility sewage districts. That's what I'm aware of.

THE WITNESS (Bazinet): Yeah. My understanding is that the capacity of that plant is extremely small.

THE WITNESS (Jones): About 800,000.

THE WITNESS (Bazinet): Yeah. About 800,000 gallons a day relative to Naugatuck to Waterbury. I think Naugatuck has a designed capacity of about 10 million gallons per day. And Waterbury is, I believe, 37 million gallons per day.

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So, in other words, our impacts on the plant of that size are probably not --

MR. LEVESQUE: It would take, like, a quarter of their -- your maximum use might be a quarter of what they put out?

THE WITNESS (Bazinet): Correct.

MR. LEVESQUE: Okay. Thank you very much.

THE CHAIRMAN: Okay.

The Town of Middlebury, thank you for your patience. And I don't know which of you two gentlemen would like to start, but --

MR. SAVARESE: Mr. Chairman, my name is Attorney Stephen Savarese. I'm a licensed attorney and representing the Town of Middlebury.

MR. LYNCH: Mr. Savarese, keep your voice up.

MR. SAVARESE: Yes. I'm going to defer to my senior colleague who has been part of the process through the entire proceedings that were held in 2006 and 2007.

And then, we are hopeful that

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we're going to get a further opportunity to address the Council and all the after-filed materials because we are the first of the party intervenors to come forward, but the evidence is still coming in that we're having to evaluate and critique.

So just on a fairness basis, we would hope that, at some point, we would be entitled to go again to address what is still being filed by the applicant.

THE CHAIRMAN: Somebody has to go first, and the Council was probably at an equal disadvantage, and there will be another opportunity. We just want to ask you, and we'll ask everybody, including ourselves, that when we respond to late filings, we keep our questions concise and don't repeat, but that's not an issue at the moment.

MR. SAVARESE: Understood. And again, we developed our questions without the knowledge of what preceded this morning. So again, we apologize if we're going to be repeating, in even an nuanced manner, some of the questions that were diligently put forward by the Council and answered by the

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applicants.
We also note that the transcript from the prior proceedings had not yet been filed, so we did not have further opportunity to -- to cross-reference that we're not repeating the question that was answered -- asked and answered back on January 15th. But without further ado, Mr. Ray Pietrorazio.
CROSS-EXAMINATION
MR. PIETRORAZIO: Thank you Stephen. Good afternoon. Thank you for this opportunity to speak to the Council and to cross the applicant.
My name is Raymond Pietrorazio. I reside in Middlebury, Connecticut. I'm approaching 76 years of age, and I've never been in this type of forum before. I'm sure both panels here have been, but this is my first time, so I beg your indulgence.
I will start by saying that I've tried to maintain a pretty narrow focus on this whole issue since my involvement in the year 2000, and mainly, that is with

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relation to the plant stack discharges and the effects it would have on the aviation at the Waterbury-Oxford Airport. And you know the history there, so I want take any longer.
There were a few comments made when the hearings were just started -- restarted again that I'd like to ask a couple questions on, if I may? And I think it was Chairman Stein that brought up the noise issue and asked -- or maybe it wasn't.
THE CHAIRMAN: It wasn't me, but it was somebody.
MR. ASHTON: Guilty.
MR. PIETRORAZIO: Okay. Councilman Ashton. Which I thought was a very good question.
The -- I guess the question is: Isn't it true that when we seek to find the final decibel rating at the various receptors on such an issue, that we have to consider noise from all sources in the area? Isn't that correct?
THE WITNESS (Gresock): The noise levels from the facility itself are the -- are what need to comply with the

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standards of the state and local level. We also, in addition, for comparative information, provide information about the ambient background and do a comparison so that those who live in the area can understand the degree to which the sound levels will or will not change.
MR. PIETRORAZIO: Okay. I guess that partly answers my question. But the -- the validation to my question comes from the EPA standards that mandates that all noise issues -- that all noises that are -- are in the area of the receptors to be combined to arrive at the final decibel rating. Is that correct?
THE WITNESS (Gresock): Can you give me a citation on that standard?
MR. PIETRORAZIO: Well, I'm -- I'm mainly concerned with the -- the combination of noise from both the airport and the plant.
MR. SMALL: If you can tell that -- if you can provide us with a reference to the regulation you're asking us about, we can -- we can respond.

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MR. PIETRORAZIO: I'd be happy to -- I'd be happy to. As I say, this came up just as Chairman -- Councilman Ashton brought up the subject.
With regard to --
MR. ASHTON: In fairness, Mr. Pietrorazio --
MR. PIETRORAZIO: Yes.
MR. ASHTON: -- to my knowledge, noise measurements don't discriminate against individual generators of noise, but rather, they take the totality of noise at a given point.
MR. PIETRORAZIO: That's -- that's exactly correct.
MR. ASHTON: Does that get rid of one late-file?
MR. PIETRORAZIO: No. No. They want the EPA standards, so I'd be happy to supply it to them.
THE WITNESS (Gresock): No.
MR. ASHTON: I should ask the applicant.
THE WITNESS (Gresock): And I think there's a distinction. The ambient

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sound levels and the change in ambient sound levels obviously has all sources included. So the project contribution would be reflected in the comparative information that would show what the change in sound level would be.

The project, however, sound by itself is what is regulated by the state and the local standards. So I think there -- there are just two -- two different types of analysis and consideration should be given.

MR. PIETRORAZIO: Sure. The reason why I bring it up is I'm sure the Council would be very interested in knowing what the final decibel rating is. Thank you.

With regard to excess generation, isn't it true that the loads and forecast that the Siting Council has produced for many years now, at least decades that I know of, has repeatedly stated that the excess generation in Connecticut -- maybe this question is better directed to the Council -- but the excess generation in Connecticut has been on the order of 18 to 20 percent, isn't that correct, by the loads

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and forecast in the recent, say, two decades?

