RECEIVED 2025 JUN 18 3:00 PM (E)

Technical Conference

Formal Case No. 1050

In the Matter of the Investigation of the Implementation of Interconnection Standards in the District of Columbia

Formal Case No. RM40-2022-01

In the Matter of 15 DCMR Chapter 40-District of Columbia Small Generator Interconnection Rules

Formal Case No. ET2023-02

In the Matter of the Petition of the Potomac Electric Power Company to Approve a Tariff Change for 20 kW and Below Residential Solar NEM Interconnections

Moderated by Dillip Kommineni

Tuesday, June 3, 2025

10:00 a.m.

Public Service Commission of the District of Columbia

1325 G Street Northwest, Suite 800

Washington, D.C. 20005

Reported by: Austin K. White

JOB NO: 7395704

A P P E A R A N C E S

List of Attendees:

Albert LaFrance, Representative Solar Solution

Hunter Davis, Attorney/Advisor PSC

Nicole Rentz, Commission Member, New Columbia Solar

Knia Tanner, Remote, OPC

Taylor Beckham, Assistant General Counsel, Pepco

Kevin Mara, Consultant, Office of the People's Counsel

Dillip Kommineni, Chief Commission Member

John Budd, Capacity Planning, DER Engineering Group

Lonko Tuma, Senior Engineer, DER Engineering Group

Thomas Bartholomew, Department of Energy & Environment

Brian Lydic, Interstate Renewable Energy Council

Laura Ward, Innovator Fellow Department of Energy & Environment

Kunle Adeyemo, Assistant Attorney General, Pepco

Kirabo Nsereko, Engineer Pepco, DC Capacity Planning

P R O C E E D I N G S

MR. KOMMINENI: Dillip Kommineni covering for Brian who is on vacation today. Thank you all for joining the June FC 1050 Technical Conference.

Before we start, just a quick couple of housekeeping. If you have any questions, please raise your hand online as well as here. And please state your name.

We do have -- our stenographer here will be doing the transcripts. And I believe OPC will be taking notes for today's conference. And for the next one, looks like DOE would be taking the notes.

We'll do a quick intro for the folks in the room. Then we can jump into the agenda.

Like I said, I'm Dillip Kommineni, Chief of Climate Action PSC.

MR. DAVIS: I'm Hunter Davis, Attorney Advisor with the PSC.

MR. ADEYEMO: Kunle Adeyemo, Assistant Attorney General with Pepco.

MS. BECKHAM: Good morning. Taylor

Beckham, Assistant General Counsel for Pepco.

MR. NSEREKO: Morning everyone. My name is Kirabo Nsereko. I'm an engineer with Pepco in the D.C. Capacity Planning Department.

MS. RENTZ: Nicole Rentz. I'm here with CHESA, the Chesapeake Solar and Storage Association.

MR. KOMMINENI: Thank you. Let's get started here. This month we will be focusing on the power flow analysis, and we have three presenters today. We have Pepco, OPC, and IREC. CHESA isn't presenting today. So we just have three presenters. And we would start with Pepco with their presentation.

Okay. Do you want me to bring up the presentation or --

UNIDENTIFIED SPEAKER: If you can --

MR. KOMMINENI: Yeah.

UNIDENTIFIED SPEAKER: -- state your name before you --

MR. BUDD: Hey, good morning everyone. My name is John Budd. I'll be kicking us off for the Pepco power flow analysis presentation. If -- I don't know who's driving, but I'll just say when to go to the next slide. I'd appreciate that.

MR. KOMMINENI: Yeah. John --

MR. BUDD: This presentation --

MR. KOMMINENI: This is Dillip here.

MR. BUDD: Yes.

MR. KOMMINENI: Go ahead. Can you spell your last name and the first name, too?

MR. BUDD: Oh, yeah.

MR. KOMMINENI: Thank you.

MR. BUDD: Sorry. Yes. So John Budd, J-O-H-N B-U-D-D.

MR. KOMMINENI: Thank you.

MR. BUDD: Is it all right if we get started?

