In The Matter Of:

Chatfield Solar Fund, LLC, petition for a declaratory ruling

Continued Public Hearing
March 26, 2019

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Original File 19-03-26 - Part 01.txt
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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Petition No. 1354

Chatfield Solar Fund, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes Section 4-176 and Section 16-50k, for the proposed construction, maintenance and operation of a 1.98 megawatt AC solar photovoltaic electric generating facility on approximately 25 acres located generally south of Route 80 (North Branford Road) and east of Chestnut Hill Road in Killingworth, Connecticut, and associated electrical interconnection to Eversource Energy's Green Hill Substation located at 775 Green Hill Road, Madison, Connecticut.

Continued Public Hearing held at the Connecticut Siting Council, Ten Franklin Square, New Britain, Connecticut, on Tuesday, March 26, 2019, beginning at 1 p.m.

H e l d B e f o r e:

SENATOR JAMES J. MURPHY, JR., Vice Chairman

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

Council Members:

ROBERT J. HANNON,
Designee for Commissioner Robert Klee
Department of Energy and
Environmental Protection

LARRY P. LEVESQUE, ESQ.,
Designee for
Public Utilities Regulatory
Authority

DANIEL P. LYNCH, JR.
ROBERT SILVESTRI
MICHAEL HARDER

Council Staff:

MELANIE BACHMAN, ESQ.,
Executive Director and
Staff Attorney

ROBERT MERCIER
Siting Analyst

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

For the Petitioner:

MURTHA CULLINA LLP

265 Church Street

New Haven, Connecticut 06510

BY: BRUCE L. McDERMOTT, ESQ.

SAMUEL R. VOLET, ESQ.

KILLINGWORTH ADVOCATES FOR RESPONSIBLE SOLAR (KARS)

45 Hemlock Drive

Killingworth, Connecticut 06419

BY: LORINNE KOVACHI-SEKBAN

DOUGLAS SCHWARTZ

THE VICE CHAIRMAN: Ladies and gentlemen, this hearing is called to order this Tuesday, March 26, 2019 at 1 p.m. My name is James J. Murphy, Jr. I'm acting chairman of the Connecticut Siting Council.

If you're concerned about the mask, it's really to protect me from you, not you from me, and I'm not contagious. I'm in the process of having chemo treatment, and I also have a blood infection, both of which have terrible problem with the white cells. So I've been instructed to pretty much wear a mask most times.

This evidentiary session is a continuation of the public hearing held on February the 21st 2019 at the Killingworth Fire Station meeting room in Killingworth. It is held pursuant to the provisions of Title 16 of the Connecticut General Statutes and of the Uniform Administrative Procedure Act upon a petition from Chatfield Solar Fund, LLC for a declaratory ruling for the proposed construction, maintenance and operation of a 1.98 megawatt solar photovoltaic electric generating facility located generally south of North Branford Road and east of Chestnut Hill Road in Killingworth, and an associated

electrical interconnection to Eversource Energy's Green Hill Substation located at 775 Green Hill Road in Madison, Connecticut. The petition was received by this Council on October the 23rd, 2018.

A verbatim transcript will be made of this hearing and deposited with the Town Clerk's Offices in the Killingworth and Madison Town Halls for the convenience of the public.

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

We have an objection from the petitioner to the second set of interrogatories submitted by KARS and an objection to the Killingworth Fire Marshal James McDonald's March 22, 2019 supplemental prefiled testimony.

In regards to this objection by the petitioner, I'd ask Attorney Bachman, our counsel, as well as executive director, to comment.

MS. BACHMAN: Thank you, Mr. Chairman. With regard to the objection to the second set of interrogatories, the Council did set out a schedule for a submission of interrogatories and responses to interrogatories and prefiled

testimony. Although the second set of interrogatories were not served properly on the petitioner, I did forward a copy to the petitioner. There are 12 questions, some of which are a matter of public record. And so given that KARS is here today, they can certainly ask some of those questions, or all of those questions, during their cross-examination of the petitioner, and therefore we recommend that the objection to the second set of interrogatories be denied.

MR. LYNCH: What was the last part?

MS. BACHMAN: The objection to the second set of interrogatories be denied.

THE VICE CHAIRMAN: Do I hear a motion?

MR. HANNON: So moved.

THE VICE CHAIRMAN: Second?

MR. SILVESTRI: Second.

THE VICE CHAIRMAN: Any discussion on the motion to deny?

(No response.)

THE VICE CHAIRMAN: If not, all those in favor of the motion to deny signify by saying aye.

THE COUNCIL: Aye.

THE VICE CHAIRMAN: Those opposed?

(No response.)

THE VICE CHAIRMAN: The ayes have it.

MS. BACHMAN: With regard to the second objection to Fire Marshal McDonald's supplemental prefile testimony dated March 22nd, again, the Council did establish a schedule by which all interrogatory responses and prefile testimony were supposed to be submitted. However, the testimony is relatively short, and the fire marshal is a witness for KARS and he will be subject to cross-examination by the Council and the petitioner, and therefore staff recommends that the second objection to the supplemental prefile testimony also be denied.

MR. HANNON: So moved.

THE VICE CHAIRMAN: So moved by Mr. Hannon.

Is there a second?

MR. SILVESTRI: Second.

THE VICE CHAIRMAN: Second by Mr. Silvestri.

Any discussion on the motion to deny?

MR. LYNCH: Will the fire chief be a witness for KARS?

MS. BACHMAN: He is listed as a witness

for KARS.

MR. LYNCH: So we can ask him the questions that might have been -- well, we can ask him questions, correct?

MS. BACHMAN: That's correct, so can the petitioner.

THE VICE CHAIRMAN: Any further discussion or questions on the motion to deny?

(No response.)

THE VICE CHAIRMAN: If not, all those in favor of the motion, signify by saying aye.

THE COUNCIL: Aye.

THE VICE CHAIRMAN: Those opposed?

(No response.)

THE VICE CHAIRMAN: The ayes have it. The motion is so moved.

MS. BACHMAN: There's one more item, Mr. Chairman, that popped up this morning. There's an objection --

THE VICE CHAIRMAN: Nothing like a surprise.

MS. BACHMAN: There's an objection to -- and I am so sorry if I mispronounce your name -- Ms. Kovachi-Sekban?

MS. KOVACHI-SEKBAN: Uh-huh.

MS. BACHMAN: There is an objection to Ms. Kovachi-Sekban being listed as a witness for KARS. However, Ms. Kovachi-Sekban also prepared the request for party status and the attachments thereto, which are exhibits that would be part of the record, and Ms. Kovachi-Sekban is here today to be cross-examined by the petitioner and the Council on any of the exhibits that were submitted by the party KARS. And so we recommend that the objection to Ms. Kovachi-Sekban being a witness also be denied.

MR. McDERMOTT: Senator Murphy, may I be heard on that motion?

THE VICE CHAIRMAN: Yes, you may.

MR. McDERMOTT: And I do apologize for the timeliness of that. It was only upon receipt of the draft hearing agenda today that I noticed that she was listed as a witness. I feel that in this case it's procedurally unfair to allow her to testify as a witness for KARS. The KARS first submitted their list of witnesses on February 19, 2019. She was not listed as a witness in that case. They then supplemented and significantly reduced the amount of witnesses down to two, and she was not identified in that filing as a

witness. And it was only upon receipt this morning of the draft agenda that I realized that she was listed as a witness. So in preparation for cross-examination of the two witnesses that were listed last night, I was not afforded the opportunity to kind of take into consideration her testimony and her presence here.

I think Attorney Bachman has done an amazing job of keeping KARS informed of the Council's process. I know that she has supplied KARS with the various guidelines and intervenor and party documents that the Council has so amazingly prepared over the year. So I find it somewhat difficult to imagine that it was somewhat of an oversight on KARS' behalf. She's been afforded every opportunity to list herself as a witness, and she declined to do so. So I'm not exactly sure why she would be listed as a witness. The fact that she prepared or may have prepared -- it remains to be seen because none of the evidence has been submitted or offered for admission -- exhibits is, I think, frankly irrelevant. She should have listed herself, she failed to do so, and I think we should take the two witnesses as they were listed.

THE VICE CHAIRMAN: Thank you. I'll afford you the opportunity to comment, if you'd like to.

MS. KOVACHI-SEKBAN: I need some clarification.

THE VICE CHAIRMAN: Speak up, please.

MS. KOVACHI-SEKBAN: I would like some clarification. So KARS has asked the fire marshal, Jim McDonald, and Dan Perkins to be our witnesses. We never put my name down as a witness, so I'm confused as to where the original request came from.

THE VICE CHAIRMAN: Maybe we don't have a problem.

MS. KOVACHI-SEKBAN: Right. That sounds like it, right. We really just want the two witnesses. We have only --

THE VICE CHAIRMAN: So as far as you're concerned, you're not listed as a witness?

MS. KOVACHI-SEKBAN: Correct, correct.

THE VICE CHAIRMAN: I guess that takes care of the problem, Mr. McDermott.

MR. McDERMOTT: If all my objections get resolved that easily, that would be awesome. You're ending on a high note, Senator Murphy.

Thank you.

THE VICE CHAIRMAN: We'll now continue with the appearance of the petitioner, Chatfield Solar Fund, LLC, to verify the new exhibits marked as Roman numeral II, Items B-11 through 14 on the hearing program.

Attorney McDermott.

MR. McDERMOTT: Thank you, Senator Murphy. I'm going to ask my colleague, Attorney Sam Volet, to authenticate the exhibits and introduce some new witnesses.

And if I could just take a moment, Senator Murphy, to thank you for all your years of service on the Council. I'm not sure when my last kind of moment before the microphone will be, so I wanted to not let it pass. On behalf of all my clients over the years, it's been an honor to be before you, and I wish you the best.

THE VICE CHAIRMAN: Thank you very much.

MR. VOLET: Thank you. Sam Volet, Murtha Cullina, on behalf of the petitioner, joined by Bruce McDermott, Murtha Cullina. I'm going to handle a few of the preliminary administrative matters related to exhibits and

additional witnesses. I'd like to introduce three additional witnesses on behalf of the petitioner. Once I introduce them and they're sworn in, we can introduce the additional exhibits.

So I guess we'll start. George, do you want to just say your name and --

GEORGE ANDREWS: George Andrews. I'm with Loureiro Engineering Associates, Plainville, Connecticut, professional engineer, vice president of the company.

MR. VOLET: And Henry.

HENRY WITHERS: My name is Henry Withers with CR3, LLP, in Simsbury, Connecticut. I'm a landscape architect. I am the principal of the company.

MR. VOLET: Cynthia?

CYNTHIA REYNOLDS: My name is Cynthia Reynolds. I'm a landscape architect with CR3 in Simsbury, Connecticut.

MR. VOLET: So with that, if we could swear them in.

THE VICE CHAIRMAN: I will ask the three of you to rise and be sworn in by Attorney Bachman.

GEORGE F. ANDREWS, JR.,
HENRY WITHERS,
CYNTHIA REYNOLDS,
called as witnesses, being first duly sworn by Ms. Bachman, were examined and testified on their oaths as follows:
C. J. COLAVITO,
ERIC D. PARTYKA,
ALISA MORRISON,
GEORGE T. LOGAN,
JAMES M. McMANUS,
JOBIN MICHAEL,
CHARLES GEPPI,
SIGRUN GADWA,
called as witnesses, being previously duly sworn, testified further under oath as follows:

MR. VOLET: And with that, I'd like to introduce the additional exhibits. Introducing those exhibits is Mr. Eric Partyka.

DIRECT EXAMINATION

MR. VOLET: Mr. Partyka, with regard to Exhibit 11, the Phase 1 archaeological reconnaissance survey; Exhibit 12, petitioner's revised response to Interrogatory 109 in regard to

the FAA study; Exhibit 13, petitioner's response to the Council's third set of interrogatories; and Exhibit 14, petitioner's response to KARS' interrogatories, are you familiar with these exhibits?

THE WITNESS (Partyka): Yes, I am.

MR. VOLET: And did you prepare or oversee the preparation of these exhibits for submission with the Council?

THE WITNESS (Partyka): Yes, I did.

MR. VOLET: Do you have any changes in connection with these exhibits?

THE WITNESS (Partyka): There are no changes.

MR. VOLET: And do you adopt these exhibits here today?

THE WITNESS (Partyka): I do.

MR. VOLET: So with that, Mr. Vice Chair, I move to admit the Exhibits 11 through 14.

THE VICE CHAIRMAN: Is there any objection from KARS?

MS. KOVACHI-SEKBAN: No.

THE VICE CHAIRMAN: Thank you. Then they are admitted.

(Petitioner's Exhibits II-B-11 through II-B-14: Received in evidence - described in index.)

THE VICE CHAIRMAN: We'll begin cross-examination with Mr. Mercier.

MR. MERCIER: Thank you.

CROSS-EXAMINATION

MR. MERCIER: My questions really pertain to the third set of interrogatories that were submitted. I'm just going to start off with response number 120. There is a diagram in there, and it appears the scale is off. It says one inch equals 80. I just did a rough calculation. If someone on the panel could just check that while I'm asking other questions, that would be great because I might refer to that document a little bit later.

So that said, I'll just move right to number 124 which has to do with the ZREC contracts. Yes.

THE WITNESS (Colavito): I can answer your question.

MR. MERCIER: Sure.

THE WITNESS (Colavito): This drawing is designed to be printed on a 36 by 24 sheet, and

the scale there said it should measure one inch, if the scale is correct. So when printed on an 8-and-a-half by 11 in portrait mode, it would not be to scale.

MR. MERCIER: I'm sorry, could you repeat the second part?

THE WITNESS (Colavito): When printed on an 8-and-a-half by 11 sheet or 11-by-17 sheet, it would not be to scale.

MR. MERCIER: Okay.

THE WITNESS (Colavito): So the scale underneath it said "should measure one inch," if you look in the title block on the right-hand side just below the date.

MR. MERCIER: I can barely read it. Thank you.

THE WITNESS (Colavito): It also indicates the original sheet size right above that which is 36 by 24.

MR. MERCIER: Great. Thank you very much.

Just moving to number 124, the response basically states that Chatfield Solar has two ZREC contracts. Is each contract based on a specific output size?

THE WITNESS (Partyka): Yes, it is.
MR. MERCIER: And what size would they be roughly?
THE WITNESS (Partyka): One megawatt AC.
MR. MERCIER: And they're both proposed for this parcel?
THE WITNESS (Partyka): That's correct.
MR. MERCIER: When the contracts are issued, are there geographical limits, like say, you know, the A contract is the north side, the B contract the south side, something like that?
THE WITNESS (Partyka): I don't know of any geographical limits. I know the site is site specific, but I'd have to get back to you on any limitations.
MR. MERCIER: Now, are the two issued contracts, are they independent of each other such that Chatfield could elect just to build one and not the other?
THE WITNESS (Partyka): Yes, they are independent of each other.
MR. MERCIER: Thank you. I'm going to move over to the site plans on response number 112. Now, looking at the east side of the north

field area, the main field, I'll call it, there appears to be a vehicle lane between the trench and clearing limits roughly. And I noticed the grades in there were like approximately 15 to 25 percent side slope. Is that slope okay for vehicles to drive on? Do you know of any hazards of a vehicle driving on a slope such as that?

THE WITNESS (Colavito): I can't testify to the navigability of that slope. I'm not an expect in that.

MR. MERCIER: Have you designed other projects with slopes like that?

THE WITNESS (Colavito): Yes, we have. The typical maximum slope of most of the racking systems we use is about 30 percent.

MR. MERCIER: I meant for vehicle use because it's a vehicle lane.

THE WITNESS (Colavito): We've designed projects on many types of steep slopes for PV arrays. The drive aisles are not our expertise. I'm sorry.

MR. MERCIER: Did you consult with the fire department who had concerns regarding access regarding that particular slope in that area?

THE WITNESS (Colavito): Yes, we did.

MR. MERCIER: On that slope?
THE WITNESS (Colavito): We didn't get very specific about the exact location and slope at every spot around the perimeter of the array, but we did talk about leaving an access aisle for them.
MR. MERCIER: And if I just flip to plan 1B, just south of the vernal pool number 2, in the area where it says 46B, there is kind of like a -- it's not really legible here, but on some of the other plans it's kind of a little knoll, a little hill. Would that little hill have to be leveled, graded out for the access lane there?
THE WITNESS (Colavito): I'm sorry, I don't see topography on the plan that you're discussing.
MR. MERCIER: I'll have to flip to some other plans that show it clearly. Anybody else familiar with the site that has that little knoll?
MR. McDERMOTT: I'm sorry, Mr. Mercier, where is the area of the --
MR. MERCIER: Right where it says 46B. If you look closely, you'll see like all the little lines kind of compress south of the vernal

pool.

MR. McDERMOTT: Thank you. That helped.

THE WITNESS (Colavito): I found the plan that shows the topography. We do not have any plans to grade that area.

MR. MERCIER: Okay. So it's your contention that vehicles could actually go right over that little rise no problem?

THE WITNESS (Colavito): We expect that is within the -- it's not necessarily in the 20 foot offset between the fence and the PV array.

MR. MERCIER: Right. I believe it shows an access road there and a bridge going right over it.

(Pause.)

THE WITNESS (Colavito): That would probably have to be graded out.

MR. MERCIER: Thank you. I'm going to look at the site plan within response number 117. And I think that's just a detail sheet. And the red box on the plan kind of details construction sequencing, other notes. So just so I understand, once clearing is done for a specific phase, the sediment traps will be constructed; is that

correct?

THE WITNESS (Andrews): That's correct.