THE CHAIRMAN: Well, this is really your opportunity to cross-examine the applicant. Obviously, if we have a ready answer to clarify, we'd be glad to.

I don't have the percentage, you know, 18 or 20 percent. I know that, fairly consistently, even with the -- with the plant retirements and planned retirements, our particular study has, in the past, shown that there is sufficient supply.

Beyond that, as I said, we're -- this is really your unique opportunity to ask questions of the applicant.

MR. PIETRORAZIO: Thank you, Chairman Stein.

The first question on my list here that I prepared: Isn't one of the principal purposes of the stack to convey the products of combustion containing toxic gases and/or particulate material to a point high enough above the ground level so that, after normal dispersion above the stack, the ground level concentration of any contaminants will

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be well below permissible levels?

THE WITNESS (Seller): Yes, the primary purpose of the stack is -- is precisely that, is that to safely emit the products of combustion and -- which -- which are, you know, common products of combustion are found in any combustion process, to levels that comply with ambient air quality standards.

MR. PIETRORAZIO: Thank you.

Do you agree that the stack designed for such a project as this is a very complex undertaking that involves many factors and considerations?

THE WITNESS (Seller): Yes. The height of the stack takes into account the height of the buildings, nearby terrain, and the nature and properties of the exhaust gas itself.

MR. PIETRORAZIO: Thank you.

Can ground concentrations of pollutants be reduced by the use of higher stacks?

THE WITNESS (Seller): In some instances, yes.

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MR. PIETRORAZIO: Would you say in most instances?

THE WITNESS (Seller):

In many instances, but not -- not -- certainly not in all instances.

MR. PIETRORAZIO: Thank you.

Would two 150 -- I'm sorry -- 160-foot tall stacks at the CPV Towantic be more effective in the dispersion of contaminants than the current 150-foot high stacks?

THE WITNESS (Seller): There may be a marginal difference in -- in the ultimate concentrations, but the result in concentrations from the emissions of 150 feet are well below all of the applicable air-quality standards. And so such an additional stack height would be unnecessary.

MR. PIETRORAZIO: I'll be providing a document to the Council that -- that states that the -- a 20-foot change in height in the stacks will produce more than double the deposition. And I just -- the import is on the height of the stacks.

For the record, do you know

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the height of the stacks of the most recent dual-fueled combined cycle electric generating facility to become operational in Connecticut?

MR. SMALL: Which facility would that be, Mr. Pietrorazio?

MR. PIETRORAZIO: Well, I'm asking you if you know what the most recent one is.

Well, let's take -- if you don't, let's take Middletown, the Kleen Energy plant.

THE WITNESS (Seller): I don't know what the height of that stack is, no.

MR. PIETRORAZIO: The Killington plant?

MR. ASHTON: No, Killingly.

MR. PIETRORAZIO: I'm sorry, Killingly.

MR. ASHTON: The Killingly Plant, Lakeville, Lake Road.

MR. PIETRORAZIO: Lake Road.

THE WITNESS (Bazinet): Don't know what the stack height is there, either.

MR. PIETRORAZIO: Thank you.

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From the findings of Fact Number 33 for Docket 255, available from the Council's administrative notice list, the Kleen Energy 620 megawatt facility in Middletown, Connecticut, approved November 21, 2002, became operational, in 2011, with two stacks that measured 215 feet tall, is the answer to that question.

The next question is: How does exit velocity of the stack gases affect ground level pollution?

THE WITNESS (Seller): The ground level pollution would be indirectly affected by the exit velocity combustion plume, like that of the proposed project would be warmer than ambient air and, therefore, considered a buoyant plume. So it is much more influenced by the mass flow rate and the temperature than by the exit velocity.

MR. PIETRORAZIO: I don't quite understand. Thank you. I don't quite understand the answer. I guess what I was referring to is the -- maybe I should rephrase the question to read: If the exit

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velocity were to increase, would it have a direct effect's on the ground level pollution?

THE WITNESS (Seller): If the exit velocity alone were to increase, but the mass flow rate and the temperature were the same, it would have a marginal, at best, improvement.

MR. PIETRORAZIO: But it would improve?

THE WITNESS (Seller): Slightly.

MR. PIETRORAZIO: Thank you.

What is the relationship of stack gas exit velocity and the turbulent wake of the stack itself?

THE WITNESS (Gresock): I'm not sure I completely understand the question.

MR. PIETRORAZIO: Well, maybe if I used a different term for the turbulent wake. I'm talking about what we refer to in the industry as cap -- stack tip downwash; in other words, the downwash of the pollutants of the plume itself caused by the erratic

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airflow around the top of the chimney, the best I can describe it.

THE WITNESS (Seller): Yeah. Sure. Stack tip downwash is -- is more influenced by the physical structure of the stack itself and air flowing across the, say, the building, and then the stack itself would influence the escape of the exhaust plume.

MR. PIETRORAZIO: And -- and what is the relationship with regard to the exit velocity again? That's -- that's the question. In other words, does the exit velocity tend to exacerbate the situation, or if the exit velocity increased, would it tend lessen the effect of the stack tip downwash?

THE WITNESS (Seller): I would have to take a look at that. I think the stack tip downwash is -- is more of a physical feature on the -- on the basis of the juxtaposition of the buildings and the stack itself. So I'm not sure I understand the relationship by -- of increasing or decreasing the velocity, whether it would have much of an effect on stack tip downwash.

MR. PIETRORAZIO: Thank you.