MR. KOMMINENI: Yes. Sounds good. Thank you.

MR. BUDD: Okay. Good morning, everyone. My name is John Budd. I work in Capacity Planning in DER Engineering. I'll be kicking this off for the power flow analysis for power for -- in Pepco, Washington, D.C., and then we'll have a few of my colleagues talk about some of the power flow process and when the studies are actually run.

Next slide.

So to start off, to introduce the topic, just generally what power flow is and how it's related to the regs and the small generator rules. So if you read through them at a high level, it's not exact language, but effectively what they say is that for level 1 and level 2, there's a line in there that sort of says, "In lieu some of the screens, a power flow analysis may be used to identify what some of the different violations are that we see when interconnecting DERs."

And then finally there is a technical explanation that is provided to the customer developer upon completion of that power flow analysis.

Next slide.

What is power flow? So there's a lot of non-technical folks on the call. I -- I understand. So on the right-hand side you see the transmission tower. It's basically just wires that are strung between two points over a wide geographic area. And that's done at the distribution or the neighborhood level as well. And you'll see the smaller poles.

Power flow is effectively how do we, as engineers, understand how the electrical power is flowing along those wires on paper or in today's world on a computer, right. And so it just uses physical laws, and it tries to identify how the electricity is flowing along those wires. And it uses math. There are mathematical techniques that are pretty standard to the industry that different power flow softwares use, or if we do it by hand.

And in addition to calculating those electric power flows, it also calculates things like the voltage at a given location in your electric network.

Next slide.

So for Pepco power flow, to give you an idea of what the landscape looks like, we separate power flow roughly into two types: secondary only and then primary and secondary.

And in general, for secondary only

power flow, that's where we're looking at DER sizes less than 50 kW. Anything above 50 kW or equal to 50 kW, we start doing both primary or considering both primary and secondary.

And then within those different two subcategories where it's below 50 and above 50, it sort of gets broken down even further, and we can start looking at the different levels of applications and -- and where they -- they may or may not fall into.

So once we get below that, we sort of split it into radial secondary network, secondary on the left, and then on the right you're also going to have radial and networked as well. And that should say "primary." It's a typo, but we can fix that up.

So this is sort of the different types of power flows at a very high level. You can think of the -- the scope of where power flow is being run at -- at Pepco for the different types of systems.

Next slide.

So power flow can be broken down into three main processes or three main steps shown below by that flow chart. So the first part is the actual electric data models. These are the -- the mathematical representations of the electric system.

And they are the most critical part because if those models are not accurate, the old saying is you put garbage in, you're going to get garbage results out. So those models are are key. They sort of drive everything.

The next step is the actual power flow engine. And in -- in all cases today that engine is really just software, and it's implementing a mathematical technique or equation. And there's different techniques that can be used that are pretty standard to the industry.

And then finally after that engine calculates the results, they are distributed to reports that can be reviewed by engineers where they can determine what types of upgrades are needed based on the violations that are being observed by that power flow. And like I said, accuracy is key.

Next slide.

Currently the software vendor is EDD at

Pepco. This is sort of implementing that process flow, the electric model, the power flow engine, and ultimately the reports as well. And the name of the software is Distribution Engineering Workshop, DEW.

At Pepco we are constantly exploring new ways and trying to upgrade our systems as needed. But this is currently the software solution we have.

Next slide.

So that was sort of the introduction to power flow. I'm going to talk about now -- we sort of touched on this last week when we talked about limit violations. The power flow study itself gives you the results which then are sort of compared against different limit violations.

And I'm going to talk about the most common ones which are published in our TIR. That's sort of what we're deriving this from. And I'll also try and relate them to some of our restriction maps, feeder maps to try and illustrate how some of these limits are displayed publicly.

Next slide.

So at a high level, the technical

interconnection requirements for DERs at Pepco, it's -- it's sort of the document we have that says what we need to do to integrate DERs into the Pepco distribution grid. It's created in conjunction with a lab EPRI.