MR. MERCIER: And once the trenches are installed, then you'll proceed doing the post panels and wiring and things of that nature. Correct?

THE WITNESS (Andrews): Correct.

MR. MERCIER: Now, I was looking at the infiltration basin notes, and that's number 8 down there. It basically says avoid compaction of the infiltration area and surrounding soils during construction. I'm just curious how you're going to do that when you're installing your racking, your posts, the panels and wiring, when pretty much most of the rows are over the trenches. How are those going to be maintained so the integrity is maintained for the life of the project and during construction?

THE WITNESS (Andrews): I'm sorry, could you repeat the location? You mentioned number 8?

MR. MERCIER: Yes. It basically says "Compaction of the infiltration area and surrounding soils during construction should be avoided." I'm trying to figure out how you're

going to install the equipment without impacting those trenches.

MR. McDERMOTT: Mr. Mercier, I'm sorry. I don't see a note 8.

MR. MERCIER: I counted it down myself, I just physically counted down.

MR. McDERMOTT: Okay. So there are a number of notes. That's why I was --

MR. MERCIER: This is under infiltration basin notes.

MR. McDERMOTT: Okay. Thank you very much.

MR. MERCIER: I just numbered them myself.

THE WITNESS (Colavito): The intent is that the foundations for the PV array will straddle the basin to avoid having posts directly in that infiltration basin.

MR. MERCIER: Okay. I know some of the grading areas associated with the basin is about 10 feet wide or so. Is that going to be enough room for you to install your posts without disturbing the basins?

THE WITNESS (Colavito): I would have to study it more carefully.

MR. MERCIER: And how about, say you could get the posts in there, how are you going to do the panels and the racking?

THE WITNESS (Colavito): Those are done manually.

MR. MERCIER: Physically carry that material over?

THE WITNESS (Colavito): Yeah, the modules could be brought in from other directions and dropped near the point where they need to be put in, and then they'd be manually lifted with two workers and placed in place and then put together with manual battery-powered tools and things.

MR. MERCIER: I understand you're phasing the project. So when you're constructing each phase, you have your equipment out there, your post drivers and other -- pickup trucks and things, you're driving all over the place disturbing the soil. What type of material, if any, are you going to be applying to the soil while you're doing construction to reduce any erosive forces, or are you just going to rely on the temporary traps and the perimeter erosion controls to control any sediment flows from heavy

rains?

THE WITNESS (Andrews): So we've got a couple of different options. Obviously, there's going to be a fair amount of clearing proposed on the site, and the wood chips associated with brush clearing, et cetera, would be retained for that. Beyond that, and on a variety of projects that I've accomplished actually with Standard Solar, we've used tackifiers as well on as as-needed basis to stabilize the surface as well as we've also used straw, broadcasted straw as well, which would be applied on an as-needed basis based on the inspections that would be provided.

MR. MERCIER: Great. Thank you. I'm going to move down in that column there, in the red column. It says "Inspection and Maintenance" near the bottom. Now, the first note that's not numbered says towards the end that the fabric and stone, the bottom of the trench might have to be removed and the subsurface tilled. So I'm trying to figure out what type of machinery or equipment you're going to have to use to do that activity.

THE WITNESS (Andrews): We definitely discussed that. It's going to be difficult to get mechanized equipment in there, which is why the

emphasis on protection of the stabilization throughout construction is going to be so important. Obviously, we don't want to go in and have to handle that by hand. The anticipation is that the surface of those structures, the set trenches which are to be transitioned over to infiltration trenches, would actually be accomplished by hand. And we talked about that using low pressure equipment basically to cart the material out of the site. But the approach to that would be to minimize that, mitigate the impacts during construction, and to actually do the final cleaning by hand.

MR. MERCIER: What about post-construction once they're in there and over time? I know you have some kind of monitoring well system. But if it's indicating there's some kind of problem with that and you have to dig that up, I think that's what this note refers to, how would you do that?

THE WITNESS (Andrews): From both perspectives, that would have to be accomplished by hand. It's very limited. The access to those is very limited. As you know, it straddles some of the arrays, so we'd be very limited on the

equipment that we'd be able to get in there, and mechanized equipment would be utilized where appropriate and where we can in the roadway areas, and the rest of it would actually have to be accomplished by hand.

MR. MERCIER: Reading through the notes, I also saw that sand might be used as a base material instead of fabric and gravel. Now, is there any type of post-construction maintenance issue with the sand itself? Is it more advantageous to have that over the fabric and gravel?

THE WITNESS (Andrews): We typically will use sand interchangeably with fabric, and depending on the availability and the location of the particular project, we'll make that decision during construction. And if sand is readily available, we would typically prefer sand to the fabric itself. From a performance perspective, depending on the type of sand and the ability to actually meet the specification of the sand, I think the two perform very well parallel.

MR. MERCIER: On that same sheet I see the specification for the stilling basin, and I didn't see the depth indicated. Does anybody have

that information?

THE WITNESS (Andrews): 2 feet.

MR. MERCIER: Okay. So that's 2 feet below grade?

THE WITNESS (Andrews): Exactly, yeah.

MR. MERCIER: And that's proposed in a wetland area, correct?

THE WITNESS (Andrews): The infiltration trenches?

MR. MERCIER: No, this is the stilling basin.

THE WITNESS (Andrews): Oh, I'm sorry.

MR. MERCIER: Let's go back.

THE WITNESS (Andrews): That's the outlet for the pipe, yes. Yes, it is 2 feet.

MR. MERCIER: Okay. And that's going to be excavated within a wetland area?

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

MR. MERCIER: What's the bottom material of the basin, is it just gravel?

THE WITNESS (Andrews): Riprap, yes, stone.

MR. MERCIER: So if you're excavating into the wetland, do you have any issue with

groundwater percolating up into the basin?

THE WITNESS (Andrews): Nothing we're concerned with. We'll be able to set the stone product, and certainly it's going to sink to the base at that particular location.

MR. MERCIER: Is the purpose of the basin to store water?

THE WITNESS (Andrews): No. The actual purpose is to provide a deeper receiving area so that it reduces the velocity and mitigates erosion at the discharge of the pipe.

MR. MERCIER: So if it's in a wetland and the groundwater is high, it could hold water?

THE WITNESS (Andrews): It could become wet, yes, exactly.

MR. MERCIER: Moving on to number 129, there was a few projects listed that Chatfield Solar constructed, or Standard Solar, for that matter, that used a flush tree removal method, and one was in Stafford, Connecticut at the school property.

THE WITNESS (Andrews): Yes.

MR. MERCIER: Is anybody on the panel familiar with that site after it was constructed?

THE WITNESS (Colavito): Yes.

MR. MERCIER: When was the last time you visited that site?

THE WITNESS (Colavito): I personally have not visited the site, but my colleague, Chuck Geppi, has visited the site several times.

THE WITNESS (Geppi): It's been a few years.

MR. MERCIER: Okay. Are there any ongoing issues with vegetation establishment in the solar field at that site?

THE WITNESS (Geppi): I can't speak to that.

MR. LYNCH: Can you come to a microphone?

THE WITNESS (Colavito): We cannot speak to that. He hasn't been there recently enough. And we do have regular communications with the site host, and he has not mentioned any concerns or issue associated with that.

MR. MERCIER: Thank you. Here's a question pertaining to a previous submission. It was by DEEP on February 19th that was addressed to Chatfield. It had to do with the two plants and the whip-poor-will that could occur at the site. And the DEEP requested site surveys for those. I

just want to know what the status is. Is there an intent to do the surveys for the two plants and the bird?

THE WITNESS (Logan): George Logan, for the record, REMA Ecological Services. So our surveys were done and just outside of the migratory season for the whip-poor-will, and somewhat at the edge for the two plants. However, we did do a survey and we based it on recommendations based on habitat that was out there. So there was -- I think it's in the record -- a report that we put together, it was November 5th, that talked about that.

Subsequently, we've been in communication with Ms. Dawn McKay of DEEP. She has requested that we put together a site-specific habitat enhancement plan for the whip-poor-will and for one of the two plants, the orchid, as you might recall, and we're in the process of exactly doing that. We have revisited the site just this past week to hone into the specific habitat area so that we can put our plan together that's specific of each of these areas. And I think all of these areas are now shown on the revised plans that were submitted.

There's a table in the upper right-hand corner of sheet drawing 1A. It's very small for me to see it, but it says habitat enhancement areas. It starts with A and ends with M. So the report that we're in the process of preparing will give very specific habitat enhancement procedures, so not only in implementing the plan but also for long-term maintenance.

MR. MERCIER: Okay. Did she recommend an actual site survey in that letter?

THE WITNESS (Logan): A national site survey?

MR. MERCIER: A site survey, an actual site survey.

THE WITNESS (Logan): Yes, she did.

MR. MERCIER: So my question is, are you going to do the surveys in addition to the mitigation that you talked about?

THE WITNESS (Logan): The emails that we've had back and forth with Ms. McKay indicated that she was more interested in the habitat enhancement plan based on life requirements for the species rather than doing the survey. So as of now she has not requested that we do the survey but just produce the habitat enhancement plan.

MR. MERCIER: So since this letter came out on February 19th, you've had ongoing discussions, and now she's leaning towards the management plan which some elements are in these site plans here?

THE WITNESS (Logan): Correct.

MR. MERCIER: Thank you.

THE WITNESS (McManus): Jim McManus, JMM Wetland Consulting Services. She is actually asking us to put something together that says that assume a positive. So everything we're putting together assumes that that orchid is there and that the whip-poor-will is using the site, and forego of a specific site review or visit.

MR. MERCIER: Just out of curiosity, if the orchid is in the solar field area, is the method just to remove it manually, or how would you preserve that?

THE WITNESS (Logan): Ms. Sigrun Gadwa is here from my company. She's our botanist. So she might want to supplement some of this information.

In our understanding, if the orchid is out there, there's two ways it will be there. It's either physically there and we haven't seen

it, but it would be in areas of wetlands or adjacent to wetlands and moist areas, most of which we're leaving alone, or it is in the understory of barberry, so it's in the seed bank, if you will. And once the barberry is removed in some of these areas that we're proposing, such as habitat enhancement area A or B, if the orchid is there, obviously then it will be able to come up. So we don't think that the orchid would necessarily be found in the bulk of the areas that the arrays would be in because they're not the right kind of habitat.

MR. MERCIER: I believe you said either in wetlands or adjacent areas to the wetlands.

THE WITNESS (Logan): Right, it's more like a facultative species.

MR. MERCIER: So moist areas adjacent to the wetlands?

THE WITNESS (Logan): Correct.

MR. MERCIER: In line with that request from DEEP, there was also a statement in the original petition regarding vernal pools and a survey that will occur in the spring 2019.

THE WITNESS (Logan): That is correct.

MR. MERCIER: That was in the JMM

report. What's the status of that survey?

THE WITNESS (McManus): As to date, we have visited the site. We have found no breeding activity as of yet. However, we are going to continue into April and report back with our findings in the next two to three weeks.

MR. MERCIER: This has been a colder than normal March, right? So potentially, according to say the weather, would you agree this is a colder than normal March?

THE WITNESS (McManus): It depends. I'm doing some work in Greenwich, and their pools are teaming. We're a little bit behind them. But, yeah, it's been an odd spring, for sure, or odd winter/spring. But yes, we will certainly know by the end of April if this place is being used for breeding habitat for sure. I'm very confident in that.

THE WITNESS (Logan): One preliminary --

MR. MERCIER: Just for a second.

THE WITNESS (Logan): Yes.

MR. MERCIER: So you'll know by the end of April, but you're going to wrap up your study in two, three weeks?

THE WITNESS (McManus): Well, again, if Mother Nature doesn't want to cooperate, we will continue our site visits until we have a definitive answer. And I'm very confident by the end of April if they're using the pools we'll know.

MR. MERCIER: Okay. Thank you.

THE WITNESS (Logan): Also, this past Sunday, just to give you a preliminary, we visited the three areas, including the offsite one to the south of the property boundary. There was no activity as far as obligate vernal pool species. However, in the farm pond, which by the way is about a little over 4 feet deep in the middle, we did find a plethora of red-spotted newts which are aquatic species that like these kinds of habitats, so permanent, more permanent water bodies. But also the issue is that red-spotted newts are predatory of larvae of obligate vernal pool species. So that gives us even maybe another indication that the potential for the farm pond of being a viable vernal pool has not been lowered yet more, but of course we will continue our studies.

MR. MERCIER: Thank you. Related to

the vernal pools is interrogatory response number 115, which I have a couple of questions on. In that response there's a chart at the bottom and two columns labeled "disturbance area." Are the disturbance area values in the chart, there's one for 100 foot buffer and one for 750 buffer, those pertain to the development of the solar field itself. Correct?

THE WITNESS (Andrews): Could you repeat your question, please? I'm sorry, I don't believe I heard it completely.

MR. MERCIER: For instance, looking at the 750 foot buffer value, we'll just say PVP 2, the first one, it lists 12.56 acres. Now, are you starting from zero, and the development of a solar project will now disturb 12.56 acres of the 750 foot buffer?

THE WITNESS (Andrews): So the percentage disturbed at that particular location is 27.54, but you're including the roads in there. That includes existing disturbance as well.

Does that answer your question?

MR. MERCIER: Okay. Let's look at the value for PVP 1A, and that also lists about 12.45 acres, about 27 percent. So if you use that other

diagram I was talking about in number 120 and scale that out, your 750 foot buffer, if you look at the buffer, it appears that a quarter of the area is already disturbed. So that's in line with the -- so it's about 25 percent already disturbed, but if you're adding solar panels and clearing the fields right adjacent to the east side of the buffer and the south side, wouldn't the percentage go up?

(Pause.)

MR. MERCIER: I guess another way to look at it is, look at PVP 2, the value, it says 27 percent, and if you look at the site plan, that PVP 2 is right in the center of the parcel which is, if you measure out 750 feet, it's pretty much all wooded. Now, if the go to PVP 1A, which is also listed about 27 percent, but that buffer area includes a heavily developed area to the northwest. All right. So basically what you're saying is these percentages include existing development and proposed development?

THE WITNESS (Morrison): Yes.

MR. MERCIER: Okay. Do you have any values for the existing development in each of these zones?

THE WITNESS (Morrison): No.
MR. McDERMOTT: Just to be clear, Mr. Mercier, I think the answer to your last question was yes. I don't know if you heard that.
MR. MERCIER: I did hear that.
MR. McDERMOTT: Okay.
MR. MERCIER: I just want to know if you have the values. You don't have those?
THE WITNESS (Morrison): No.
MR. MERCIER: Thank you. Also included within 115 is the directional corridor document from the Army Corps. In looking at the guidance document provided, it shows the vernal pool, and Figures 3b and 3c are probably what the Army Corps is referring to as the directional dispersion for potential species, and it's kind of a directional cone going outward. Looking at the Figures 3b and 3c, I believe they start off with 100 foot buffer in their example. Is that correct?
THE WITNESS (Andrews): Yes.
MR. MERCIER: And then it's a directional cone that spreads outward; is that correct?
THE WITNESS (Andrews): Yes.
MR. MERCIER: So in the case of we'll

just say vernal pool 2, which is an ongoing study right now, does the directional guidance model really apply to vernal pool 2?

THE WITNESS (Andrews): I'm sorry?

MR. MERCIER: Is there 100 foot buffer around vernal pool 2?

THE WITNESS (Andrews): We provided a 50 foot buffer.

MR. MERCIER: Is there actually any associated undisturbed forested habitat around that 50 foot buffer, upland habitat such as the guidance document shows, or is that essentially surrounded by solar panels and a stream?

THE WITNESS (McManus): There is a corridor that goes to the wetland from the northwest that comes through potential vernal pool number 2, and then it continues in an easterly direction. However, we also are proposing a shrub-scrub enhancement area just to the north.

MR. MERCIER: I understood that. I just wanted to know if there was a forested upland, undisturbed forested upland adjacent to that vernal pool beyond the buffer.

THE WITNESS (McManus): A small area. There would be a small area.

MR. MERCIER: Very small.

THE WITNESS (Logan): So if I may, let's make the assumption that VP 2 ends up being a viable say tier 1 vernal pool. There is obviously a lot of forest that's nearby but not immediately adjacent to it that's been left undisturbed. Species that would use -- obligate vernal pool species that would use said VP 2 would have no issue crossing through the array to migrate from areas that are offsite that are currently forested and potentially are prime habitat for terrestrial life cycle.

MR. MERCIER: Would they prefer to migrate through a meadow or a wooded area?

THE WITNESS (Logan): Honestly, this is such a short area that during migration it wouldn't make any difference. The only criteria that they would need is to stay hydrated. So if the vegetation that's there, which will be mostly herbaceous, obviously, during a rainstorm which is the time during which they migrate, this would not be an impediment whatsoever, they would cross there. The impediment would be if we had a major roadway there, so you obviously don't have that.

MR. MERCIER: Speaking of the roadway,

so the stilling basin, could that act as a -- since it's going to be in the wetland area, that could act as a decoy pool for some of these species, and if they do successfully lay eggs in there they could get get washed out during heavy rain. Would that be possible?

THE WITNESS (Logan): That is possible, indeed, and so that's something that we would have to check out in the field to make sure that that doesn't become the case. Obviously, it's a small, rather small area. It would only retain a little bit of water. Typically if you have vernal pool species, they don't go to areas that are marginal or suboptimal. They will go to the areas that are optimal. And the optimal area, if indeed that's the case, would be seasonally flooded areas that have quiet water, not running water.