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There is a critical wind velocity, quote/unquote, for every stack exit velocity. Can you please explain what is meant by the term "critical wind velocity"?
THE WITNESS (Seller): I -- I have no idea.
MR. PIETRORAZIO: Thank you.
And what is meant by the term "terrain downwash"?
THE WITNESS (Seller): If there is terrain very close to the facility itself that is taller than the stack and within very close proximity to the stack, air flowing across the terrain can influence the downwash of the stack, the same as -- of having a very tall building immediately adjacent to the stack.
MR. PIETRORAZIO: Very good. Thank you.
And what is meant by the term "building downwash"?
THE WITNESS (Seller): The same effect, the air flowing across the building can cause the -- the escaping plume to -- to move in a downward direction before

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it resumes upward.
MR. PIETRORAZIO: And -- and adversely affect normal dispersion?
THE WITNESS (Seller):
Building induced downwash is taken into account in all of the atmospheric modeling, yes, because it can have an influence on where and -- and the location and magnitude of the point of maximum impact.
MR. PIETRORAZIO: Thank you.
Besides water vapor and carbon dioxide being the main products of combustion of natural gas, what other gases will be emitted from the stacks of this plant?
THE WITNESS (Seller): Okay. In any combustion process of -- of any fuel, so whether it's in a power plant or in your car or in your home, the primary products of combustion --
MR. PIETRORAZIO: Carbon based fuels?
THE WITNESS (Seller): Any carbon based fuel, the products of combustion would be carbon dioxide, water, and then, nitrogen dioxide, which is formed primarily

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because the atmosphere is comprised of about 80 percent nitrogen, so in the combustion process there would be some conversion from atmospheric nitrogen to various oxides of nitrogen.
If there are sulfur impurities in any fuel, those would oxidize into sulfur dioxide. Any particulates in the inlet air, like pollen or dust, plus any partially burned hydrocarbons, could form particulate matter. And any unburned fuel that would go through go the system would comprise of all of the organic compounds or hydrocarbons.
There would be trace emissions of various other -- other chemicals on the basis of what would be in either the air that went into the combustion or in the fuel itself.
MR. PIETRORAZIO: Thank you.
I'm sorry. Did -- did you mention, in the beginning of your response, carbon monoxide?
THE WITNESS (Seller):
That's -- no, I'm sorry. I omitted carbon monoxide. So any incomplete

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combustion of the fuel would result not only in hydrocarbons but also partially combusted carbon or carbon monoxide.
MR. PIETRORAZIO: Thank you.
And what are the average minimum and maximum percentages of full rating that the plant would operate at; in other words, the plant is capable of operating at a minimum and maximum capacity, and I'd like to know what you would contribute as being the minimum and maximum averages.
THE WITNESS (Bazinet): So the five data points, I believe, you're asking for, an average load, a minimum load, a maximum load, and the minimum and maximum of the average.
MR. PIETRORAZIO: That's correct, yes.
THE WITNESS (Bazinet): So the maximum load is 100 percent of the planned output. The minimum load is -- can be found on Table 2 -- 23 of the exhibit. It's 1 on page 8, and that's 30 -- 30 percent.
MR. PIETRORAZIO: What was

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that number?
THE WITNESS (Bazinet): Thirty percent.
The average load is going to depend entirely on the dispatch request from ISO New England, demand at any given point in time, ambient temperature, a number of different factors. And it's kind of impossible, at this point, to say what the -- well, the min -- the min and max of that -- that average would be because we don't actually know what that average would be at this point.
MR. PIETRORAZIO: Okay.
So you don't have -- it's the same answer for the maximum average?
THE WITNESS (Bazinet): The -- the average dispatched load of the plant is going to be dependent on so many different variables in the future, that we can project, and we can project an expected capacity factor at full load, but the -- the requests made by ISO New England, at any given point in time, could vary for a number of different reasons such that it would be impossible for

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us to say today what the average expected operating mode of the plant is in any given year.
MR. PIETRORAZIO: So in -- in trying to determine the -- the size of the plant that you're going to build, you would -- you would have some conception of what the demands are going to be so that -- well, let me rephrase here. Let me back up just a little bit.
The -- the plant overall efficiency, in other words, from fuel to megawatt, the -- is dependent somewhat, and largely, I think, the efficiency of the plant would be on the percentage of rating. Correct?
There is a point at which the plant is most efficient in its operation. Is that correct?
THE WITNESS (Bazinet): Yes.
MR. PIETRORAZIO: And it's usually at the higher end?
THE WITNESS (Bazinet): That's correct.
MR. PIETRORAZIO: So if we're

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going to -- if we're going to build an 800 megawatt plant, the conjecture must be that your -- your average maximum load is going to be on the higher end of that 800 megawatts. Is that correct?
THE WITNESS (Bazinet): So what I -- what I can direct you to is Figure 23 of Exhibit 2 of our filing. It's on page 44. That provides, over the first ten years of operation, the expected capacity factor of the plant, that is, the total possible megawatt hours generated as -- as the denominator, assuming 8,760 hours of operation, and the numerator being the projected generation over that same time period.
Figure 23, on page 44, I think it is.
MR. PIETRORAZIO: Yes, we got it. Thank you.
So correct me if I'm wrong. You're mostly in the lower 70s range, 70 percent, 72, 71?
THE WITNESS (Bazinet): That's correct. So on an average annual basis, the

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expected capacity factor is in that range. Correct.
MR. PIETRORAZIO: Thank you.
And what would be the exit velocities of stack gases at that average rate, say, 72 percent? Do you have that? I believe I saw in the submittal the -- the one figure for exit stack velocity, but I didn't see it for the range.
THE WITNESS (Bazinet): I just want to correct a statement. That -- that does not assume that the plant will be operated at an average rating of 70 percent. It's simply the megawatt hours expected to be generated divided by the total potential megawatt hours that could be generated. That could happen at a variety of different operating points over the -- over the span of a year.
MR. PIETRORAZIO: I understand. I was seeking information. I didn't get it, but I was seeking to find the average that you expected the plant be operated at, and you couldn't answer it, so that's fine.

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So do we have the exit velocity at 72 percent of rating?
(Pause.)
THE WITNESS (Gresock): We -- we have some information on some load cases, but we don't have information for 72 percent load. We use a typical operating case, which we call "the ISO condition," which is the plant operating at a hundred percent load in -- including -- yeah -- and the unfired case, which is -- which is a higher -- or which is the -- the higher velocity is 56.2 feet per second velocity for the -- for that hundred percent load case.
MR. PIETRORAZIO: Thank you very much.
And what material would the internal liner of the stacks be constructed of?
THE WITNESS (Donovan): The stacks are going to be carbon steel, and there may be a stainless liner for the first -- for the first section. I don't know how tall that would be.
MR. PIETRORAZIO: For the

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first section, you mean the base section?
THE WITNESS (Donovan): Yes.
MR. PIETRORAZIO: And the remainder would --
THE WITNESS (Donovan): Carbon steel.
MR. PIETRORAZIO: The internal liner?
THE WITNESS (Donovan): There would be no internal liner above a certain point.
MR. PIETRORAZIO: Okay. So for friction loss, we would use carbon steel?
THE WITNESS (Donovan): That's correct.
MR. PIETRORAZIO: Thank you. You've just answered the next question.
How will the difference in exit velocities -- I'm sorry. I had a question before that.
The exit velocities will vary in accordance with firing rate. Is that correct?
THE WITNESS (Seller): Yes.
MR. PIETRORAZIO: And how will

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the difference in exit velocities affect the stack gas dispersion?
THE WITNESS (Seller): The stack gas dispersion, again, is primarily influenced by the mass flow rate which is indirectly related to the exit velocity, as well as the temperature. So when the exit velocity is lower, it typically means there's less mass flow rates, so less -- less total air coming out of the stack and at a lower temperature.
Under those conditions, there would be higher ambient concentrations predicted than, say, when there was a higher flow rate and a higher temperature. Now, that's juxtaposed against a higher emission rate at the higher temperature, so there's really competing variables that -- that go in. So for some of the cases, the maximum impact may be at 50 percent load, and for other pollutants the maximum impact may be at a hundred percent load.
MR. PIETRORAZIO: I see.
THE WITNESS (Seller): But in our -- air modeling to support our air permit

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application, that's why we look at a whole range of cases from very, very cold to very, very hot, from the lowest, the minimum load to the maximum load.
MR. PIETRORAZIO: Is that why 173 degrees Fahrenheit was just testified to as the exit temperature a little while ago?
THE WITNESS (Donovan): That varies, though, too, with ambient temperature and load.
MR. PIETRORAZIO: Yes. The point I'm making, that wasn't clarified.
THE WITNESS (Gresock): It was -- it was 183 degrees Fahrenheit.
MR. PIETRORAZIO: 183.
THE WITNESS (Gresock): And again, that was that same referenced ISO condition that is the hundred percent load case, which is what we consider to be the representative operating case.
Now, it's correct that for the air permit application a multitude of operating scenarios were run and the worst-case evaluated out of all of those.
MR. PIETRORAZIO: So the exit

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stack temperature will be lower at, say, 30 percent of input?
THE WITNESS (Donovan): Yes, but not -- not significantly lower. It's probably about 10 degrees lower.
MR. PIETRORAZIO: Thank you.
Do temperature inversions take place at the site in Oxford, Connecticut?
THE WITNESS (Seller): Yes, temperature inversions take place everywhere.
MR. PIETRORAZIO: Thank you.
If the stack is located where temperature inversions take place, should the stack be designed so it extends through the inversion layer?
THE WITNESS (Seller): That's typically not practical nor necessary as the inversion may -- may be at a very high altitude, or it may be at a lower altitude. Most of the inversions, when you have gently rolling terrain like in the Oxford area, would be rather weak thermal inversions.
When you have a very, very warm plume, it would -- it would be able to penetrate the inversion pretty readily.

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That's why in the modeling for the air permit application we use five years of hourly meteorological observations to simulate virtually every possible meteorological condition that can be encountered, including thermal inversions.
MR. PIETRORAZIO: Thank you.
Is CPV familiar with the incidence of temperature inversion that claimed a number of lives in Donora, Pennsylvania in 1948 and the deadly London smog which caused over 4,000 deaths from SO2, that's sulfur dioxide -- in 1952?
THE WITNESS (Seller): I don't know if CPV is, but I certainly am.
MR. PIETRORAZIO: Thank you.
Are stack gases from the combustion of natural gas usually invisible to the naked eye above 45 degrees Fahrenheit ambient?
THE WITNESS (Seller): It would depend on the humidity, but -- but what you're referring to is when the water would condense in the plume and make it visible, is typically with the lower temperatures.

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MR. PIETRORAZIO: Around 45 degrees Fahrenheit?
THE WITNESS (Seller): Subject to check, I'll take your word for that.
MR. PIETRORAZIO: Thank you.
Are stack gases from the combustion of natural gas usually opaque below 45 degrees Fahrenheit ambient, and also on humid summer days, very humid summer days, above that temperature; that is, it forms a visible plume or white cloud that one cannot see through?
THE WITNESS (Seller): A visible plume would be the condensing water vapor plume which you talked to, and those would be associated with lower temperatures and higher humidity.
MR. PIETRORAZIO: And those are opaque?
THE WITNESS (Seller): Those would be opaque.
MR. PIETRORAZIO: Thank you.
How much water vapor is produced for each mole of natural gas burned, in equivalent moles?