MR. MERCIER: Just back to the Army Corps concept that's in here, I believe it basically says there should be some type of assessment done if you're going to use that concept of habitat suitability around the pool. Was that type of assessment done for this project?

THE WITNESS (Logan): To be honest with you, I was not involved in that part. I came in a

little later when the listed species were, so our company was mostly gravitated in the listed species. Obviously, I'm a professional wetland scientist, so my colleague, Jim McManus, and I have collaborated. So I was not involved in making that assessment, but I'd be more than happy to look at it and comment.

MR. MERCIER: Just going back quickly to the critical terrestrial habitat values, do you have any other documentation here that shows any type of mapping you performed to determine the percentages that were submitted in that interrogatory response?

THE WITNESS (Morrison): Not that was printed out, no. I can submit that.

MR. MERCIER: I have no other questions. Thank you.

THE VICE CHAIRMAN: Thank you, Mr. Mercier. I'm now going to turn to the Council members for cross-examination who were not afforded the opportunity at the last hearing. And I will indicate that Dr. Klemens who was here last time cannot make it today because he had surgery and has provided some questions which Mr. Hannon will handle in addition to asking his own

questions of the applicant.

Mr. Hannon.

MR. HANNON: Thank you, Mr. Chairman.

I tried to get this in somewhat of an order, so hopefully it's easier to follow. My starting comments are from the original petition, so I've got some page numbers that I can try and associate to make it easier for everybody to follow. On page 9, originally there was an area identified to access the southern upland portions of the land, a small wetlands crossing with a 28 foot long, 12 inch HDPE pipe at 11.4 slope. That has been eliminated from the plans, and there's a new proposal that is going in the southern portion of the property which now talks about a 12 foot wide crossing 25 feet, 15 inch HDPE pipe, 4 percent slope.

One of the questions I have about that is there's a comment made on page 10 that no construction will occur within 100 foot buffer of the vernal pools. Is that still an accurate statement based on the change of the plans for that wetlands crossing?

THE WITNESS (Andrews): That distance scaling on the drawing is about 80 feet.

MR. HANNON: That's consistent with what I found, so I just wanted to verify that for the record. So then in that respect then there is some construction that is taking place within 100 feet of the vernal pools?

THE WITNESS (Andrews): If that particular area is documented as being an active vernal pool, then that would be the case.

MR. HANNON: Yes, the vernal pool number 2. Okay.

In the upland review local regulations it talks about the upland review area being within 500 feet of the boundary of any vernal pool and within 100 feet of the boundary of any wetlands or watercourse. I believe you're going in and proposing to cut within 50 feet of vernal pools, and in many areas cutting within 10 feet of the wetlands but in some areas actually going in and removing trees in the wetlands, granted not grubbing, but flush cutting. Is that correct?

THE WITNESS (Andrews): Yes.

MR. HANNON: With what you're proposing to do.

THE WITNESS (Partyka): No cutting in the wetlands.

MR. HANNON: I believe that there are some trees that are supposed to be flush cut in the wetlands, but they're not being grubbed. I think it's on that southern small wetland area.

THE WITNESS (Andrews): So there are four actual locations where we are proposing clearing within the wetlands. Those are identified in Figure 3 of the environmental assessment. And one of those particular areas is where the culvert is located, so there would be actually more than just clearing in that particular area. There would be construction as well. But those limited areas we are indeed proposing clearing and basically leaving the stumps in place with the exception of the construction area.

MR. HANNON: And part of the reason why I'm raising it is because the Siting Council overrides local jurisdiction. So with the town's concerns about how close people do work towards a wetland area or a vernal pool and how close you are, I think it's roughly about 5 percent of what the town typically looks for. Should we be taking that into consideration sort of the town's requirements on this?

THE WITNESS (Andrews): I can't answer that question.

MR. HANNON: Okay. On page 16 it identifies wetland A is associated with a semi-perennial to perennial watercourse which is gently meandering through a nearly level forested swamp. The swamp area, which has also delineated a number of pictures that were provided, I think that's more in the northern portion, but that area does not really dry up, does it?

THE WITNESS (McManus): It won't have standing water on the surface, but I would expect that it would be saturated for almost the entire year.

MR. HANNON: Okay. The reason I'm asking is because the state definition of a watercourse includes swamps. So if it is a swamp that's there, I'm just kind of curious as to why we keep talking about semi-perennial watercourses out there.

THE WITNESS (McManus): Because though it is a swamp, it does have a semi to perennial watercourse that meanders through the organic swamp, so there's actually two things.

MR. HANNON: But if by definition a

swamp is part of a watercourse, that's kind of where I'm going with that. So it just seems it might be a little inconsistent, but I understand what you're saying.

On page 15 it's the map. It shows tree clearing along virtually the entire boundary of wetlands A. So what impact might this have, the tree clearing, on the swamp area? I'm looking more from a thermal perspective because I believe that in the documents there's language that ties the thermal pollution into tree clearing, not so much surface water. So by going in and clearing the trees pretty much up to maybe 10 feet around the wetlands, what impact might that have on that standing water that could be found there?

THE WITNESS (McManus): It's a good question. On our side, the wetlands side, we do have a proposed habitat and planting area called out on your sheets as "I." And in conjunction with the trenches, and I'll let the engineers deal with that, but the theory is once the water gets off of the panels, hits the ground, goes through the trenches, goes through our planted small buffer and into the wetland, the thermal impact should be diminished.

MR. HANNON: I'm not disputing that as it relates to surface water. I'm talking about standing water that at one point in time was shaded by the trees that are on the site versus if you clear those trees what's going to happen to that standing water?

THE WITNESS (Logan): So -- and I think this is something that was in one of the responses to one of the interrogatories. So from the standing water, for the most part, this swamp might have some small seasonally flooded areas, but it's an organic swamp, which means it's mostly, its ecologic regime is saturated, which means saturated at the surface, it does not have a lot of standing water. The standing water is going to be mostly associated with the brook.

Now, in the northern portion of the site indeed the brook comes close to the delineated wetland boundary. In some places it might be 10 feet, in some places a little further. That goes on for about 330 feet, and then the brook takes a sharp easterly turn and goes to the other side of the swamp. So really the only place that we're concerned for potential thermal impacts not based on what's happening in the array at the

solar field but what's happening proximal to that is that small little section that Jim was just talking about where there's still going to be several, if you will, we're going to be several trees in before we get to that standing water that it provides shading. And then we have the habitat enhancement area that we're talking about. So being the fact that this is a relatively small area that we're talking about in looking at the entire site, potential impacts of these flooded areas, particularly of the brook from thermal impacts, is in our minds minimal.

MR. HANNON: On page 20 there's a reference made to surface water bodies. And I had asked this the last time, but I would like to get a clarification from you as to a definition of surface water body and surface waters. I'd like to know what you consider to be the difference between the two there.

THE WITNESS (Colavito): There's already an answer to that in one of the interrogatories. I need to look at which number.

MR. HANNON: Okay. I didn't see it, so if it's one of the most recent ones --

THE WITNESS (Colavito): It is one of

the most recent ones.

MR. McDERMOTT: Mr. Hannon, if you want to follow along, I believe the reference is Siting Council Question 119.

THE WITNESS (Colavito): It says, "Referring to the Petition on Environmental Assessment, provide the following: What is the effective date of the referenced FEMA map?"

Under, it says, Section 2.7.1 of part B of question 119 is, "Under State of Connecticut definition, are there surface waters on the proposed site? If so, provide their location."

And then we answered in part B to CSC-119. There's a long answer explaining that.

MR. HANNON: Okay. But I guess where my question comes in is because there's a statement that says there are no surface water bodies on this site. So this is where I'm a little confused because things like ponds, aren't they typically considered a surface water body?

THE WITNESS (Morrison): When we wrote this originally and we amended it in the later set of interrogatories, we were looking at classified surface water bodies and groundwater bodies on the Connecticut DEEP statutes, and we submitted in the

third set a map that they submit, whether it's classified A for recreation, for fishing, drinking, that sort of thing. And that's what I meant when I said there was no classified surface water bodies on the site.

So I amended that in our recent set of interrogatories, but yes, there's the vernal pools, the ponds, the actual definition from the state of what would they consider a water body.

MR. HANNON: Okay. Thank you. The next document is the environmental assessment that was done by Loureiro. I've just got some questions there on page 2-5. There's a comment, potential vernal pool number 1 floods with up to 10 inches of water during the breeding season. Potential vernal pools 2 and 3, depths likely greater than one foot.

So, if people weren't out there to actually assess it during the season, where did those numbers come from?

THE WITNESS (McManus): Those numbers came from when we were on the field during the off season, and that's what we found during the off season. Now, last year was a very unusual year. We seemed to have spring-like conditions

throughout the entire year. However, in our recent visits we indicate that the farm pond is much deeper than a foot. It's up to probably 4 feet, right?

THE WITNESS (Logan): 4 plus.

THE WITNESS (McManus): 4 plus in the center. And the other two were under assessment today, but at that time during our assessment that's what we determined in those three areas, the two onsite and the one just offsite.

MR. HANNON: So those elevations are based on what you actually saw when you were out there in the fall?

THE WITNESS (McManus): Yes.

MR. HANNON: Okay. I wasn't sure. I wasn't sure if that's what was actually there, or you were extrapolating saying I think in the spring it's this.

THE WITNESS (McManus): No, that is what we indicated.

MR. HANNON: On page 2-6 there's a statement, "State agencies are required to ensure that any activity authorized, funded or performed by a state agency does not threaten the continued existence of endangered or threatened species."

I guess my question is, what does that have to do with this project because as far as I know there's nothing about the state involved with this, or are you saying that because of it being a ZREC/LREC program the state is involved? I think it's 2.5, the bullet number.

THE WITNESS (Andrews): Mr. Hannon, that refers back to our requirement for participation with the NDDB program associated with the general permit for the DEEP for stormwater management during construction activities.

MR. HANNON: Okay. Thank you.

Okay, we answered that one.

Page 3-1. I just want to make sure the only grubbing that is expected to take place on the site is when stump locations may interfere with the mounting posts for the solar panels?

THE WITNESS (Colavito): That's correct.

THE WITNESS (Morrison): And at the driveway.

THE WITNESS (Colavito): And where the driveway is, the construction entrance.

MR. HANNON: Understood. On page 3-2,

"Based on these calculations, a 12 inch HDPE pipe will be sufficient to carry the storm flow," but there was a lot of information there, but I don't remember seeing any information, or in at least as much detail as the revised location, with the 15 inch pipe that's going in more in that southerly location. So I'm just not sure how much more complicated say the second site might be compared with the first one. Is there a lot more fill going into the stream in that area?

THE WITNESS (Morrison): No.

MR. HANNON: Or are they about the same?

THE WITNESS (Morrison): They're about the same. It was just a movement of the site for the anticipated phasing and a relay out of the arrays. We just shifted the crossing down to the southern end, and the calculations are almost exactly the same.

MR. HANNON: Okay. Thank you. Page 3-3, "Smaller, less mobile wildlife species could experience direct mortality during clearing, grading and construction activities."

I guess what kind of caught my attention there, one is I didn't think there was

any grading that was being proposed.

THE WITNESS (Morrison): There's no grading.

MR. HANNON: So that's just sort of a general move it from here to here statement?

THE WITNESS (Morrison): Yeah.

MR. HANNON: Okay.

MR. McDERMOTT: Can I just make sure the record is clear on what the answer was.

THE WITNESS (Morrison): There's no grading. There's minimal grading proposed on the site except in areas of the trenches.

MR. HANNON: On page 3-5, "Silt fences or hay bales will be installed downstream."

Either one of those by themselves don't really do much in the way of controlling erosion. When they're combined it's better, but one of the things you may want to consider is something along the lines of silt socks, especially with all the activity that you have draining down towards the wetland area.

THE WITNESS (Morrison): We had talked about beefing that up a little bit.

MR. HANNON: And part of the reason I say that is because in the erosion sedimentation

control plan narrative it identifies upland soils at the site consist of moderately well drained Woodbridge, extremely stony, fine sandy loam. Given the relatively steep slopes in the area of construction, these soils are susceptible to erosion during rainfall events. So if you've got soils that are some somewhat erodible on the site, you may just want to go that extra step to make sure that you're in good shape.

THE WITNESS (Colavito): That's acceptable to us. We'll work closely with our civil engineers to identify the proper use of them.

MR. HANNON: One of the things that I was looking at -- and I'm going to need help with you explaining this to me -- I was looking at the swales that you are putting in, or I guess you can call them infiltration basins. And the reason I'm having a bit of an issue is, for example, the unit that's furthest east it talks about the bottom elevation at 263, the weir crest is at 265. However, I think if the southern and northern end of that basin the elevation is 264, so if the elevation there is at 264, at what point in time are you even going to get up to the 265 so the

water starts going over the weir?

And it's similar for the other three structures also where it appears as though the northern and southern elevations are lower, whether it be 1 feet or 2 feet, lower than the weir. So I'm not sure how the weir is going to work and how much water is going to be maintained in those basins.

THE WITNESS (Andrews): I think the best way to explain that is the intent of the infiltration structures is actually to intercept over land flow and enhance infiltration and then redistribute that flow as a sheet flow. As they are constructed in the field, they're actually going to have to be laid out in the field. The topography that we're using here could be plus or minus one foot as a function of the accuracy of the survey itself, and the layout will be actually adjusted in the field to accommodate the 2 foot depth that's included in the detail. So I think some of the elevations that we've defined in here will definitely be field adjusted and/or the location of that trench would be adjusted in the field to actually accommodate the dimensions and the function that were included in the design.

MR. HANNON: Okay. Because again, in looking at the numbers, if you've got a low spot, that's where the water is going first. And if there's a 1 foot or 2 foot lower elevation than the top of the weir, the water is not going towards the weir.

THE WITNESS (Andrews): Our intent is basically to have that evenly distributed along the actual contour and follow the contour.

MR. HANNON: I guess one of the other questions I have is because of what was identified for like treatment area and some of the other land cover that's being proposed for the site, some of the enhancement areas it's talking about cutting maybe, what, once every couple of years? My question is if those areas are located outside of the fence area, how do you access them, and then with the area that's being planted under the panels that's proposed, how do you propose to get to that center portion when you have two of these drainage swales sort of preventing you from getting access? If you're talking about a couple of foot high crushed stone weir, how do you propose to do all the cutting in that area because that's supposed to be cut, I guess, four to six

times a year?

THE WITNESS (Colavito): After construction the weirs are smoothed out to promote -- I can't explain as good as Alisa. Could you explain that?

THE WITNESS (Andrews): Yeah. Actually, we transitioned from the temporary sed trap which has a fairly large berm on the downstream side to a much lesser berm, if you will. It's called an overflow berm. And essentially we use that to redistribute. And the equipment that we've actually used and actually working with Standard Solar on another couple of sites in Connecticut, there's a vendor that actually accommodates solar facilities, and he's actually performing maintenance on these all over Connecticut and Massachusetts. And he has specialized equipment that's actually designed to get into some of these nook and cranny areas. He also has a team of quite a few individuals with backtrack string trimmers and such.

So from a maintenance perspective, there are vendors out there that actually provide teams with the equipment, specialized equipment and such, to be able to accommodate situations

like this. And we have familiarity and have used one of those vendors in state.

MR. HANNON: So I just want to make sure. What you're saying is, assume this goes forward, the plans get built by design, the goal is to remove those stone weirs from those infiltration units?

THE WITNESS (Andrews): That's correct, yes.

MR. HANNON: Okay. I had some questions. This goes back to Siting Council Question 1-63A. In looking at the perimeter of the property, there's a fence that's being proposed around the entire perimeter. I guess can you provide some details as to how you're proposing to install the fence in the wetland areas that it crosses, and can that create some type of a problem? So, for example, branches fall off trees, it floats downstream, you start collecting leaves and other debris. Do you start causing some potential flooding issues that previously did not exist?

THE WITNESS (Andrews): The areas where we are identifying a fence line within the wetlands themselves, we have evaluated that and

actually plan to span those areas with the fence, and those would be designed by a structural engineer. So we would actually have a post on both sides, and we would either use a rigid top rail or a cable to actually cross that, and that would be woven into the fabric of the fence, and the fence would essentially sit there. So we weren't proposing to actually enter the wetlands to drive the piles and such, and the lower portion of that fence would be somewhat flexible. We would not be proposing a bottom rail or bottom suspension on that.

MR. HANNON: Is this something that might require some periodic maintenance just to make sure that you don't have debris that catches on the fence and ends up, like I said, potentially ponding water behind it creating some flood problems elsewhere?

THE WITNESS (Andrews): Absolutely. There may be certain areas. I'd have to take a look specifically. But any areas where we do get accumulation during the regular inspections, that would be so noted and addressed.

MR. HANNON: Is there a reason why the 24 inch metal discharge pipe that crosses under 80

isn't shown on the plans?

THE WITNESS (Andrews): We just didn't pick that up in our survey, but it does convey water underneath certainly.

MR. HANNON: Right. And I went down and found it, and it's sticking out there, and it's kind of hard to miss. Plus, there's a plenty good channel coming out of the downstream side.

I do have some questions about sort of water quality in general, and this goes back to the first couple documents. I guess I'm still having some issues in dealing with potential thermal impacts which are in the report that says it can happen, but it's because of the tree cutting. So I'm still not convinced that there's not going to be a potential problem with the tree cutting, especially along those wetland areas. I understand as far as the water coming off the panels going across the surface. I don't see that as nearly the issue I do as with the trees being cut and the potential adverse impacts to water quality by thermal impact. So, I mean, I don't know if that really deserves a response, but again, that's one of my primary concerns with water quality on the site.

And I guess in tying in with water quality, I need an explanation as to -- there's a statement made several times, The project will not have any negative impact on the surface waters located on adjoining properties, but you don't say anything about the water quality on this property.

THE WITNESS (Morrison): Well, again, that goes back to our original statement about that there was no surface water bodies on the site when we're saying it's not going to affect the water quality classifications of Lake Hammonasset or the ones that are mapped by the DEEP is what that statement is referring to.

MR. HANNON: Okay. So you're looking at it a little differently than I would look at it.

THE WITNESS (Morrison): In a broader sense.

MR. HANNON: Okay.

MR. McDERMOTT: Mr. Hannon, can I have just a second to follow up with the panel about your question about the thermal impacts as a result of the tree cutting?

MR. HANNON: Absolutely.

(Off the record discussion.)

MR. McDERMOTT: Thank you, Mr. Hannon. I did not take your question as a rhetorical one. So we do have witnesses that will respond to the question of whether the tree cutting will create a thermal impact issue. Thank you.

THE WITNESS (McManus): Yes. As I mentioned before, we don't anticipate the impacts to the large swamp to the east, and any wetlands that are onsite within the arrays would be a very localized impact, and it wouldn't impact the overall system itself. A lot of the wetlands are still going to be shaded to some degree, or they're going to have enhancement plantings established on their borders.

MR. HANNON: Thank you. I'm getting close. Going back to a question that was asked earlier about the new proposed 20 foot wide fire access road, I just want to make sure that I understood the answer, and that is that there is no proposed grading or leveling or anything other than clearing a 20 foot wide area for fire apparatus?

THE WITNESS (Colavito): In our discussions with the fire marshal, what he asked for was a pathway. He didn't ask for a road.

When we had direct discussions, he did not ask for a gravel road or any prepared surface. He simply asked for access around the entire perimeter of the array, which is what we provided and what we planned for. So we did not anticipate doing any grading because we saw that as something that we were encouraged not to do, and so we avoided that to the extent possible.

MR. HANNON: I'm just trying to make sure that I understood what the response was earlier. On Siting Council 3-113 I just need a clarification on the response. You say no grubbing will be required for the solar field perimeter access path. Okay, fine. But instead, the existing trees will be flush cut to grade and then removed in stages. Is it the trees that were felled that would be removed in stages, or like the stumps that would be removed in stages? I'm trying to make sure that I'm clear on what you're proposing.

THE WITNESS (Andrews): It's the stumps, the grubbing on an as-needed basis.

MR. HANNON: Okay. So then there may be some work that's done in that 25 foot fire pathway?

THE WITNESS (Colavito): No. The intent is that we flush cut trees in the 20 foot access path around the perimeter of the array, not that we grub them. Our intent is not to remove stumps; it is to flush cut.

MR. HANNON: Okay. I was just trying to get a clarification of the answer that was there.

Again, it goes back to Siting Council Question 3-115. I got lost in the conversation. Sorry about that. But on the table that's there, the 750 foot buffer and the 100 foot buffer, in the 750 foot buffer you identified buffer area. What is that number associated with? Because I think it was mentioned earlier about acres, but if it's only a 25 acre site, I don't think that can be acres. So I'm just trying to figure out exactly what that is.

THE WITNESS (Morrison): The 750 foot buffer, that's a big area, 750 feet around the vernal pool, so that is acres.

MR. McDERMOTT: The question was is the buffer area --

THE WITNESS (Morrison): In acres.

MR. HANNON: Okay. The reason I was

asking is because the site is only 25 acres so --

THE WITNESS (Morrison): It goes off site.

MR. HANNON: Okay. Thank you.

I had some questions that I was going to ask about the fire access road, but we've talked about some of those. I just want to identify sort of the things that I'm concerned about are the slopes, turning radius, there's a couple of wetland crossings. We've got -- I think there's an area where you're building that new sort of 12 foot wide roadway. I'm not sure that that has a design in case they need to bring fire equipment across there. I mean, I'm not asking for any answers. I'm just saying these are some of my concerns on it.

But as Acting Chairman Murphy mentioned earlier, I do have a couple of questions that I was asked to get on the record. Can you please explain the nexus of vernal pools and wood frogs to the overall health of wetlands?

THE WITNESS (Logan): George Logan. I think this goes back to some historical stuff that has happened in our state regarding wood frogs, and that is that if you have a thriving wood frog

population in a particular vernal pool, that is part of, should we say, the chemical physical composition of said vernal pool. So the removal of the wood frogs from a vernal pool can have a physical cascade impact on said vernal pool changes chemistry.

So I guess we're going to have to wait and see how these vernal pools are going to stack out if they're truly vernal pools. We're not sure at this point. We need to do the study, finish up, figure out how productive they might be or not, and maybe be able to be a little more definitive and answer that question.

MR. HANNON: Okay. Would you consider the loss or diminishment of wood frog populations as a potential impact to the water quality and/or chemistry of the wetland?

THE WITNESS (Logan): Yes. And that's interconnected. So in a decision that was done for a famous site, the courts basically said that if you have elimination of a wood frog population, you know, within a vernal pool, or a significant one, that it will change the chemistry of said vernal pool. Therefore, again, that's an impact. It will change the dynamics, it changes the

chemistry, it changes the physical characteristics of the pool because the wood frogs and ecology that they bring, the biomass that they bring within the vernal pool, is significant enough so that it has effects on the health of a particular vernal pool. I think that's where that question might be going to.

MR. HANNON: Does the current plan conserve sufficient critical upland habitat to sustain wood frogs in compliance with Calhoun and Klemens 2002, thereby sustaining wood frogs function in nutrient cycling and chemistry of the receiving waters at the site?

THE WITNESS (Logan): Again, that's a question that we would have to ask once we figure out exactly what is going on out there.

MR. HANNON: Does the current plan conserve sufficient vernal pool habitat or envelop habitat to sustain wood frogs in compliance with Calhoun and Klemens 2002, thereby sustaining the wood frogs function in nutrient cycling and chemistry of receiving waters at the site?

THE WITNESS (Logan): Again, the answer would have to wait on that. We're very, very familiar with the Calhoun Klemens methodology, so

we would have to answer that once we figure where these particular vernal pools stack up, whether it's a tier 1, tier 2, et cetera.

MR. HANNON: And then I believe this was discussed earlier, but I just want to make sure. Assuming for the sake of argument everything closes today. The assessment that you're doing would not be done today, but it's something that you're continuing to work on, and once it's completed, I'm assuming, that's going to be made available to people?

THE WITNESS (Logan): Yes, absolutely.

THE WITNESS (McManus): We'll write a report outlining our conclusions.

MR. HANNON: Okay. And I think you were saying that the assessment should be done probably by sometime in April, it may take a little bit longer to do the documents?

THE WITNESS (McManus): Depending on the weather. Hopefully our surveys will be done by mid April and the report done by the end.

MR. HANNON: Okay. I'm done.

THE VICE CHAIRMAN: Thank you, Mr. Hannon.

Mr. Lynch.

MR. LYNCH: Thank you, Mr. Chairman.

My first question is more of an inquiry than a question. And seeing that we have a professional panel, and I spoke to Attorney McDermott earlier, that I would just like to get your comments and opinion on what our friend from Queens, AOC, is calling the "New Green Deal" as far as it applies to, you know, the environment, energy, financial. Again, it's an off-topic inquiry before I get into this actual topic.

And then there was also an editorial in the Hartford Courant a week or so ago addressing the same question. I would just like to get your professional opinion and ideas on the New Green Deal of AOC, which is being voted on this afternoon.

THE WITNESS (Colavito): That's my area of expertise. If you haven't noticed, I've dedicated my entire career and my entire life to the development of renewable energy and to ending our addiction with fossil fuels in this country. I believe with my whole heart that climate change is real based on the data and based on what we've observed, and it is an urgent dire issue that needs the full attention of our country and all of

our resources to resolve, not just in the United States but across the entire world. And the United States is not taking a leadership position.

And this may not be the idea proposal, but it is the best proposal that has been prompted by any legislator at the federal level to attack this problem and take it seriously within the near term. And if it's not done in the near term, it will be too late. And things that we're worried about such as wood frogs and the whip-poor-will will be completely irrelevant compared to the destruction and issues that we suffer as a result of climate change in the long term. So I think that this project, among others, are essential in achieving that goal.

MR. LYNCH: Do you think it's a feasible goal to set 2030 for 100 percent renewables?

THE WITNESS (Colavito): Absolutely. I've done it myself on my own property with my own home. I drive zero gas-fired vehicles, I have no fossil-fueled appliances, and I run a family of five in my home with a modest size PV array. And others could do it too if they put effort forth. You have to change some of your life-style

choices, and you have to change the way you use resources and do things, but it absolutely can be done. The technology is here today, it is affordable, and it can be developed, but we need the support of policy makers and regulatory authorities to allow us to move forward and do what needs to be done to be successful.

MR. LYNCH: Thank you. Appreciate it.

Now back on topic. I just want to get a couple of clarifications from the last meeting and some of the questions here. As far as the stone walls are concerned, you're removing a great deal of them. Is there any way you can incorporate or restore them into the project in any way?

THE WITNESS (Colavito): We had a discussion about that earlier today, and our intent would be to move the rocks from the rock walls to elsewhere within the site and pile them up in ways that could be useful for site screening or other features within the site and probably provide a similar benefit to the site as they are currently. The intent was not to ship them off site or to completely demolish and remove all evidence of the rock walls. It's just that they

cannot be coincident with the PV arrays for site maintenance and construction, and in the long term we wouldn't be able to maintain if there were rocks walls across there, of course.

MR. LYNCH: Thank you. In the FAA letter there was no mention of -- we've heard this in other petitions for solar -- of reflection coming off the panels for pilots. Is that any concern of yours, or why didn't the FAA mention them?

THE WITNESS (Colavito): Because it's not a concern. It is not near within close proximity. If you read the entire FAA report on guidance for siting PV arrays near airports, they're mostly concerned with PV arrays that are less than 2 miles from an airport, and they're mostly concerned with PV arrays glint and glare issues associated with being between the air traffic controller and areas that they're trying to monitor with flight paths, not as much directly with pilots, and the report is publicly available for review. We didn't submit it as evidence. They also go on to say that glint and glare off of natural bodies of water and buildings is more significant than off of PV arrays typically anyway

MR. LYNCH: Glint and glare is really what I was talking about. I couldn't get the right word, so I used reflection. So thank you.

THE WITNESS (Colavito): Yes.

MR. LYNCH: Now I want to go back to something that came up in the last hearing, and that was I think you said that you would not incorporate in the future storage batteries. And my question is, you know, in such an important thing as far as green energy and being able to run 24 hours, and giving a little prompt to my hometown in East Hartford, Pratt & Whitney is working on storage batteries along with the Connecticut Center for Advanced Technology. Why wouldn't you incorporate this into your plans in the future so you can produce 24-hour power?

THE WITNESS (Colavito): It would be easy to retrofit after the fact. At this moment in time it's not part of our project proforma. The current incentives and market transactions on New England ISO don't support the use of energy storage for this specific site at this time, but nothing prevents us or precludes us from typically being capable of incorporating storage in the future.

MR. LYNCH: Well, that's different than the answer you gave back down in Killingworth. You said you would not incorporate it but --

THE WITNESS (Colavito): We're not intending to at this time. It's not in our plan.

MR. LYNCH: I understand. I'm talking about maybe five or ten years from now when it becomes feasible.

THE WITNESS (Colavito): Sure.

MR. LYNCH: And it would be able to produce 24-hour power to the ISO and you can get dispatched more often.

THE WITNESS (Colavito): It is feasible today, just not with the current New England ISO compensation structures for that type of market activity. We are doing it in other states, and are in the process of building a solar plus storage project in other locals that have incentives or proper market compensation mechanisms already set up for solar plus storage.

MR. LYNCH: Okay. In Siting Council interrogatories, set 3, Question 127 talks about arc flashing. Now, I have a pretty good idea what arc flashing is, but I just want to get that into the record if you could explain that?

THE WITNESS (Colavito): Yes. So arc flash is when there is a sudden large quantity of energy coming out of an electrical device, usually in the form of a short or some other mechanical or electrical failure from an electrical device, and usually high amounts of current and energy are discharged all at once causing a flash like a miniature lightning bolt right in front of wherever that device is potentially affecting the operator if they're operating it at that time.

MR. LYNCH: I know arc flash tends to cause fires. Is that something you'd be concerned with?

THE WITNESS (Colavito): Yes. Which question were you specifically referring to? Because there's a difference between arc fault and arc flash.

MR. LYNCH: Arc flash. It's interrogatory, set 3, 127.

THE WITNESS (Colavito): So this should say arc fault not arc flash.

MR. LYNCH: Pardon?

THE WITNESS (Colavito): There's a correction to that. It should say arc fault not arc flash.

MR. LYNCH: Okay.

THE WITNESS (Colavito): And arc fault is different than arc flash. Arc fault, particularly like a series arc fault, is when you have two connections that are close to one another but not properly terminated, and there's a high resistance or a gap, and then you actually see a small arc between them like a miniature lighting bolt. That heats up and can cause fires. The inverters themselves have built-in technology to sense arc faults by evaluating, I think, the frequency within that and disturbances in that frequency, and we get real-time alerts of arc faults from each of the inverters distributed throughout the array. So we would know when that is occurring. It would shut down the inverter instantly, and then we could respond to that.

MR. LYNCH: You say that you know. Is there some type of signal that's sent to a central location?

THE WITNESS (Colavito): Yes. We have a 24-hour monitoring system, a data acquisition system, with a cellular modem that we intend to deploy at the site that would give us real-time monitoring and alerts at the inverter level

throughout the entire array.

MR. LYNCH: Now my next question has to do with storms and disasters, hurricanes, tornadoes in light of what happened down in Alabama a month or so ago. Can -- and not so much the panels, but the supports, the racks, can they withstand -- you mentioned the wind velocity and everything before, but can they really withstand something that happened down in Alabama? And I noticed a few years ago we had a heavy snowstorm in a town that has an array outside, and the racks collapsed. I won't mention the town because the case is being litigated. And the panels are fine, but the snow was so heavy that it could not support. Is that a concern of yours?

THE WITNESS (Colavito): We understand that that happened on a number of projects in the northeast. I think a couple of years ago there was an unusual amount of snow, and with the freeze thaw cycle of that, they ended up exceeding design snow loads as a result. We observed that on projects, not ones that we own, but other folk's projects, and understand that for some manufacturers and professional engineers working in the ground mount PV racking industry they have

lessons learned from some of the potentially underdesigns associated with that. We've also seen a gradual increase of design snow loads by the ASCE, the American Society of Civil Engineers, driving up some of those snow loads as a result of what we've seen related to possibly climate change.

So we design our racking systems according to codes and standards at the design wind speeds and design snow loads. We work with professionally licensed professional engineers. And then our projects also go through a very rigorous financing process which requires oversight and analysis by independent engineers, insurance companies and representatives of financiers that give us as much -- have as many questions as you all do for us. So we're very confident what our arrays will survive extreme events that are within the current codes for design and construction within the State of Connecticut

MR. LYNCH: Now, in light of an extreme disaster, a hurricane, tornado, whatever, does the company or do you purchase specific insurance for that, or do you go to an outside market?

THE WITNESS (Colavito): I'm not an expert in that, but I do know that we obtain insurance for all of the projects that we have, and I believe it includes insurance for force majeure events, as described.

And I would like to note that we do have systems, many of them, dozens of them, which have gone through severe hurricanes, such as Sandy, and tornadoes. We have one in North Carolina that went -- a tornado went right through the building. We had pieces of wood, 2 by 4s speared through the center of modules. Our arrays did not move.

MR. LYNCH: I saw that happen down in Florida when they had the hurricane a few years back. The projectiles went right through the panels.

THE WITNESS (Colavito): Yes. We had no fires, we had no modules move, and nobody was hurt as a result of the PV arrays.

MR. LYNCH: Now, my last few questions are all on fire issues. Seeing that each afternoon I have a cigar with my fire captain who's next door in the fire house, and I've asked him a couple questions with regards to electrical

fires. And when we had the hearing down in Killingworth you mentioned that electrical fires, of course, aren't fought with water, they use foam. And he told me that they don't really use foam. This is the City of Hartford, so they're a paying water department. I'm not discouraging volunteer fire departments at all. But he was saying that you don't want to fight it with foam because a lot of foam has a water base. He was saying that you should use -- and I'll probably ask the fire chief or fire marshal when he gets up here the same question -- that you should use some type of dry chemical or CO2 to fight a fire, electrical fire. Is that something you agree with?

THE WITNESS (Colavito): I did some reading about this after our last discussion, and I've seen similar results, but I was unable to find specific information without going through a firefighting class about how to fight electrical fires, except for primarily information that I could find was related to C type fire extinguishers, which I do believe meet the criteria you just described.

MR. LYNCH: You led right into one of

my next questions which is training. And, you know, you did say you were going to work with the town for training, but his comment was that whatever apparatus they may have to use should be available, they're not going to just watch a video you should do this. Is that something you would supply to the town?

THE WITNESS (Colavito): I don't know what that would be, so I can't comment or commit.

MR. LYNCH: But if they needed special equipment to fight an electrical fire, would you provide that to them, or would the town have to go out on its own and get the equipment necessary?

THE WITNESS (Colavito): We've built hundreds of PV arrays throughout the United States in 15 different states, and never have we been asked by any fire department to provide special equipment to support firefighting at those PV arrays.

MR. LYNCH: Interesting.

THE WITNESS (Colavito): Likely because it wasn't needed.