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THE WITNESS (Seller): I would have to calculate that.
MR. PIETRORAZIO: Well, isn't it true that for every mole of natural gas that is combusted in the combustion process you produce two moles of H2O?
THE WITNESS (Seller): Again, I would have to check on that. The -- the water from a volume percentage, the water content in the plume is typically from a high 7 percent to about 11 percent.
MR. PIETRORAZIO: Thank you.
How does this water vapor emitting from the stacks appear in cooler Connecticut weather? It's kind of a redundant question, but I'd like your explanation.
THE WITNESS (Seller): In very cold weather, it would look, you know, much like a cloud.
MR. PIETRORAZIO: A cumulus cloud?
THE WITNESS (Seller): No, I wouldn't say a cumulus cloud necessarily.
MR. PIETRORAZIO: Not a cirrus

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cloud?
THE WITNESS (Seller): It certainly would not be a cirrus cloud.
MR. PIETRORAZIO: Okay. Thank you.
THE WITNESS (Seller): It would be puffy, but have none of the other characteristics of cumulus.
MR. PIETRORAZIO: Thank you.
Will the water vapor clouds cause shadows to be cast in otherwise clear weather?
THE WITNESS (Seller): Shadows from water plumes would be pretty finite and pretty limited spatially, and would depend on the sun angle and a number of other factors.
MR. PIETRORAZIO: The physical size of the plume. Correct?
THE WITNESS (Seller): Most -- and its juxtaposition to the sun, so if the sun --
MR. PIETRORAZIO: Absolutely.
THE WITNESS (Seller): -- was between the -- if the plume was between the sun and the ground, it would do the same

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thing that a cloud would do between the sun and the ground.
MR. PIETRORAZIO: Or if it was between your cookout that you were having at home?
THE WITNESS (Seller): If you were having a cookout right underneath the stack, yeah, I suppose there would be --
MR. PIETRORAZIO: No, in line with the sun and the plume?
THE WITNESS (Seller): Again, depending on the distance, if the distance goes around the plume is pretty finite in size. So you know, light tends to bend around -- around things like that. So the physical shadow from a plume would not be expected to occur a great distance from -- from the facility itself. It would have to be quite a plume in order to do that.
THE WITNESS (Donovan): This is a dry-cooled plant with a minimal plume that's just coming off the stacks, whereas a wet-cooled plant with cooling tower would have a much bigger plume.
MR. PIETRORAZIO: Yes, I

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understand that. Thank you.
All this discussion, I'm sorry, has been with regard to the plumes exiting the stacks, at least that was my intention.
During the winter when the temperature is below 32 degrees Fahrenheit, will the water vapor condense to liquid and freeze?
THE WITNESS (Seller): Certainly not -- you wouldn't find any ground level freezing or ice that would be typically associated with, say, a wet-cooling tower. As far as forming ice crystals in the atmosphere, it would behave the same as any other water in the atmosphere. If there was a particle to absorb onto, it could do that.
MR. PIETRORAZIO: Thank you.
Therefore, will the freezing created by the condensation of water vapor cause slippery road conditions, icing of tarmacs, aircraft and other services that the condensation comes in contact with as experienced with high water vapor stack plumes from paper mills?

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THE WITNESS (Seller): No. The -- the plume would be considerably too high to come into contact with the ground and cause icing. Those types of plumes are associated with, say, a wet-cooling tower that's not very, very hot and was released very close to the ground and close to a surface.
There's not any significant risk of fogging or icing on a roadway surface, a tarmac or a runway from a stack plume. It's just released at too high a height, and it's also too warm when it releases the stack. So by the time it could possibly get to ground level it would have dispersed.
MR. PIETRORAZIO: Thank you.
Will aircraft in flight experience icing conditions and icing of carburetors from their engine's air intakes from the water vapor present in their airspace?
THE WITNESS (Seller): I don't know. I'm not an expert on that, but --
MR. PIETRORAZIO: But you did

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design this plant in the vicinity of the airport.
THE WITNESS (Gresock): And as we've already stated, under cold conditions, the plume would be visible, and pilots certainly should have the opportunity to avoid flying through the plume for a variety of reasons.
MR. PIETRORAZIO: Yes, but isn't it true that most good flying weather is when you cannot see the plume? It's above 45 degrees.
THE WITNESS (Seller): And under those -- under those circumstances, it wouldn't be condensed water vapor, so the risk of any icing would be very, very negligible.
MR. PIETRORAZIO: Well, okay. The icing of aircraft carburetors, if you've looked into this, takes place at temperatures, at normal temperatures well above freezing, well above 40, 50 degrees because of the vacuum on the carburetor, it causes the freezing. So --
THE WITNESS (Seller): It's

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also my understanding that that would occur quite a residence time. You'd have to be flying in the plume for a fair amount of time, not passing though a plume. You'd have to be hovering over a plume or flying in a plume or flying in a cloud for that matter, for a considerable period of time.
MR. PIETRORAZIO: And -- and couldn't that be very dependent on the type of plume, whether it was a fumigation plume or whether it was a conical plume, what the wind direction and speed was, as to the physical size of the plume which could be stretched out for literally miles?
THE WITNESS (Seller): Yeah. The plume is going to dissipate pretty fast when it leaves the stack, and so you're not going to have a high condensation of, you know, a high concentration of water from that plume that would cause that, that effect.
MR. PIETRORAZIO: Isn't the water vapor to be produced by the combustion of natural gas for this size plant on the order of over a million gallons per day if the plant were at full output?

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THE WITNESS (Seller): Yes, and that would be released into an atmosphere over, say, Oxford that would weigh approximately a billion tons. So it's a small amount of water that's being introduced.
MR. PIETRORAZIO: It is a small amount of water that is placed directly in the path of the aircraft. Isn't that correct?
THE WITNESS (Seller): No, I would not agree with that.
MR. PIETRORAZIO: Thank you.
I think that's all I have for this afternoon, but I certainly want to reserve my -- I don't know if it's right or not, but I had certainly planned to have many more questions, and I beseech the Council to allow me to continue at a later date with regard to cross-examination.
Thank you.
MR. SAVARESE: Mr. Chairman, I have questions.
THE CHAIRMAN: Oh, okay.
CROSS-EXAMINATION

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MR. SAVARESE: And my questions are directed mostly at Exhibit 2, but my first question is based on the petition dated November 3, 2014, to reopen and modify.
Is the applicant abandoning the proposal to construct, operate and maintain the 512 megawatt dual-fuel combined-cycle electric energy plant in Oxford?
THE WITNESS (Bazinet): No.
MR. SAVARESE: Is the applicant prepared to commence construction of the 512 megawatt facility based on the reopening of Docket 192 in 2006, resulting in a decision issued in 2007?
Are you prepared to build the plant that you're not abandoning if, in fact, this 805 is denied?
THE WITNESS (Bazinet): At this point, at this current juncture, today, no.
MR. SAVARESE: What would be required to revert to the 512 megawatt facility to get under construction?

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THE WITNESS (Bazinet): There will be a few different items that would be required. Certainly a lot of the work we've done since proposing the expansion has gone toward revising certain approvals or modifying certain approvals that currently exist. So certainly a lot of that work would need to be undone.

But with respect to -- and we could -- we could put together a more comprehensive list, but there's a few different things that would need to be done in order to commence construction of that facility.

MR. PIETRORAZIO: Can you say whether you're --

MR. SMALL: Excuse me for one second, please.

MR. SAVARESE: Would your current filing with the DEEP be satisfactory to allow for the air modeling, to allow you to maintain an air quality permit?

THE WITNESS (Seller): The facility has a valid air quality permit right now for the 512 megawatt facility.

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MR. SAVARESE: That has no expiration date?

THE WITNESS (Seller): Yes, it has to be refreshed every five years. And so there would be a recertification of -- that the facility still represented best available control technology. That would need to be submitted.

MR. SAVARESE: So that there would still have to be a review by the DEEP?

THE WITNESS (Seller): That's correct.

MR. SAVARESE: That is not going concurrently?

THE WITNESS (Bazinet): That's correct. It's not going concurrently.

MR. SAVARESE: What about the FAA review that you held previously on the 512 before you suggested that the stacks move? Do you hold a current FAA approval to build the 512 megawatt plant?

THE WITNESS (Gresock): No, the project does not.

MR. SAVARESE: Are you concurrently seeking a 512 megawatt approval from the FAA?

THE WITNESS (Gresock): Not currently.

MR. SAVARESE: If denied on the 805, how much time do you think it would require to thereby proceed with the 512 megawatt approval process?

THE WITNESS (Bazinet): It's a great question. As I said, there are a number of different things that are at play there including our own internal analysis and evaluation of whether or not we would proceed with that 512 megawatt plant. But there are a few variables at play including the DEEP review process that you just mentioned, an FAA permit. To project the exact amount of time, I'd be guessing.

MR. SAVARESE: Is it fair to say that the electric-gas market conditions were known to the Council at the time of it's decision on Docket 192 in 2007?

MR. SMALL: Which electric market conditions were known, Mr. Savarese?

MR. SAVARESE: All of them.

MR. SMALL: Could you just clarify that question?

MR. SAVARESE: The knowledge of the Council, do you think it's fair to say that the electric and gas market conditions, in general, were known to the Council and incorporated into their decision in Docket 192?

MR. SMALL: Are you talking about the conditions at that time or the conditions at this time?

MR. SAVARESE: Yes, the conditions at that time.

MR. SMALL: Thank you.

THE WITNESS (Bazinet): Absolutely.

MR. SAVARESE: All right. So is there any reason to have to review the conditions between 1999 and 2007 for this Council?

MR. SMALL: I think that's a legal question which I can address, if you would like it, but if it's not a question for -- not an evidentiary question.

MR. SAVARESE: I think it is because part of this is a review from 1999 to

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present, and I don't think it's necessary to be reviewing from 1999 to present when this Council has reviewed this application most recently, going through the public hearing process, had issued a decision in 2007, and that should be the base point of what we're suggesting are changed circumstances.

I'm trying to determine from what changes are we trying to go forward. Because the longer the period of time the more obnoxious it is to suggest that there aren't some changed circumstances.

MR. SMALL: I think that's, you know, Mr. Chairman, I think that's an issue for the Council. We approached it both ways in the sense that we had a 1999 approval, and that was the approval we requested -- we were requesting through this process be changed. We also pointed out the changes, which, in some ways, are even more radical ironically since 2007. So the record has both sets of changes. It's really up to the Council and its legal advisors as to which is a relevant date. But I just think -- I therefore, on that basis, I guess,

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I object to the question as being irrelevant.

THE CHAIRMAN: We'll take that under advisement. I'm not prepared. The Council is not being cross-examined.

MR. SAVARESE: I understand, Mr. Chairman.

With respect to Exhibit 2 of the petition prepared by Concentric Energy Advisers, CEA, and entitled, "The New England Wholesale Power Market Changes, 1999 to Present," it provides at the last paragraph on page 26, "All of the changes in the wholesale market since 1999, as described above, have increased the need for plants like Towantic."

In the Connecticut Siting Council findings of fact in Docket Number 192-A, dated January 4, 2007, the Siting Council noted that "The 2005 to 2006 10-year forecast of load and resources of Connecticut electric utilities showed that supplies were expected to meet demand under normal weather conditions in the near-term, although a more conservative load forecast showed a shortage of supply."

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The paragraph continues: "In the ISO New England draft 2014 regional system plan, ISO New England is projecting a regionwide capacity shortage of 424 megawatts in 2019, increasing to 1,155 megawatts in 2023. In addition, the ISO New England 2004 CELT report projects the region to fall below the target reserve margin by 2018. Towantic will provide critical generation to meet the region's reliability needs identified by ISO New England."

Isn't this entire report a type of Monday morning quarterbacking of the Council's prior findings and forecasts?

THE WITNESS (Powers): This report reflects what's known and knowable today. Today we have capacity shortage in New England that Towantic will help to alleviate. Back in '99 it was a completely different set of circumstances, so we are basing this report on what we know today, which is a capacity shortage.

MR. SAVARESE: Right. Well, the quote I just read specifically talks about '07's decision, 2005-2006 10-year

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forecasts that bring us to this era, 2005 to 2015, 2016, which is when we were supposed to have a 512 plant that would have otherwise addressed the shortfalls that have been cited or possibly addressed by the need.