MR. LYNCH: Now, the pathway that you talked about earlier, again, you said it wasn't going to -- explain to me how is it graded again?

THE WITNESS (Colavito): We weren't anticipating doing any grading.

MR. LYNCH: But do you think that this pathway would be able to support -- it's not going to have a ladder truck, you're on flat ground, but would it be able to support a pump truck which is pretty heavy and a turn-around radius that you've already explained inside the fence?

THE WITNESS (Colavito): I'm not familiar with pump trucks nor --

MR. LYNCH: A regular fire truck.

THE WITNESS (Colavito): I couldn't say. We're not anticipating developing a compacted standard pathway that you would drive on on a regular basis. We don't anticipate even driving our own service equipment around the entire perimeter of the array. Normally when we service arrays, we come in the main service entrance, park our pickup truck, and then walk around to different inverter locations to do electrical testing and visual and mechanical inspections for preventative maintenance.

MR. LYNCH: But in the event -- and it's very slim, I'll grant you -- that there is a fire, you're going to have to get inside that

compound.

THE WITNESS (Colavito): Uh-huh.

MR. LYNCH: And they don't want to be trapped in there, so a secondary exit is a great idea.

And the other thing, within the training -- the inverters are all inside, right?

THE WITNESS (Colavito): That's correct.

MR. LYNCH: Would there be a chart? I think you said before they were five or six feet apart or something like that?

THE WITNESS (Colavito): Yes.

MR. LYNCH: Would there be a chart that the fire department would have that they could be able to go in and work, you know, try to I guess for lack of a better term turn the inverters off?

THE WITNESS (Colavito): Yes. The National Electric Code requires very specific labels and markings. One includes an index of the site indicating the means of disconnect and where major equipment are located, such as inverters and main disconnecting mains and others. We would also be happy to provide any level of documentation requested by the local fire

department for support.

MR. LYNCH: Just as another clarification, the transformer which is outside, would that be turned off by yourself or Eversource? Maybe the young lady from Eversource can tell us how it works.

THE WITNESS (Colavito): The transformer will not be owned nor operated by Standard Solar or Chatfield Solar, and I don't believe we would have authority to shut it down, but I assume that there would be an air brake switch available near the site to isolate the transformer that I assume the fire department would have authority to isolate or to call Eversource to do that isolation.

MR. LYNCH: I know Eversource does training for these type of fires.

THE WITNESS (Colavito): Uh-huh.

MR. LYNCH: I have a couple other questions, but they're more technical fire questions, so I'll wait for the fire marshal or fire chief to get up here and see what his responses are.

THE WITNESS (Colavito): Okay.

MR. LYNCH: Thank you, Mr. Chairman.

THE VICE CHAIRMAN: Thank you, Mr. Lynch.

Now we're back to the council members who had an opportunity to question at the first evidentiary hearing, and I'll start with Mr. Silvestri.

MR. SILVESTRI: Thank you, Mr. Chairman.

I want to go back to the discussion regarding Interrogatory Number 124, which is the LREC/ZREC. And I'm under the impression to qualify for a ZREC the projects could not be larger than a megawatt. Is that correct?

THE WITNESS (Partyka): That's correct. Each contract is capped at one megawatt AC.

MR. SILVESTRI: Capped at one megawatt. So how did you get two?

THE WITNESS (Partyka): We acquired the two projects from the previous developer. It's not uncommon for projects to have co-located interconnection and ZREC contracts.

MR. SILVESTRI: I'm trying to understand this. Would one ZREC be for one megawatt and the other ZREC be for .92 megawatts?

THE WITNESS (Partyka): Technically it

could be for a smaller size.

MR. SILVESTRI: No, in your instance here.

THE WITNESS (Partyka): Or 1.92 divided by 2.

THE WITNESS (Colavito): We were awarded for a one megawatt AC for both, but we can choose to do slightly under that just to allow to match up with the AC inverter capacity of the equipment that's elected on site. So it's just rounding down to the available equipment sizes.

MR. SILVESTRI: So it would have nothing to do then with the northern portion, southwest or southeast portions that have different proportional megawatts?

THE WITNESS (Colavito): It has nothing to do with that.

MR. SILVESTRI: Thank you. Staying on with an answer that we had on 126, and I'd like you to pull this up. And I'll read it, but I'm hoping you can explain it to me.

Interrogatory 126, the second line from the bottom of your response states, "Further, virtual net metering cap limitations currently prohibit PPAs with nonprofit off-taker." Can you

explain that? I have no idea what that's saying.

THE WITNESS (Partyka): Do you know what net metering is?

MR. SILVESTRI: I know what net metering is. I don't know what off-taker is.

THE WITNESS (Partyka): Just say a school district, as an example, could be an off-taker or a fire hall or a non-profit entity that buys electricity could be a potential off-taker. But currently in the State of Connecticut the virtual net metering cap is maxed. So legally we couldn't enter into a PPA and sell the energy to that nonprofit entity. And it's limited. You couldn't sell it to Coca-Cola or Stanley. It would have to be a nonprofit entity. So if the cap was ever lifted, then theoretically we could sell the energy to a nonprofit off-taker.

MR. SILVESTRI: Now I got you. Thank you.

THE WITNESS (Partyka): Sure.

MR. SILVESTRI: If I could have you turn to Interrogatory 118. And part of the response to that in the first paragraph states, "This increase in impervious area will not increase the runoff at the site because the ground

surface will remain pervious and vegetated."

And then in the second paragraph of that, "By maintaining the natural ground cover as an herbaceous meadow, as well as the surface slope, the rainfall will follow the same runoff patterns as before construction, allowing the water to infiltrate as it sheet flows toward the wetlands."

Now, I'm going to agree that you're going to have an increase in impervious area due to the panels, but what I'm struggling with is rainfall is going to come off the panels and it's going to drop on the ground and you're going to have some type of, I'll say, rut for lack of a better term. And it's concentrated. The rainfall is going to be concentrated in that area where it runs off the panels. So I'm struggling to see how you could have a preconstruction pattern after you do all that work because you're not falling -- you're not having the rain fall on that whole ground area.

Can you explain how that runoff affects I'm almost looking at a channelized runoff as opposed to just falling on the ground?

THE WITNESS (Andrews): So we've got a

couple items to the response of that. One is it actually manifests once it runs off of the panel and then acts as sheet flow at that particular point which is why we typically will orient the panels the way we have in this particular case. We've provided the infiltration trenches as a means to intercept that. So sheet flow is typically limited to somewhere normally between 100 to 300 linear feet, and then it typically transitions to shallow concentrated flow and then ultimately concentrated flow.

So the intent of the infiltration trenches was essentially to create a redistribution of that. So where the runoff becomes -- starts to become shallow concentrated flow, those structures are intended to basically capture that flow, capture that discharge, infiltrate as much as the capacity of the unit can provide, which is the water quality volume, and then redistribute that flow essentially as a sheet flow. So they're designed essentially to interrupt that flow which ultimately reduces the time of concentration which has a significant impact on the overall runoff from the site. So the intent that we provided was essentially to

kind of redistribute that sheet flow as it's running down the hillside and into the wetlands.

Did I properly answer your question, or is there something I left out?

MR. SILVESTRI: I think so. Like I said, the wording is kind of a little bit strange on that, and it really wouldn't follow the same patterns as preconstruction, but you're organizing a different pattern to follow that would still mimic the same end result.

THE WITNESS (Andrews): That's correct. And furthermore, there have been, and in fact we had a lengthy conversation with representatives from the Department of Energy and Environmental Protection specific to this project early on where, as you're probably aware, they're exercising some stronger requirements for solar array sites.

We talked a little bit about that distribution and the fact that we have a forest, we're cutting the trees down, and essentially reestablishing it with grass. And we agreed at that particular point that there are arguments that the actual runoff volume and rate are essentially the same. And there are computations

that you can run through where you can document that.

And in further talking through that, the individual that we were speaking with indicated that although we understand computations can support that assertation, we'll go a step further and indicate that at least on three different facilities in Connecticut we've seen an increase in that which is why we essentially picked this means as mitigating and handling the water quality volume. Our intent was rather than selecting a system of enhancement at the base of the slope, we want to do it intermittently as we can so that we can kind of redistribute that and run from shallow channelized flow back into sheet flow, and then of course it will rechannelize again as it gets lower. But we talked extensively about that with them, and that was essentially what drove to this intermittent system that essentially stripes the site, if will you, along the contours.

THE WITNESS (Morrison): Can I just add something as well? One of the other things that is commonly done with any kind of infiltration is to put in a big basin and direct the flow to the

basin. And we chose not to do that with conversations we had with DEEP to mimic where the water was entering the wetlands. So now as we put it into the infiltration basin and it overflows then it gets to the wetlands, it's entering the wetlands at the same place it would have been coming in normally. So we're not bringing it down to a lower point and putting it into a lower place in the wetlands. So we are mimicking the existing flow condition in that way that it's still going down the same hill in that direction.

MR. SILVESTRI: Thank you. The last question I have for you goes back to the first time that we met. And I had brought up the phenomenon of potential thermal impacts that you had mentioned in your application. I asked the question did you have an estimate as to how much of a temperature increase is anticipated prior to any mitigation measures, and at that time I didn't get an answer. Do you have an answer for me today?

THE WITNESS (Morrison): From the panels or from the deforestation?

MR. SILVESTRI: This was from the panels.

THE WITNESS (Morrison): From the panels. I can address that, I think. I can address that. When the water falls on the panels, our water quality basins are designed to capture the first inch of runoff. So I don't have an exact temperature, but as the water falls on the panels, the infiltration basins are going to capture the first one inch, which is where the thermal impact would happen, and that is not running into the wetlands. After the first inch of runoff, the panels will have been cooled down by the rain, and so the water will be at just ambient air temperature as it hits.

MR. SILVESTRI: I saw part of that in one of your responses. My concern is still that if you don't know what the temperature might be, how do you know your mitigation measures are going to work? That's kind of my bottom line.

THE WITNESS (Morrison): I don't have the actual temperature of the panels.

MR. SILVESTRI: That's all I have, Mr. Chairman. Thank you.

THE VICE CHAIRMAN: Thank you. I'm informed by the --

THE WITNESS (Colavito): I would like

to provide a little bit more color. it's also noteworthy that PV modules normal operating cell temperature is probably about 45 degrees Celsius, but that's at the cell on the interior of the PV module. And that changes very rapidly as the amount of solar irradiance incident on that module changes. And you have to keep in mind the PV cell itself is extremely thin, so is the backsheet and the encapsulant layer, as well as the glass. We're talking total thickness is less than 6 millimeters of that whole stackup.

So there's not a lot of heat capacity in the module itself. And once the sunlight goes away, i.e, when a rainstorm comes, it drops in temperature very rapidly to be more consistent with ambient temperatures. And then when you also include rain coming on, it will cool even more quickly. I would find that if it took an inch of rain to cool a PV module equivalent to ambient would be a very extreme case. You have to think of there's just not a lot of heat capacity in materials that are so thin, and they are responding directly to the irradiance which would have been taken away at that point in time.

MR. SILVESTRI: I look at the ones that

are on top of my house. If it snows, they melt pretty quickly, they warm up, so there is a temperature change that's going on.

THE WITNESS (Colavito): Well, that's because -- I can explain that phenomenon because I have the same thing as well. When the snow is not really thick, you get sunlight through the snow. If there's any transmittance of light, the solar cells actually respond to that low amount of light relatively quickly, and they warm up because they're not 100 percent efficient. They're on the order of 15 to 20 percent efficient. So that sunlight that reaches the cell which is then converted into electricity becomes heat at that moment in time. So the layer of snow in contact with the glass melts and then causes the rest of the snow to shed pretty quickly because it just slides right off.

MR. SILVESTRI: Thank you, Mr. Chairman.

THE VICE CHAIRMAN: Bob, do you have any questions before we move on?

MR. MERCIER: No, thank you.

THE VICE CHAIRMAN: This concludes then the cross-examination by the Siting Council staff

of the panel.

Is KARS intending to cross-examine?

MS. KOVACHI-SEKBAN: Yes.

THE VICE CHAIRMAN: You are, okay. I think we'll have to set up a spot for you over here. So I think what we'll do at this time is take a break here and give everyone a chance to move around and whatever. And let's return at 3:15 and get started and hopefully wrap things up today. Thank you.

(Whereupon, a recess was taken from 3:07 p.m. until 3:16 p.m.)

THE VICE CHAIRMAN: I'd like to call this meeting of the Connecticut Siting Council back to order. The intervenor will be cross-examining the panel.

MS. KOVACHI-SEKBAN: I'd like to introduce Doug Schwartz who is cofounder of KARS, and I've mentioned him several times. We also have a couple other members that are not here today, so we're a very small group of concerned residents. But Doug will be proceeding with some of the witness testimony.

I'd like to call to the stand --

THE VICE CHAIRMAN: No, hold on. Maybe

you misunderstood.

MS. KOVACHI-SEKBAN: Sorry.

THE VICE CHAIRMAN: At this juncture as an intervenor you're entitled to cross-examine.

MS. KOVACHI-SEKBAN: Okay.

THE VICE CHAIRMAN: And that's the question I posed were you planning on cross-examining. Is the answer to that still yes you are?

MS. KOVACHI-SEKBAN: Yes.

THE VICE CHAIRMAN: Okay. Evidence that you put in as your case in chief will come after the cross-examination is done. And then your, whatever it is you put in, can be cross-examined by the panel and by the applicant as well, but right now it's your opportunity to ask questions of them. So proceed, please.

MR. SCHWARTZ: Let me begin. Eric, you just said that you could put two RECs on one property. Is there a finite amount of RECs you could put on a property?

THE WITNESS (Partyka): Do you mean infinite?

MR. SCHWARTZ: Infinite or finite. I can rephrase. Was the intent of the legislature

to encourage smaller scale or larger scale projects with the RECs?

THE WITNESS (Partyka): I cannot speak to the intent of the legislation.

MR. SCHWARTZ: So your answer is you don't know if there's a limit?

THE WITNESS (Partyka): I don't know if there's a limit.

MR. SCHWARTZ: Let's go over decommissioning. Are these panels UL listed?

THE WITNESS (Colavito): Yes.

MR. SCHWARTZ: And they conform with 1703 UL?

THE WITNESS (Colavito): Yes.

MR. SCHWARTZ: When I went on the manufacturer's web site, I believe it was a German -- is that cross-listed with the German version of the Underwriters Lab, or did Underwriters Lab actually do it themselves?

THE WITNESS (Colavito): I can't testify to that because the specific module is not selected, but Standard Solar does not use any modules which are not UL 1703 listed for any projects.

MR. SCHWARTZ: What factors will

determine your end date when you decommission?

THE WITNESS (Colavito): I imagine primarily the factors associated with continued maintenance costs versus return on that invested maintenance cost.

MR. SCHWARTZ: At the last hearing you testified in response to a question about Moore's law type innovations that you would not install new technology if it became available. And I think there's still a misunderstanding here. To rephrase, are you saying that most of your profit is baked into the cake in the first 15 years and from the tax credits and the RECs and so forth, and that's what really drives the decision to, A, invest; and B, when you decommission?

THE WITNESS (Colavito): No, that is not the case.

MR. SCHWARTZ: Why wouldn't you be interested in continuously producing electricity from the site with newer technology that might be orders of magnitude more efficient?

THE WITNESS (Colavito): The primary costs of a PV array and its development and construction is all up front, and then the benefits are extracted over the life of the

system. So removing a system or terminating use of components before they reach their service life would be inconsistent with the economic proforma developed for the project. So it's a sunk cost, and there is no cost to continuing to use an existing module, but there is an added cost of removing that module and replacing it with a higher efficiency module.

MR. SCHWARTZ: Have you personally worked on a decommissioning?

THE WITNESS (Colavito): Standard Solar has. Me myself, I have not.

MR. SCHWARTZ: And what do you think the maximum end date might be?

THE WITNESS (Colavito): It's hard to say. We know of PV systems that some of our principals have worked with that were built in the early eighties that are still operational. So I would imagine, considering that the technology is now 30 to 40 years more mature, that PV systems would easily last 40 years.

MR. SCHWARTZ: But you don't know what the energy market will be?

THE WITNESS (Colavito): But that doesn't matter if our incremental costs are

minimal.

MR. SCHWARTZ: So once your sunk costs have been paid off, it's pure profit after that?

THE WITNESS (Colavito): I can't confirm that. That's not consistent with the way we evaluate projects.

MR. SCHWARTZ: If a panel is damaged today in shipment or installation, what happens to that panel?

THE WITNESS (Colavito): We remove it off site and send it in for recycling.

MR. SCHWARTZ: And where does it go specifically?

THE WITNESS (Colavito): I can't say exactly. I don't know.

MR. SCHWARTZ: Do you have a recycler you use?

MR. McDERMOTT: Mr. Chairman, we would just ask maybe he could allow the witness to finish the answer before the next question is coming in.

MR. SCHWARTZ: I'm sorry.

MR. McDERMOTT: Thank you.

THE WITNESS (Colavito): I'm not specifically familiar with how that's done. I

think oftentimes it is sent back to the manufacturer.

MR. SCHWARTZ: Does the manufacturer take their panels back?

THE WITNESS (Colavito): Yes, some manufacturers do do that.

MR. SCHWARTZ: And how long is the manufacturer's warranty on these panels?

THE WITNESS (Colavito): 25 years on the power output.

MR. SCHWARTZ: And what about the physical panel?

THE WITNESS (Colavito): That includes the physical panel. You need to have --

MR. SCHWARTZ: From their web site they say 12 years?