What assurances are we going to have that we're ever going to see a plant going forward when, in fact, for 15 years there has been no action at the repeated extensions being granted by this Council?

THE WITNESS (Bazinet): The CPV Towantic is attempting to move the project forward based on the market signals that Ms. Powers just mentioned.

With respect to assurances, I don't think anybody could guarantee the project will move forward. It's dependent on a number of different circumstances that includes Siting Council approving -- approval of our petition, as well as an air permit application that's pending at DEEP, and other -- other forces that, while we will put our best foot forward, we certainly don't control entirely.

MR. SAVARESE: That's fair.

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Isn't one of the premises of the CEA report that all the changes in the wholesale market since 1999, as described above, have increased the need for plants like Towantic as the reference to "like Towantic" referred to only generating facilities larger than 512 megawatts?

THE WITNESS (Powers): No. I -- I think that the need for facilities like Towantic is based on a couple of things. It's replacement of -- of, you know, capacity that's already announced retirement, and integration of renewables into the market where you need flexible resources, and reliable resources, which is the dual-fuel component of Towantic. So it's not a statement based on any size. It's a statement based on the type of facility.

MR. SAVARESE: Okay. And does it matter where in the region it's going to add this capacity?

THE WITNESS (Powers): It -- it does based on how the market clears and how the market is structured, but it is safe to say that based on the shortage of capacity

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in New England, Connecticut CEMA, NEMA, those are all areas that are import constrained where any addition of generation will help alleviate reliability concerns.

MR. SAVARESE: But isn't mostly what it's directed at is that there's a need for baseload facility in the system?

THE WITNESS (Powers): There is a need for all kinds of facilities on the system. We are in a -- in a capacity shortage which means we need -- megawatts can come from a number of different sources. They could come from demand response. They can come from renewables. They can come from resources like Towantic that are flexible. We need a lot of different solutions to the problem. Towantic is one solution.

MR. SAVARESE: So trying to understand the premises of Exhibit 2 of the petition. My reading of it was that the electric generating facility of more than 512 megawatts located anywhere in Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire or Maine satisfies the ISO New England region. Is that correct?

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THE WITNESS (Powers): There are two pieces as -- as we talked about before. There's an adequacy piece, which are correct. You can put a facility in a number of different places. Connecticut has ongoing local reliability concerns that help will -- this plant will help to address.

MR. SAVARESE: Is there any particular advantage to the wholesale market for locating the next electric generating facility greater than 500 megawatts at Towantic Hill in Oxford, Connecticut?

THE WITNESS (Powers): There is a benefit to Connecticut in general. Connecticut is not an isolated -- it's not an island. Connecticut made a decision many years ago to join ISO New England, so to the extent that there's a shortage of other parts of the system and Connecticut helps to solve that shortage, prices will decrease.

MR. SAVARESE: So these -- is on the Algonquin Pipeline. Kleen Energy is on the Algonquin Pipeline. Doesn't this rob from the capacity of Kleen Energy to continue to satisfy ISO New England's demands?

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THE WITNESS (Bazinet): No.

MR. SAVARESE: And why not?

THE WITNESS (Bazinet): The pipeline of the Algonquin system capacity is available to a number of different generating units, including Kleen and including Towantic should it be built.

MR. SAVARESE: My understanding is there are times of year that there's not enough energy to keep the plants operating on gas, therefore, you would think that there's competition for the gas. Does that only happen one time a year? January 6, 2014, was that the only time in that '13-'14 winter?

THE WITNESS (Bazinet): You're not far off by saying that it only happens one time a year. The expansion projects that are proposed are, you know, major capital investments that are intended to solve a problem that happens very infrequently. Certainly, you know, less than say, maybe two or three weeks out of the year and not contiguous. It's dependent on a number of different factors and that can change on a

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short-term basis.
For instance, the cold period that was experienced, I believe it was two weeks ago, the market has responded to that. And LNG imports have been coming into New England on the other side of the pipe providing gas to the system to allow all gas-fired generators to run despite the extremely cold temperatures.
So unlike 2014 where that might have been a scenario where gas supply was curtailed and Towantic would have been forced to run on fuel oil, that wouldn't be the case in 2015 currently.
MR. SAVARESE: On page 39 of Exhibit 2, the petition, CEA's report lists five assumptions as keys to determining the multi-area production simulation model; namely, supply, existing generation, fuel costs, emission costs, forecast of demand, and transmission constraints of delivery.
For each of these factors presumptions were made to the conditions in 2018, three years in the future. What assurance provides the Council and interested

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parties and intervenors that this docket underlying two different -- these key assumptions are accurate?
THE WITNESS (Bodell): The basis for these assumptions relied on public forecasts that had been made by New England ISO -- ISO New England that had been made by NERC as part of it's reliability assessments. And I think in almost every case we relied on public forecasts -- where available.
With respect to the transmission load flows, we took load flows and updated them to account for new transmission that is projected to be built and have that operational according to the time frames announced.
For plant additions we took the announced additions that are in the queue at ISO New England. And for retirements, we relied only on the retirements that had been announced as reported by ISO New England and as reported in Ventyx, confirmed by us through our own research. That led to around 4,000 megawatts of retirement where there is potentially 8,000 at risk.