THE WITNESS (Colavito): That's typically the product warranty, but the power output warranty is 25 years. They both include the physical module. They're just different terms.

MR. SCHWARTZ: And should we read anything into the warranty where the manufacturer will not accept any liability for anything other than the cost of the panel itself depreciated?

THE WITNESS (Colavito): I'm sorry, can you please repeat your question?

MR. SCHWARTZ: Should we read anything into the fact that the manufacturer is unwilling to accept liability for any damages other than replacement of the panel or the depreciated cost of the panel?

THE WITNESS (Colavito): I don't believe there's anything underlying to interpret there.

MR. SCHWARTZ: And have the panels been purchased?

THE WITNESS (Colavito): No, they have not.

MR. SCHWARTZ: And what country are they manufactured in?

THE WITNESS (Colavito): We have not selected a specific module for use on this project yet.

MR. SCHWARTZ: So you've said that you're going to use Adani panels, that's incorrect?

THE WITNESS (Colavito): That's possible, but it's not confirmed that that's the exact module. That is what we're proposing and

had proposed at the time when the drawings were developed, but it's still a conceptual plan, and we make our acquisition decisions based on pricing availability and delivery at the time that it's time to order the materials.

MR. SCHWARTZ: Again, so you would send it to a recycler, you would not send it to a landfill?

THE WITNESS (Colavito): I am not specifically familiar with what happens with every broken module that happens during construction, but I do believe they are disposed of in an environmentally responsible manner, which includes recycling.

MR. SCHWARTZ: Do some jurisdictions consider solar panels to be hazardous waste?

THE WITNESS (Colavito): Not to my knowledge, and we have some documentation that we can submit to the record to show that it is not hazardous waste.

MR. SCHWARTZ: So, for instance, the California Department of Toxic Substances Control yesterday, as a matter of fact, they had a informational meeting that was broadcast online about their new regulations regarding waste

photovoltaic modules, and they're going to add them to the list of hazardous waste. So you're not aware of anything like this?

THE WITNESS (Colavito): I am aware of a report by the North Carolina Clean Energy and Technology Center which receives funding from the US Department of Energy, and they published a report titled Health and Safety Impacts of Solar Photovoltaics in May of 2017, which we would like to admit to the record as a -- well, it specifically says that PV modules are not toxic, and there's very minimal impact, and all potentially toxic materials, which namely the most dangerous material within the module is lead solder, which is in a very small amount, the amount of lead solder in a PV module is less than one-half the lead in a typical 12 gauge shotgun shell, an entire PV module. And one module is about 1/750th of the lead in a single car battery, so very small compared to other materials which are commonly in our society. And this report goes into great detail about PV modules, any perceived hazards that are there, and why they are not hazards and how they can be mitigated and managed.

MR. SCHWARTZ: So the California

Department of Toxic Substances Control has suggested a database where solar panels and their toxicity could be tracked by their model numbers. You're claiming that you deny that these things are toxic?

THE WITNESS (Colavito): That's correct, they're not toxic.

MR. SCHWARTZ: Good. I feel better.

MR. McDERMOTT: I'll object to that, Mr. Vice Chairman.

MR. SCHWARTZ: What about the EPA's test for models that fail the EPA's Toxicity Characteristic Leaching Procedure, TCLP, have these panels been tested that you're going to use? Can you answer that?

THE WITNESS (Colavito): I did research into that test. I don't have it in my hand, but I do understand that PV modules in general pass that test and do not leach toxic materials into the soil or any other surrounding area. All materials are fully encapsulated in the module encapsulant. We're looking at using crystalline silicon PV modules, not cadmium, telluride or other types of modules which have more heavy metals and more toxic materials in them. we're using crystalline

silicon PV modules which are majorally made up of glass, aluminum frame and crystalline silicon PV cells.

MR. SCHWARTZ: Would you be willing to submit a panel to the EPA for testing to verify that?

THE WITNESS (Colavito): No.

MR. SCHWARTZ: In the last hearing you stated the panels can -- they're rated for 60 miles an hour and one inch hail balls. Excuse me, omit the word "and." How do you know that if you don't know what panels you're going to use?

MR. McDERMOTT: Sorry. Where in the record is that?

MR. SCHWARTZ: Mr. Lynch asked the question. I don't have the exact page and line number. But in event of a major storm, blizzard or hurricane.

THE WITNESS (Colavito): That is a standard test that's done on all PV modules. I believe it is a component of the UL 1703, but if not, I could find out what test protocol that is a component of, but all our modules are tested to that type of protocol.

MR. SCHWARTZ: Have you consulted the

Killingworth Natural Hazard Mitigation Plan or the state's version of that?

THE WITNESS (Colavito): No, I have not.

MR. SCHWARTZ: You'll find out that there have been hurricanes in this area, tornadoes, earthquakes.

MR. McDERMOTT: I'll object to the testimony as being provided, Mr. Vice Chairman.

MR. SCHWARTZ: We submitted that as an exhibit.

THE VICE CHAIRMAN: Actually, as far as your exhibits, they've been submitted but they're not admitted at this point. I mean, this is part of your case in chief, and if such is there, it may be and it may not be.

MR. SCHWARTZ: I could rephrase. If these are subjected to winds in the nature of 200 miles an hour and hail balls of over 2 inches, we can assume they're not rated for that. Correct?

THE WITNESS (Colavito): I don't believe that those conditions have ever existed at this location in the State of Connecticut.

MR. SCHWARTZ: Earlier today the subject of adding storage batteries as that

technology become available, where would they be located on the property if that was to be done?

THE WITNESS (Colavito): No such location has been identified because that is not in the current proforma of the project.

MR. SCHWARTZ: Would that require a local planning and zoning application, or would it be the Siting Council?

MR. McDERMOTT: That's a legal conclusion, and the witness is not identified as a legal expert on that.

MR. SCHWARTZ: At the last hearing you stated that tree damage was a minor concern, and that's a risk you would absorb, and you would acquire insurance. My question is why when you have owners of this project ultimately with hundreds of billions of assets why would you not just self-insure?

MR. McDERMOTT: I'll object to the characterization that owners have hundreds of billions of dollars. That's not in the record.

MR. SCHWARTZ: Okay. Now, nature abhors a vacuum. When you cut a clearing with trees, the trees will grow back in. Is there any maintenance plan for trimming the limbs or the

actual trees along the periphery limit over 15 or 25 years when the canopy starts to close back in?

THE WITNESS (Logan): As part of what we're doing for the Connecticut DEEP for our Habitat Enhancement Plan with respect to listed species because of all the areas we have actually selected are in the perimeter of the site, there will be specific short-term and long-term management recommendations that will happen, but we're in the process of putting those together.

THE WITNESS (Colavito): The short answer is yes.

MR. SCHWARTZ: How did this -- let's start at the beginning and do the timeline. How did this project begin? Let's start with the site selection.

THE WITNESS (Partyka): The site was selected by the previous developers, and they submitted an interconnection study application to Eversource and also acquired a ZREC contract from Eversource.

MR. SCHWARTZ: And they acquired the RECs in 2016; is that correct?

THE WITNESS (Partyka): Correct.

MR. SCHWARTZ: And when was the

original delivery term start date for those?

THE WITNESS (Partyka): I don't have it off the top of my head. You probably have it right there.

MR. SCHWARTZ: October 1, 2017, would that sound about right?

THE WITNESS (Partyka): That sounds right.

MR. SCHWARTZ: And then in early 2017 Eversource petitioned the Siting Council for the Green Hill Road Substation upgrade. Is there any relationship between the two events?

THE WITNESS (Partyka): I don't know the relationship. I just know that they are two components of the project that had to be acquired.

MR. SCHWARTZ: And do you have a power purchase agreement?

THE WITNESS (Partyka): No.

MR. SCHWARTZ: And when was Chatfield Solar Fund established?

THE WITNESS (Partyka): In the summer of 2018.

MR. SCHWARTZ: Would April 30, 2018 registered with the Delaware Secretary of State sound about right?

THE WITNESS (Partyka): It could be. I thought it was a little later than that, but you could be right.

MR. SCHWARTZ: But then the legislature ended the REC program on May 24th of 2018, correct?

THE WITNESS (Partyka): I don't know.

MR. SCHWARTZ: Well, okay.

THE WITNESS (Partyka): I don't know that it's relevant to this agreement.

MR. SCHWARTZ: Well, I think we're going to find out real quick because then the whole -- I can answer that real quickly. The program was in limbo --

MR. McDERMOTT: I'll object to the testimony, Mr. Vice Chairman.

MR. SCHWARTZ: Okay. Let me rephrase. Was the REC program in limbo after the legislature ended it on May 24, 2018, and it wasn't clear whether the RECs, which had been acquired by the property owner, were valid?

THE WITNESS (Partyka): Let me say this: I'm not an expert on Connecticut legislative updates to the RPS or the ZREC program, but I do know that this agreement is

currently valid, and there's a 15-year agreement for the ZRECs.

MR. SCHWARTZ: And do you know if it's a fact that on September 12th of 2018 that PURA issued a draft decision grandfathering in those RECs, all RECs?

THE WITNESS (Partyka): All RECs?

MR. SCHWARTZ: Yes.

THE WITNESS (Partyka): Wind, solar?

MR. SCHWARTZ: Well, the LRECs and the ZRECs specifically.

THE WITNESS (Partyka): I'm not aware of that.

MR. SCHWARTZ: But you are aware that on that same date the first selectwoman sent in her letter of support for this project to the Siting Council?

THE WITNESS (Partyka): I'm not aware of that date.

MR. SCHWARTZ: And are you aware that's 41 days prior to the submission of your petition?

THE WITNESS (Partyka): I'm aware.

MR. SCHWARTZ: And that was sent by US mail.

Now, you purchased these RECs from the

principals of BeFree Solar when?

THE WITNESS (Partyka): In the late summer, early fall of 2018.

MR. SCHWARTZ: Would September 25th sound about right in 2018?

THE WITNESS (Partyka): That's about right.

MR. SCHWARTZ: So it's almost one year after the original delivery term start date, correct?

THE WITNESS (Partyka): Correct.

MR. SCHWARTZ: And so the clock was ticking. And then you petitioned the PURA for six months extension, and the rest is history.

Now, let's go over the Killingworth plan of conservation and development. Your petition states that not only that plan but also the state plan, this proposal is consistent with both. How so?

THE WITNESS (Partyka): Can you please restate the question?

MR. SCHWARTZ: Your petition states that this proposal is consistent with both the Killingworth and Connecticut plans of conservation and development. How so?

Well, let me pick it apart. The zoning issue has already been addressed. It's zoned R1; it's not zoned industrial. Is that correct?

THE WITNESS (Partyka): It is zoned --

MR. SCHWARTZ: R2, I'm sorry.

THE WITNESS (Partyka): That's correct. Can I address that?

MR. SCHWARTZ: Sure.

THE WITNESS (Partyka): So as I read the zoning rules for the town, it seems that there's a fair bit of agricultural and other development that can occur on a residential site, and this is not unlike a farm that is harvesting sunlight. And there's other things that could be permitted there such as a well and septic, and this site doesn't take on any of those burdens.

MR. SCHWARTZ: It is indeed, you can do rural uses there, right?

THE WITNESS (Partyka): That's right.

MR. SCHWARTZ: Is there an industrial zoned area within the Town of Killingworth?

THE WITNESS (Partyka): I believe there's at least one.

MR. SCHWARTZ: And how many times does the Killingworth plan of conservation and

development mention the word "solar," do you know?

THE WITNESS (Partyka): I don't know.

MR. SCHWARTZ: And what about the state, same answer?

THE WITNESS (Partyka): I don't know.

MR. SCHWARTZ: And I'm not going to waste time with how many mentions of "open space" or "forest" those documents contain. Who is your employer? This is a question to the people from Standard Solar.

MR. McDERMOTT: I'll object to relevancy.

MR. SCHWARTZ: It's important for counterparty risk to understand why this was set up as an LLC in Delaware.

MR. McDERMOTT: I'll object to the relevancy.

THE VICE CHAIRMAN: So it would appear to me so long as they're a legal entity able to do business in Connecticut then they're before us. I mean, they filed an application, it's been accepted. They're a legal entity entitled to do business, and this is their business.

MR. SCHWARTZ: The September 12, 2018 letter of support from the first selectwoman, do

you know how that came about?

MR. McDERMOTT: I'll object to relevancy.

MR. SCHWARTZ: The 2017 change in the statute required before coming here, if it was going to be over 2 megawatts, a statement from DEEP and Department of Agriculture about core forests and prime farmland, a waiver, whatever.

I understand the difference between AC and DC. What's the statutory basis for basing it on AC rather than DC?

MR. McDERMOTT: I'll object to relevancy. They have not been identified as legal experts.

MR. SCHWARTZ: Well, okay. Let me ask a different question. As the project is configured now, is it more or less than 2 megawatts total DC?

THE WITNESS (Colavito): It is more than 2 megawatts DC.

THE WITNESS (Partyka): If I may, for utility purposes, I think they focus on the AC sizing.

THE WITNESS (Colavito): That is correct.

MR. SCHWARTZ: But my question was about the statutory basis for that. The statute does not address that.

MR. McDERMOTT: I'll object. You can save that for a legal brief, I believe, Mr. Vice Chairman.

MR. SCHWARTZ: Is this going to utilize any Green Bank funding?

THE WITNESS (Partyka): No.

MR. SCHWARTZ: And do you know if the Green Bank funds the LRECs and the ZRECs? I'll skip that.

Eric, how did the public informational meeting come about?

MR. McDERMOTT: I'll object to relevancy.

MR. SCHWARTZ: How was municipal consultation conducted, can somebody walk us through that and the timeline?

MR. McDERMOTT: I'll object to the extent that it infers that the 60 day municipal consultation was required for this petition, in which it was not.

MR. SCHWARTZ: So nothing other than the required letters to the fire marshal and the

chief-elected official, and so forth, there was no municipal consultation that we can be aware of?

THE WITNESS (Colavito): There was consultation with the fire marshal.

MR. SCHWARTZ: No, I said other than the --

THE WITNESS (Partyka): We contacted Cathie Jefferson with the town.

MR. SCHWARTZ: About when did that occur?

THE WITNESS (Partyka): April or May of 2018.

MR. SCHWARTZ: So we don't know what country the panels are manufactured in. Are there any state or federal direct grants, loans or loan guarantees?

MR. McDERMOTT: I'll object to relevancy.

MR. SCHWARTZ: Well, I can explain that. If there's any federal money involved, it would require Section 106 review under National Historic Preservation Act by federal tribes.

MR. McDERMOTT: I'll object to that. I don't believe that's a correct characterization. We can brief that, Mr. Vice Chairman, but that's a

total mischaracterization.

MR. SCHWARTZ: So you're saying that the National Historic Preservation Act 106 review section says that if anything is federally permitted or funded, it does not need tribal consultation, or we can brief that?

MR. LYNCH: Can I just ask a follow-up question?

MR. SCHWARTZ: Sure.

MR. LYNCH: Are the federal tax credits still in place or have they decreased for solar?

THE WITNESS (Colavito): They are still in place.

MR. LYNCH: But when do they start to decrease?

THE WITNESS (Colavito): At the end of 2019.

MR. LYNCH: Thank you.

MR. SCHWARTZ: Mr. Geppi, in your answer to the first set of interrogatories we know is an error, you said the zoning was commercial, which I don't understand how that helps because this is industrial. But how did you make that determination and come up with the information you provided about the lot size and everything?

THE WITNESS (Geppi): I consulted our engineers.

THE COURT REPORTER: Excuse me?

MR. McDERMOTT: I'm sorry, Mr. Schwartz, what is the question?

MR. SCHWARTZ: Let me repeat. In the first set of interrogatories it said that Mr. Geppi answered that question about what the zoning was, and he responded that it was commercial, and then he listed lot sizes and everything. My question is how did you come up with that information?

MR. McDERMOTT: I'll object to the question. It's already been amended so that he's now asking us to testify about why we essentially made a mistake that we corrected in the record.

MR. SCHWARTZ: If I --

THE VICE CHAIRMAN: It's my recollection at the last hearing it was made very clear that an error had been made and it was a residential zone, and how they made the mistake becomes irrelevant. It's a residential zone, and we all know.

MR. SCHWARTZ: The question is not so much directed towards the petitioner, it's towards

how the process played out within the town, and we're trying to elicit certain facts.

MR. McDERMOTT: In which case I'll object to that because we are here to make a decision whether this project has an environmental impact, what the impact is, not behind the scenes and inside baseball at town hall.

MR. SCHWARTZ: The first speaker on the sign-up sheet at the public hearing, Mr. Stockman -- and this is for Jason -- basically said that you're locked in for 15 years, and you have firm knowledge of what your profits are going to be during those 15 years, but then it becomes murky because no one can know what happens after 15 years.

And in relation to the question from Mr. Lynch about Moore's law and how you would not install -- this ties into that question -- how you would not install new technology, does he have it about right, Mr. Stockman, that you're here for the knowns, the investment tax credits, and so forth, rather than the unknowns further out in time?

THE WITNESS (Colavito): We have developed a financial model to determine that the

project yields a sufficient return on investment and meets the goals of the company to invest in renewable energy infrastructure and support the decarbonization of the economy.

MR. SCHWARTZ: Do you know the lease payments currently?

THE WITNESS (Geppi): Yes. Not off the top of my head.

MR. SCHWARTZ: But you don't have a power purchase agreement?

THE WITNESS (Colavito): That's correct.

MR. SCHWARTZ: Okay. On the decommissioning costs you used the D formula, 15,000 an acre for 25 acres to come up with 375,000. Since you're not going to be using 25 acres of panels, why would the decommissioning cost be that high?

(Pause.)

MR. SCHWARTZ: It's immaterial really the answer to that question. So in order to save time, we can just skip it. Let me come at it from another way: How much per panel does it cost to recycle?

THE WITNESS (Colavito): We do not have

confirmed figures for that value.

MR. SCHWARTZ: Ballpark?

THE WITNESS (Colavito): I cannot tell you. I don't know.

MR. SCHWARTZ: Well, the number of panels and the 375,000 works out, just on the panels, not the site remediation, works out to over $50 a panel, but you can't comment one way or the other if that sounds accurate?

THE WITNESS (Colavito): That's not accurate. I don't know where that information comes from. That's not publicly available. And you're assuming in today's dollars, and modules wouldn't be recycled today. They'd be recycled in 30 or 40 years. And the recycling stream for PV modules would be much more mature at that point in time. Right now there's a very small percentage of modules that are being recycled. In 40 years once all the modules are shipped and deployed, and if we succeed in our plan to go to 100 percent renewable energy powered economy, there will be a very mature market for PV module recycling and the cost will be de minimis. Potentially they would pay me to recycle my modules similar to the way they do soda bottles today. So I think that's not

a relevant speculation.

MR. SCHWARTZ: I agree with everything you said except the part about paying you. So your testimony is that the recycling market is now immature?

THE WITNESS (Colavito): At the moment, yes, it is not as mature as 30 years from now.

MR. SCHWARTZ: Does it exist?

THE WITNESS (Colavito): Yes, it does.

MR. SCHWARTZ: Okay. But you don't know how much it costs. Would it be accurate to say there's any cadmium in these panels?

THE WITNESS (Colavito): No, there is no cadmium in these modules.

MR. SCHWARTZ: Is there any cadmium telluride or cadmium sulfate?

THE WITNESS (Colavito): We don't anticipate to use any modules which contain cadmium.

MR. SCHWARTZ: Any arsenic compounds?

THE WITNESS (Colavito): Not to my knowledge.

MR. SCHWARTZ: To your knowledge. Not yet. Okay. Do these panels have any -- well, you don't know what panels you're going to buy, but do

panels typically have labeling on them describing the contents similar to how a tag on a mattress or a pillow or a cushion tells us who manufactured, when they manufactured, the chemistry in there, do they have anything such as that on them?

THE WITNESS (Colavito): The PV modules contain labels, as required by the UL listing, which they comply with, which go into great detail about their electrical characteristics. It also includes the manufacturer and serial numbers which can be used to trace the location and timing of manufacture as well.

MR. SCHWARTZ: So if the fire department pulls up and wants to know what kind of chemistry that they're engaging, they've got to go and look up serial numbers?

THE WITNESS (Colavito): We would tell the fire department well in advance what technology is being used on the property with the documentation we provide.

MR. SCHWARTZ: Now, Mr. Stockman, the first speaker on the sign-up sheet, suggested annual payments because there's so many unknowns regarding decommissioning costs, and you just basically verified that. Is that something you

would be willing to do as the dynamic cost -- as the cost keeps changing dynamically, fully fund an account by the 15 years when the RECs expire?

THE WITNESS (Colavito): No.

MR. SCHWARTZ: Are there any arsenic or antimony or chromium contents in these panels?

THE WITNESS (Colavito): I believe I've answered your question sufficiently.

MR. SCHWARTZ: Arsenic, antimony and chromium. I'll ask it again.

THE WITNESS (Colavito): To my knowledge, none of these materials are existent in standard crystalline silicon PV modules.

MR. SCHWARTZ: And the final speaker -- the first speaker, and then the final speaker was Mr. Bova, and he thanked the Council for doing their homework and quote holding their feet to the fire, I believe he said. And he noted that there's so many things about this project that they, quote, they didn't have a clue, and another quote, They're not working on it, they're just not going to do any --

MR. McDERMOTT: I'm going to object, Mr. Vice Chair. I'm assume there's a question coming, but we should get to it instead of --

THE VICE CHAIRMAN: Well, if there's a question. We all heard what the gentleman said.

MR. SCHWARTZ: My question is how do you respond to that, that it's only because of prodding by the Council that you're doing the homework required?

THE WITNESS (Colavito): We're answering all the questions that are being presented. We're being as cooperative as possible throughout the entire process. And Standard Solar is committed to sustainable and responsible development practices in all projects which we participate nationwide.

MR. SCHWARTZ: And just one final question. The concerns of the fire marshal, as enumerated in his January 2nd letter, if they were fully met, that would require removing a considerable number of panels, wouldn't it, in terms of multiple driveways, access roads and turn-arounds for large vehicles, interior and exterior access to the site, water supply?

THE WITNESS (Colavito): We've never heard of any such requirements for any PV projects we've done anywhere throughout the country, and we've not done a detailed evaluation to determine

what the effect of that might be.

MR. SCHWARTZ: But that was not my question. If his requests were met, would that require removing a considerable portion, 10, 15, 20, whatever, percent of your panels from your plan, and therefore losing a lot of the value inherent in those RECs which Eversource says are worth about $155,000 a year for the two of them, I believe? Maybe that's individually. Hang on, let me just check that. Excuse me, that's 155,000 and $500 each per year.

THE WITNESS (Colavito): I don't have any other comment for that.

MR. SCHWARTZ: So your answer is you're not going to answer it. Thank you.

MR. McDERMOTT: I object. The answer was they had not done the analysis, not that he's not going to answer.

MR. SCHWARTZ: Well, it's a straightforward question. If you remove -- I'm not even going to ask the question again. Thank you. That concludes our questions for the petitioner.

THE VICE CHAIRMAN: Okay. I guess we have the roles reversed. Mr. McDermott.

MR. McDERMOTT: Yes. Thank you, Senator Murphy. Before we reverse roles, if I could have 30 seconds for an in-place consultation to make sure there's no redirect?

THE VICE CHAIRMAN: Okay.

MR. McDERMOTT: Thank you.

(Off the record discussion.)

MR. McDERMOTT: Thank you, Senator Murphy. I have just two questions.

REDIRECT EXAMINATION

MR. McDERMOTT: Following briefly on Council member Lynch's questions, which I don't believe was accurately answered, I'll throw this out to the panel. But the question, I believe, was would you agree to provide training to the fire department, and then there was kind of a subdiscussion about buying apparatus, but I wanted to make sure the question about the training of the fire department was answered. Will the company provide appropriate training and work with the fire department, as necessary?

THE WITNESS (Colavito): Our intent is to provide training to the fire department using existing resources designed specifically for training local fire departments. We'd also

include in-person visits to the site and tours to see exactly where components and equipment are located and to go into more detail about the inner workings of this specific PV array as well as PV arrays in general.

MR. McDERMOTT: And because it was a more comprehensive answer than I was anticipating, he answered both the questions, so I have no further redirect, Mr. Vice Chair.

THE VICE CHAIRMAN: Thank you. I guess you can move your panel out.

MR. McDERMOTT: Okay.

(Witnesses excused.)

MS. BACHMAN: So Ms. Kovachi-Sekban and Mr. Schwartz, they are vacating this table so that you and your panel can take the larger space.

MS. KOVACHI-SEKBAN: Okay.

THE VICE CHAIRMAN: We will now proceed with the appearance of the party, the Killingworth Advocates for Responsible Solar.

Attorney Bachman, can you please begin by swearing in the party's witnesses? And I guess from our previous discussion we have two witnesses to be sworn in and not three which was previously shown on the list.

Mr. Schwartz, are you going to continue to be the spokesman?

MS. KOVACHI-SEKBAN: I'm going to be asking questions to --

THE VICE CHAIRMAN: Do you want to introduce your witnesses, and we'll have them sworn in.

MS. KOVACHI-SEKBAN: Sure. Our witnesses are Dan Perkins. He's an abutter, land owner, property owner directly adjacent to the proposed site. And we also have Jim McDonald, fire marshal for the Town of Killingworth.

THE VICE CHAIRMAN: And if you'd both rise, please, Attorney Bachman will swear you in.

J A M E S M c D O N A L D,

S H E R I D A N P E R K I N S,

called as witnesses, being first duly sworn by Ms. Bachman, were examined and testified on their oaths as follows:

THE VICE CHAIRMAN: Normally, as you know, Mr. McDermott, the Chair helps out in putting in the evidence, except I have a problem here. I'm not sure that these two are the ones to answer the questions on some of these. There are 21 exhibits that have been offered by KARS. Are

the two of you familiar with all 21 of those exhibits?

THE WITNESS (McDonald): I'm familiar with mine, yes.

MS. KOVACHI-SEKBAN: Sir, we're not going to be using all of those exhibits. We just have a list of questions for each one, and that's it.

MS. BACHMAN: You don't ask your own witness panel questions.

MS. KOVACHI-SEKBAN: Okay.

MS. BACHMAN: The Council is going to ask the questions.

MS. KOVACHI-SEKBAN: Oh, I'm sorry.

THE VICE CHAIRMAN: The Council and then Mr. McDermott will.

MS. KOVACHI-SEKBAN: I apologize.

THE VICE CHAIRMAN: And the problem is KARS submitted to us 21 exhibits, one of which was the application to be before us as an intervenor. And normally someone who's been a party to that is the witness who testifies if they're familiar with it and so forth and so on. So I believe that's why Attorney Bachman believed you were going to be a witness. I just don't know how we proceed from

here. The solution to the problem is the problem.

Let me try to simplify this to be as fair as we possibly can. On these exhibits how many of them were you really intending to use?

MR. SCHWARTZ: Well, some of them are going to be used in our brief. We weren't sure about the rules of evidence.

THE VICE CHAIRMAN: Well, Mr. McDermott, just to move us along, is there any problem with these being put in for identification purposes only and if they want to refer to them in their brief they can?

MR. McDERMOTT: Senator Murphy, I wanted your last hearing to be an easy one. For identification purposes only?

THE VICE CHAIRMAN: Well, they want to refer to them in their brief but --

MR. McDERMOTT: I mean, obviously there's a point to my objecting to the witness list.

THE VICE CHAIRMAN: I understand where you're coming from.

MR. McDERMOTT: And I had prepared objections to Numbers 6 through 20, as you probably surmise. I think they carry little

probative value and are largely irrelevant. If they're not admitted as full exhibits and you want to, calling upon former Council member Tait's words, if you want to give them the weight that you think they should be afforded.

THE VICE CHAIRMAN: Well, that's kind of what I'm thinking.

MR. McDERMOTT: To move things along, we will not object. I do reserve the right to cross-examine, though, if they should refer to them during their direct testimony.

THE VICE CHAIRMAN: So for the purposes of identification and reference in briefs, if the parties so choose to use them in briefs, they are admitted as for identification purposes and can be used to refer to in the brief.

MR. McDERMOTT: Very well.

THE VICE CHAIRMAN: Okay.

MR. McDERMOTT: If it will move things along, Mr. Vice Chair, I'll stipulate to their admissibility, and we can just proceed to questioning.

THE VICE CHAIRMAN: All right.

(KARS Exhibits III-B-1 through III-B-21: Marked for identification.)

THE VICE CHAIRMAN: Mr. Mercier.

MR. MERCIER: Thank you. I just have a few questions on Fire Marshal McDonald's second comment letter that was submitted, dated March 22nd. Now, looking at the second page, it listed three items with the Connecticut Fire Code in Chapter 11. One of them was clearances where it says a clear area of 10 feet around the ground-mounted solar system shall be provided.

THE WITNESS (McDonald): Yes.

MR. MERCIER: With their 20 foot fire lanes, are you satisfied that that comment has been taken care of? They have a 20 foot fire lane around the perimeter of the solar facility.

THE WITNESS (McDonald): I would submit that 20 feet around the perimeter of the site is more than twice as what's called for. I believe this also has to do with spacing between the rows of panels within the site also.

MR. MERCIER: So it's your contention that you also want 10 feet between the rows of panels?

THE WITNESS (McDonald): Yes, I think that's what the fire code calls for.

MR. MERCIER: And the 10 feet is for

what purpose, that's for vehicle access or personnel access?

THE WITNESS (McDonald): No, it enables people to maneuver within the farm panel.

MR. MERCIER: Right. I was just trying to figure out, was it equipment you needed to get in there such as some type of vehicle, or is it more on foot, you know, as a fire code issue?

THE WITNESS (McDonald): The code calls for a 10 feet clearance around ground mounted.

MR. MERCIER: Okay. Now the second item is the noncombustible base?

THE WITNESS (McDonald): That's correct.

MR. MERCIER: So it's your contention that they have to use gravel or some other material?

THE WITNESS (McDonald): Correct.

MR. MERCIER: Not grass or lawn?

THE WITNESS (McDonald): Correct. According to the Connecticut Fire Code that became effective October 1st, as well as the prior edition, that noncombustible base is required.

MR. MERCIER: So when you said the prior edition, that was issued when? You said the

prior edition.

THE WITNESS (McDonald): This is a copy of it right here. It is the National NFPA 1, 2015 editions with Connecticut amendments.

MR. MERCIER: Okay.

THE WITNESS (McDonald): And that also, that same requirement was required in the previous edition of the fire code.

MR. MERCIER: Right. Well, since that was issued in 2015, are you aware of any solar facilities in Connecticut that were built with lawn surfaces?

THE WITNESS (McDonald): I have no information about other facilities.

MR. MERCIER: If they were, you would consider that noncompliant with the codes?

THE WITNESS (McDonald): Yes, I would.

MR. MERCIER: And your other item is security barriers, fencing. I believe they do have a perimeter fence around the facility.

THE WITNESS (McDonald): Yes, they do. And I had a discussion with people from the development company about that, and they provided me with information about the length of the perimeter, which I believe was 2,900 plus feet.

And I pointed out to them that there should be other means of egress through that security barrier should people be introduced into that environment, and in my case where I consider fire personnel on the ground might be cut off from an egress point.

MR. MERCIER: So essentially a secondary entrance?

THE WITNESS (McDonald): Several.

MR. MERCIER: That's for personnel, not for vehicles?

THE WITNESS (McDonald): That's what I pointed out. Obviously, if they created vehicle gates around the perimeter, that would be totally acceptable too.

MR. MERCIER: Did you have any specific location where you thought one should be located?

THE WITNESS (McDonald): Well, again, in my worst-case scenario I've got people inside the perimeter, and they have to walk across uneven ground to gain access or egress from the site. So I was open to negotiations with how many of those locations might be required.

MR. MERCIER: One other item in your letter you mentioned was water supply on the site.

THE WITNESS (McDonald): Correct.
MR. MERCIER: There was discussion previously about there's a farm pond in the center of the parcel. Is that a suitable --
THE WITNESS (McDonald): Farm pond where?
MR. MERCIER: In the center of the parcel. I guess it was excavated previously as part of past land practices.
THE WITNESS (McDonald): I'm not aware of a water source on the site. As I described in my January 2nd letter to the Council, within Killingworth, if there's a development that's under -- a residential development that's under consideration, the town does require water supplies to be introduced based on the number of building lots and the number of rows and length of road, and currently the requirement is a 30,000 gallon water supply tank.
MR. MERCIER: Okay. But this is a bit different than a residential subdivision. Correct?
THE WITNESS (McDonald): Correct. Correct. For a commercial site, as I said, again described in my January 2nd letter, if there were

a commercial building, then based on the hazard contained in the building or the activity on the premise, we would calculate what the requirement is for water supply.

MR. MERCIER: What would be the hazard here at this site that requires such a large water supply?

THE WITNESS (McDonald): I can only speculate as to what could cause a fire in this power generation field.

MR. MERCIER: Okay.

THE WITNESS (McDonald): Would you like me to propose a hypothetical?

MR. MERCIER: Well, are you concerned about a grass fire or something of that nature?

THE WITNESS (McDonald): A ground fire driven by wind on a sloping surface, yes, certainly would be a consideration. I believe that's one of the reasons why they request a noncombustible base to be supplied under the solar panels.

MR. MERCIER: So in fighting say a forest fire where you don't have any water or a ground fire, and say a farm and there's no water nearby, how do you fight that fire?

THE WITNESS (McDonald): The fire department does have the capability of bringing water to a scene. It's carried in vehicles. Each engine carries 1,000 gallons of water. And we have two tankers in town, each carry 2,000 gallons of water. So we would arrive on site over some period of time with 7,000 gallons of water. 7,000 gallons of water is not a very large amount of water for a 25 acre site.

MR. MERCIER: Right. That's assuming the whole site is on fire, correct?

THE WITNESS (McDonald): Well, it all depends on which way the wind is blowing and how long it takes us to respond, how long it takes someone to notice that there might be a fire at that location. It's a large location, and it may take maybe a delay in someone contacting 911 to alert us to a fire or some incident, it doesn't have to be a fire, some incident at that location.

MR. MERCIER: I don't think I have anymore questions. Thank you.

THE WITNESS (McDonald): Thank you.

THE VICE CHAIRMAN: Mr. Silvestri.

MR. SILVESTRI: Thank you, Mr. Chairman.

Fire Marshal McDonald, I have just one question for you. How does the department handle say a residential house development, just one house with regard to onsite water storage?

THE WITNESS (McDonald): Again, a one building lot and one structure being built does not require a water supply.

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

THE VICE CHAIRMAN: Mr. Hannon.

MR. HANNON: Nothing.

THE VICE CHAIRMAN: No questions.

MR. HARDER: No questions.

THE VICE CHAIRMAN: Larry?

MR. LEVESQUE: Mr. McDonald, did you inquire with the State Fire Marshal's office about the interpretation of the new code as regarding solar farms?