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MR. SAVARESE: Okay. A follow-up on that. Shouldn't the model have been presented based on certain variations based on the most recent three-year operations reported by ISO?
THE WITNESS (Bodell): Over the last three years there have been significant changes to the marketplace. To rely on information from three years ago would result in a stale analysis that would not be indicative of the need for this facility sitting here today.
MR. SAVARESE: Exhibit 2 of the petition, the CEA report published in October 2014, Anticipate the recent downturn in wholesale oil price that has fallen to less than $50 a barrel from an average of approximately $100 a barrel for the past three years, and it's impact to the wholesale market in January 2015?
THE WITNESS (Bodell): The assumption for oil prices was based on the projections available at the time in October.
MR. SAVARESE: What would be the effect on the model of a sustained price

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of oil under $50 a barrel on the profitability and likelihood of retirement of the electric generating facilities operating on oil listed in Figure 18 on page 34 of the CEA report?
THE WITNESS (Bodell): There were a lot of factors that would impact that, and I cannot, sitting here today and having not run an alternative oil price scenario, I can't tell you what the net effect would be, but there are countervailing forces.
On the one hand, the lower oil price will decrease peak price for energy, which have -- would have an adverse impact on a lot of plants that rely on the higher peak prices for their revenues, yet the oil price going down would result in a lower cost.
There may be a change in the supply stack, although for the most part I think oil plants are going to be more expensive than natural gas and coal plants and so it's just a matter of level.
But these are the examples of the countervailing forces. You'd have to rerun the model with a new oil price if you

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wanted to o get a conclusion about how lower oil prices would impact. And I also have to say the question is not what are oil prices today. What are oil prices going to be in 2018 to 2028?

And the projections that are out there, different projections, although Saudi Aramco is following a long-term strategy, their own projections have indicated $80 a barrel prices by the end of the year. Of course whether or not that happens is a difference, but I think we have to remember that we're talking about 2018 to 2028 and whether or not the oil prices are going to be at the levels they are today, and I think is unlikely.

MR. SAVARESE: But my premise here is that you're guessing that at five different parameters, and nowhere would any of us have anticipated that oil prices were going to drop to less than $50 a barrel, which is one of the major components of the analysis, what the wholesale market is doing.

So how reliable is your prediction of where we're going to be in 2018

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much less going out to 2028?

THE WITNESS (Bodell): I don't accept your premise that these are based on guesses. When running these models you're looking for insights into what the impacts are going to be.

The oil price is one factor, but the oil is setting the price on a small number of hours, so it may not have a very large effect. Again, you want to look at that to see if that's the case, but I don't anticipate a huge impact.

As far as the other ones are concerned, it's important to look at the information that's available at the time you're running these analyses to come up with conclusions. If anything, I think that there are forces in play that could result in higher retirements, and therefore, higher benefits associated with the Towantic facility.

MR. SAVARESE: But again, we talked about generations of different fuel, and we currently are coming out of the oil era, if you will. And Connecticut has been

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lagging behind some of its brother states in New England in the percentage on natural gas.

But here in Connecticut we have an adequate supply of power, and we now have a boondoggle of oil now priced at under $50 a barrel. Why would we gamble our health on Towantic coming into the region?

THE WITNESS (Bodell): I don't agree with you that this is a gamble on health. In fact, I believe that any market that is relying on oil today, and coal, needs a gas plant more than ever to assure reliability and adequacy given the changes that have been occurring and are anticipated to occur in the post 2015-'16 period.

MR. SAVARESE: The current locations of the plant in Connecticut have been satisfactory for generations. There is no plant in Oxford. There is no plant on the Middlebury boundary. The location of five 150 megawatts plants distributed throughout New England, two in Connecticut, two in Massachusetts, one in Vermont, New Hampshire or Maine, would then satisfy 800 megawatts of demand that are being proposed

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for Oxford. Is there any reason why?

For jobs alone, we shouldn't be placing five 150 megawatt plants throughout New England as opposed to centering them all on Towantic Hill in Oxford.

THE WITNESS (Bazinet): The reality is that there's a need for more than just Towantic. So there's absolutely no reason that what you're proposing couldn't happen. It obviously requests private investment -- or requires, excuse me, private investment and a sponsor to move that private investment forward.

I -- I can say, however, that by building five separate 150 megawatt plants you're doing so at significant economies of scale disadvantages and also at thermal -- excuse me, efficiency disadvantages because there is no combined-cycle configuration that can be set forth at heat rates that we're proposing today and at that size level. Excuse me.

MR. SAVARESE: Under today's technology, but you don't know where you're

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going to be in 2028.
Mr. Chairman, that's all the questions I have for the applicant.
THE CHAIRMAN: Okay. Thank you.
CL&P, do you have any cross?
MR. MORISSETTE: No, we don't. We have no present questions, Mr. Chairman.
THE CHAIRMAN: Thank you.
And the Town of Oxford, do you have any cross-examination?
MR. CONDON: We have no questions, Mr. Chairman. Thank you.
THE CHAIRMAN: The next on the list are grouped from -- starting with Naugatuck Valley Chapter Trout unlimited. Since I wanted to close at five, since obviously we're not going to end everything this afternoon, I think what we'll do is we're going to adjourn the hearing now, and we will continue the evidentiary portion of this hearing in New Britain on Tuesday, February 10th, at 11 a.m. in the same place.
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.
Copies of the transcript of the hearing will be filed at the Oxford and Middlebury Town Clerk's offices. And thank you all for your participation and patience, and drive home safely.
(Whereupon, the witnesses were excused, and the above proceedings were adjourned at 4:39 p.m.)

CERTIFICATE

I hereby certify that the foregoing 247 pages are a complete and accurate computer-aided transcription of my original verbatim notes taken of the Continued Public Hearing in Re: DOCKET NO. 192B, MOTION TO REOPEN AND MODIFY THE JUNE 23, 1999 CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED BASED ON CHANGED CONDITIONS PURSUANT TO CONNECTICUT GENERAL STATUTES §4-181A(B) FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A 785 MW DUAL-FUEL COMBINED CYCLE ELECTRIC GENERATING FACILITY LOCATED NORTH OF THE PROKOP ROAD AND TOWANTIC HILL ROAD INTERSECTION IN THE TOWN OF OXFORD, CONNECTICUT, which was held before ROBERT STEIN, Chairperson, at the Connecticut Siting Council, 10 Franklin Square, New Britain, Connecticut, on January 29, 2015.

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Robert G. Dixon, CVR-M 857
Court Reporter
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INDEX

EXHIBITS

(Received in evidence.)

I N D E X (Cont'd.)

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