THE WITNESS (McDonald): I did contact the State Fire Marshal's office, and they informed me that I should rely on the fire code, Connecticut Fire Code.

MR. LEVESQUE: Do you have a question about their interpretation of it as yet?

THE WITNESS (McDonald): Again, I can

state that the State Fire Marshal's office informed me that I should rely on the Connecticut State Fire Code as presented with its Connecticut amendments.

MR. LEVESQUE: Thank you.

THE VICE CHAIRMAN: Mr. Lynch?

MR. LYNCH: Fire Marshal McDonald, I saw you sitting in the back, so I know you heard some of my questions earlier.

THE WITNESS (McDonald): Uh-huh.

MR. LYNCH: Would there be anything special that you would require or ask of the applicant in training for your people?

THE WITNESS (McDonald): Offhand, I cannot think of anything. Clearly the fire department would want to be familiar with the site, would want to know are there additional points of egress or ingress to the site that we could deploy our assets or personnel. One of the other witnesses mentioned cut-off switches, and some familiarization with what is on the site and specifically operational questions.

MR. LYNCH: To get those cut-offs, which is for the inverters, would you want some type of diagram or chart that explains where they

are for your people?

THE WITNESS (McDonald): Well, I'm the fire marshal. I am also a firefighter and on a fire company, and clearly any information we can gather before an incident happens is very helpful. If you're going to ask me what I would specifically require is there needs to be signage on the site such as no smoking.

MR. LYNCH: So my cigars are out you're telling me?

THE WITNESS (McDonald): If you can stand on a 10 by 10 square of gravel, you're all set.

MR. LYNCH: I understand that there is a difference between fighting a grass fire or forest and an electrical fire. And I think in our past hearing I asked the question about fighting electrical fires, and they told me they fight it with foam. And talking with a Hartford lieutenant, you know, he said that they wouldn't fight chemical fires with foam because it has a water base, but they would use a dry chemical or CO2. Is this something you would want to have on hand in case instead of just a regular grass fire or forest fire you do get an electrical fire?

THE WITNESS (McDonald): Well, it depends on the size of the electrical fire. If it's an electrical panel, we would tend to use carbon dioxide or a dry chemical. All right. Because assuming the electrical panel is on fire, it's still energized, and you don't want to introduce water to have the participant putting the water on the fire and getting an electrical shock and create a medical emergency where there wasn't one.

In this particular case, and I'm speaking as a firefighter, not a fire marshal, but an active firefighter, we would deploy the assets we have on hand, and that's water. Rain falls on these electrical panels, so we put water into the area that might be on fire and have it run off the panels and hit the ground, and that's where I am assuming there's a fire. Because someone made a statement earlier that the inverters that's on this site, should they suspect that there's an electrical failure, it's going to turn off the system. Okay. Whatever else is burning when we show up, we're going to put water on the fire. So if it's a 4 acre grass fire, we're going to put water on 4 acres of grass that are burning

underneath the panels.

If it's a maintenance vehicle that has gone into the site and is now burning, we're going to put water on the burning vehicle and try and stop the spread of the fire beyond the scope of the site. Is that helpful, I hope?

MR. LYNCH: It is a bit. But keep your firefighter hat on for a second. And when you're in a situation where there's a fire within the compound and the inverters are turned off, the transformer has been turned off but it's a bright, sunny day, those panels are still hot. What concern do you have for your guys who have to walk between these panels to put out, let's say, a grass fire underneath?

THE WITNESS (McDonald): Well, from what I understand, there are going to be bushes still outside in this site and they could be on fire. We're going to maneuver beyond the panels and go to the seed of the fire and try and put it out, stop it from spreading. That's the goal.

MR. LYNCH: There would be no concern for accidentally, you know, running into these panels that are hot?

THE WITNESS (McDonald): That's one --

we operate in dangerous environments all the time. That clearly is a hazard for putting personnel inside this site. I can't describe to you what might be the risk to us, but we're going to go in there, we're going to stop the spread of fire, and we're going to extinguish the fire.

MR. LYNCH: I also understand that there's a statewide priority system, priority 1, priority 2, priority 3. If a priority 1, which I'm told is the top, would happen to exist there, what other towns would you call in?

THE WITNESS (McDonald): Oh, for mutual aid we call all the surrounding towns depending on the size and scope or the requirement by the incident commander as to what kind of apparatus we might need. Killingworth does not have a ladder truck, an aerial.

MR. LYNCH: And in this case you wouldn't really need a ladder truck but --

THE WITNESS (McDonald): I don't know. It's an 11 acre piece of property that could be on fire, and the fire chief or the officer in charge might choose to deploy an aerial piece to use an aerial attack, if you will, onto the fire and spray. We could deploy it in a defensive maneuver

outside of the perimeter to stop any fire inside to spread.

MR. LYNCH: I understand what you just said. I didn't think of that before. That's true. And my last question --

THE WITNESS (McDonald): When we call for mutual aid, if it's determined while they're en route that we don't need them, we turn them around and they go back home.

MR. LYNCH: Now, my last question has to do with secondary exits from the property. Having once in a previous profession been chastised because my patrol car blocked in a second exit, the captain in the fire department give me a verbal because just what you said, they have to be able to get their people out if they're trapped or their vehicles out. Would you as field marshal or as a firefighter on your own, you know, put a lot of pressure on the applicant to have at least one secondary exit?

THE WITNESS (McDonald): Again, over the length of the perimeter, which is 2,900 feet, I would want multiple points of access specifically for personnel. But if they put in a couple of different vehicle entrances, it wouldn't

bother me. More is better than none.

MR. LYNCH: That leads me to a question I just thought of which could be dangerous that there's only been one access to the property and the fire is on the complete other -- you know, there's going to be a couple of different areas, but it's on the other side, wouldn't it be advantageous to have, like you said, multiple accesses to the property so you wouldn't have to, you know, take your vehicles all the way around or get them stuck drying to maneuver?

THE WITNESS (McDonald): Yes.

MR. LYNCH: Thank you, Mr. Chairman. Those are all my questions.

THE VICE CHAIRMAN: Mr. Harder has indicated he has a question for the panel.

MR. HARDER: Yes. Thank you, Mr. Chairman.

Mr. McDonald, have you or your department ever fought a fire at a facility where there is a solar or was a solar panel installation, either ground matter or on a building, even in a residential like a single-family home, have you ever had the occasion to fight a fire that involved a solar system?

THE WITNESS (McDonald): That can only be an opportunity in my future because more and more people are putting solar panels on their homes or in their backyards. So when the guy parks his garden tractor or lawnmower underneath the ground-mounted system and the mouse nest catches on fire, we get to out go and put the fire out.

MR. HARDER: But that's all potential future opportunities, right? So far you haven't had that?

THE WITNESS (McDonald): Not in my 30 years of firefighting.

MR. HARDER: Thank you.

THE VICE CHAIRMAN: Mr. Mercier, anything else?

MR. MERCIER: No. No, thank you.

THE VICE CHAIRMAN: Any panel member? Larry, you have a question?

MR. LEVESQUE: Yes. I just wanted to know whether Mr. Lynch's questioning was -- how it was meant and how you took it when he said how do you fight a panel fire or a situation that's hot, whether you meant hot in temperature or electrical conducting?

MR. LYNCH: He knew what I meant.
MR. LEVESQUE: No. How did you take it?
THE WITNESS (McDonald): I take it both ways. Again, it's a risk that we are involved in in trying to do the job that we're called on to do. So whether it's electrically energized by the sun, right, or whether --
MR. LEVESQUE: I meant electrically that it had a short that was live still.
THE WITNESS (McDonald): Again, I heard someone say earlier that they have a way to shut down the system. Nobody turns off the sun until the sun sets. So we know there's inherent risk, whether it be because it's energized or whether it's on fire, it doesn't matter, there's a risk.
THE VICE CHAIRMAN: Are we all set here? Okay.
Mr. McDermott, I guess it's now your opportunity to cross-examine.
MR. McDERMOTT: Thank you. And as many lawyers before you have said, I will try to be brief.
THE VICE CHAIRMAN: We'll hold you to it.

MR. McDERMOTT: Thank you.
Mr. McDonald, you filed a letter on January 2nd that included a signature block of the fire chief. Correct?
THE WITNESS (McDonald): Yes, I did.
MR. McDERMOTT: And that signature block was not signed, right?
THE WITNESS (McDonald): That is correct.
MR. McDERMOTT: And then eventually it's true, isn't it, that the fire chief issued his own letter saying that he did not support the letter that you had filed on January 2nd. Is that correct?
THE WITNESS (McDonald): Yes, I know he sent a letter. I don't recall in its entirety. I don't have a copy of it, so I can't refer to it.
MR. McDERMOTT: Are you appearing today in your official capacity as the fire chief?
THE WITNESS (McDonald): I'm sorry?
MR. McDERMOTT: Are you appearing here today in your official capacity as the fire chief?
THE WITNESS (McDonald): I am not a fire chief.
MR. McDERMOTT: A fire marshal?

THE WITNESS (McDonald): I am a fire marshal.

MR. McDERMOTT: Are you here on your official capacity?

THE WITNESS (McDonald): Yes, absolutely.

MR. McDERMOTT: And why are you part of the KARS organization that is opposed to the project, shouldn't you be more neutral?

THE WITNESS (McDonald): I am.

MR. McDERMOTT: So, in other words, if the project and you can reach an agreement as relates to the specific issues you have regarding fire, you would otherwise not oppose the project?

THE WITNESS (McDonald): That's correct.

MR. McDERMOTT: Would it surprise you to learn that there's no other solar project in Connecticut that has a gravel base?

THE WITNESS (McDonald): I'm unaware of that condition. I know what the fire code calls for.

MR. McDERMOTT: Would it surprise you to learn that there's no other solar project in the United States that has a solar base?

THE WITNESS (McDonald): I can only enforce the fire code that the state has authorized me to enforce.

MR. LEVESQUE: Excuse me, Chairman. The counsel asked if there's no other project that has a solar base. Do you want to correct that?

MR. McDERMOTT: I do. Thank you, Mr. Levesque. I meant gravel base. I believe I said solar base. But you answered the question you thought I asked anyway, so I think we're good. Thank you.

Are you familiar with KARS' Exhibit 17, Mr. McDonald?

THE WITNESS (McDonald): I'm not familiar with any of the other exhibits in this filing except my own.

MR. McDERMOTT: Thank you. I'll move on then.

In your most recent letter to the Council it includes a sentence on the third to last paragraph, the last sentence, "The site development company agreed that a number of personnel gates could be installed over the length of the security barrier."

So that addresses one of your issues?

THE WITNESS (McDonald): As I've just stated, yes.

MR. McDERMOTT: Thank you. Are you familiar with revisions to -- what is the NFPA, Mr. McDonald?

THE WITNESS (McDonald): The National Fire Protection Association.

MR. McDERMOTT: And there are various committees of that association?

THE WITNESS (McDonald): Yes, there are.

MR. McDERMOTT: And are you familiar with the technical committee?

THE WITNESS (McDonald): Yes, I am.

MR. McDERMOTT: And are you familiar with recent revisions that have been proposed at NFPA by the technical committee?

THE WITNESS (McDonald): I'm aware of one specifically because your client provided me with a copy of it.

MR. McDERMOTT: And specifically that's a revision to Section 11.12.3.2 which has now changed the name from noncombustible base to vegetation management plan. Are you aware of that change?

THE WITNESS (McDonald): Yes, I have that in front of me.

MR. McDERMOTT: And also it's true, isn't it, that the revision goes on to strike the words "gravel base" and insert instead "vegetation management plan." Are you aware of that?

THE WITNESS (McDonald): Yes, I have that copy in front of me.

MR. McDERMOTT: And are you aware also that one of the reasons stated by the Committee for the revisions is because it is considered more environmentally friendly to have the vegetation management base rather than a gravel base?

THE WITNESS (McDonald): I'm aware that's what that position paper, or whatever it is, says, yes.

MR. McDERMOTT: Do you think given that change and those revisions, does that affect your position on the requirement that there be a gravel base to the Chatfield Solar project?

THE WITNESS (McDonald): No, it does not.

MR. McDERMOTT: And why is that?

THE WITNESS (McDonald): Because the current fire code that I'm required to enforce

does not include that revision.

MR. McDERMOTT: So once the code is changed, then there will be no more obligation for Chatfield Solar to follow this?

THE WITNESS (McDonald): No, because Connecticut will have its own amendments. And I can't tell in the future whether or not this particular revision would be adopted by the State of Connecticut.

MR. McDERMOTT: Are the requirements of the NFPA binding or do you have discretion in the implementation of the NFPA requirements?

THE WITNESS (McDonald): The Connecticut State Fire Code is binding on me as a local fire marshal.

MR. McDERMOTT: But even as written, the current version of the standard which we're talking about provides that a gravel base or other noncombustible base acceptable to the AHJ shall be installed. Correct?

THE WITNESS (McDonald): Yes, that's the phrase that's currently in the fire code.

MR. McDERMOTT: So you have discretion, isn't it true, or other base acceptable to the AHJ?

THE WITNESS (McDonald): That's correct.

MR. McDERMOTT: So there is no requirement, actually, that it be a gravel base; isn't that true?

THE WITNESS (McDonald): A gravel base or other noncombustible material is what the paragraph says.

MR. McDERMOTT: So why do you take the position that it has to be a gravel base?

THE WITNESS (McDonald): Or another noncombustible material.

MR. McDERMOTT: Do you know what the proposed implementation of the revisions to the NFPA are by any chance?

THE WITNESS (McDonald): I'm sorry?

MR. McDERMOTT: Do you know when the revisions to this section that we've been talking about will become effective?

THE WITNESS (McDonald): They could be effective today for any state that's adopted that particular proposal.

MR. McDERMOTT: Subject to check, would you agree that it's the 2018 plan that has already been adopted but just not adopted here in

Connecticut?

THE WITNESS (McDonald): What's effective and enforceable in Connecticut is the Connecticut Fire Safety Code, NFPA 2015, with the Connecticut amendments.

MR. McDERMOTT: Are you aware of any commercial scale solar project fire in Connecticut?

THE WITNESS (McDonald): No.

MR. McDERMOTT: How about in the United States?

THE WITNESS (McDonald): No.

MR. McDERMOTT: How about internationally?

THE WITNESS (McDonald): No.

MR. McDERMOTT: Would it surprise you to learn that a study in Germany of 1.3 million photovoltaic systems revealed only 210 cases of fires?

THE WITNESS (McDonald): Subject to somebody checking that, sure, I agree with that.

MR. McDERMOTT: Mr. Vice Chairman, we can take administrative notice or I'm happy to submit this into the record. It's entitled "Assessing Fire Risks in Photovoltaic Systems and

Developing Safety Concepts for Risk Minimization." And while it was a study prepared in Germany, the English translation of the German version was funded by the US Department of Energy Solar Energy Technologies Office. And it's I would think rather informative about the nature of solar fires -- or fires on solar panels, and we'd offer this as a full exhibit, and we can submit the necessary copies tomorrow upon our return to the office.

THE VICE CHAIRMAN: Okay. Go ahead.

MR. SCHWARTZ: We support very liberal procedures for submitting exhibits, so we would support that.

THE VICE CHAIRMAN: Fine. That will be admitted and with respect to the copies to be sent out.

(Petitioner's Exhibit II-B-15: Received in evidence - described in index.)

MR. McDERMOTT: Terrific. And thank you, Mr. Schwartz, for the courtesy. I appreciate that.

MR. McDERMOTT: I think with that, we're wrapped up on the Chatfield Solar side.

THE VICE CHAIRMAN: I guess maybe that

wraps up for us then. Well, I thank everyone for their cooperation today.

Before closing the evidentiary record of this matter, the Connecticut Siting Council announces that briefs and proposed findings of fact may be filed with the Council by any party or intervenor no later than April 25, 2019. The submission of briefs or proposed findings of fact are not required by this Council, rather we leave it to the choice of the parties and intervenors.

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 within 30 days of the date hereof.

The Council will issue draft findings of fact, and thereafter parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record. However, no new information, no new evidence, no argument, and no reply briefs without our permission, will be considered by the Council.

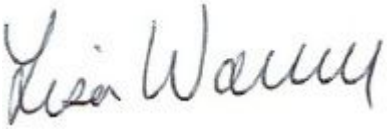
Copies of the transcript of this hearing will be filed at the Killingworth and Madison Town Clerk's Offices.

I hereby declare this hearing adjourned. Thank you for your participation, and have a safe trip home. Thank you.

(Whereupon, the witnesses were excused, and the above proceedings were adjourned at 4:41 p.m.)

CERTIFICATE

I hereby certify that the foregoing 166 pages are a complete and accurate computer-aided transcription of my original stenotype notes taken of the Continued Council Hearing in Re: Petition NO. 1354, Chatfield Solar Fund, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes Section 4-176 and Section 16-50k, for the proposed construction, maintenance and operation of a 1.98 megawatt AC solar photovoltaic electric generating facility on approximately 25 acres located generally south of Route 80 (North Branford Road) and east of Chestnut Hill Road in Killingworth, Connecticut, and associated electrical interconnection to Eversource Energy's Green Hill Substation located at 775 Green Hill Road, Madison, Connecticut, which was held before SENATOR JAMES J. MURPHY, JR., Vice Chairman, at 10 Franklin Square, New Britain, Connecticut, on March 26, 2019.



Lisa L. Warner, CSR 061
Court Reporter
BCT REPORTING SERVICE
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I N D E X

I n d e x (Cont'd):

PETITIONER'S EXHIBITS

(Received in evidence)