It's structured around 1547, 2018 and other standards where applicable. And the goal of that TIR is to maintain a safe and reliable grid while accommodating the most amount of DER capacity as efficiently and economical as possible.

So at the bottom here we have a little process flow chart that tries to relate what does TIR have to do with power flow. So if we talk about the TIR document on the left, what's found in that?

There is system limits, design requirements, operating requirements, equipment requirements are some of the main things. The system limits are what we're most focused on here. And we talk about the technical review that Pepco does as part of the interconnection process in the middle there.

Within that technical review, the power

flow is performed, and those power flow limits are derived from some of those system TIR limits.

So that's how the -- the TIR sort of relates to the actual power flow analysis, which is conducted as part of the technical review.

And ultimately the goal of all of this after the technical review is to prevent that unreliable, unsafe, in-grid operation, prevent all these issues that can be caused by the DER and try and correct them to enable that DER to get online prior to operation of that DER on our system.

Next slide.

This document is shown on our website. If you wanted to see what some of these system requirements are or design requirements, we've put together quick references guides that sort of show all of this information from our TIR. And I have the links posted in this website if anyone is interested on our public website.

Next slide, please.

So we'll go through some of the most common limits that we talked about that can be found.

So the first one that's probably the most prevalent to DERs are the voltage limits. So the ANSI standard will be cited in our TIR. And it's talked about, ANSI C84.1.

So in general, when we're looking at voltage, if we put it on a percent or per unit basis, regardless of whatever the nominal voltage is, we want to keep the voltage below 105 percent or 105 per unit. And we want to keep it above 95 per unit.

And in general, it's typically overvoltage is going to be the problem that DERs cause, but there are some rare cases where DERs can cause undervoltage as well. And this is -- and if we identify preexisting limit violations on the primary part of this feeder, these feeders will be restricted type B. And that restriction can be identified on our website, which is shown at the below PHI restrictions link.

Next slide, please.

The next limit that's common -- not -- actually, this is not that common, but it is something that's relevant from a voltage standpoint is TIR -- is in our TIR, our voltage fluctuations and flicker limits. So we have some relevant standards here cited from 1547 which talk about RVC voltage or limits on DER caused voltage fluctuations.

In general, we sort of limit our flicker to 0.35, which isn't directly power flow, but some of the data needed to calculate and compare that flicker evaluation comes from power flow, which is why it's mentioned.

And then also we calculate the voltage at all the different equipments that may regulate our voltage. So regulators, for example, will look at the voltage at each regulator and see if that DER is causing that regulator's bandwidth to be exceeded. That can be done at capacitors as well depending on the type of control used.

And then finally, feeders that end up exceeding this violation preexisting, right, in the base case, as we talked about last time a few meetings ago. These feeders can be identified on our website at the primary level only for type B and type E. And the link to those restrictions are below as well.

Next slide, please.

The next limit that's most common when looking at DERs interconnecting to our system that power flow is sort of calculating for are the equipment thermal and loading limits. So this is pretty much from our TIR.

Basically, there's different types of equipment on the Pepco distribution system. There are underground cables, distribution service transformers. There are fuses, reclosers, breakers, switches, a lot of different types of equipment that I can't name every -- all of them.

But effectively the power flow analysis that we perform will identify where we exceed the manufacturer rating limits of these different types of equipments.

In Pepco there is an exception, and this is called out in our TIR for the substation transformer. There are N minus one and N minus zero conditions that cause us to look at reverse flow for 40 percent of the aggregate substation rating to prevent transformer derating under those different types of conditions.

And where we have preexisting limit violations for this type of loading limit at the feeder and substation level only, you're going to see these feeders restricted to type D and type G. And those restrictions are shown on our website.

Next slide, please.

I believe this is the final common one that we have. And this is one where it's sort of -- it's highly different, depends on the type of equipment where you're seeing reverse power flow.

Reverse power flow is not necessarily a bad thing. There are -- there, you know, there are ways to accommodate it, but depending on the type of equipment that you're sending the reverse power flow through, you may need to take some kind of action.

So that may require upgrading the grid. It may require changing a setting to a type of equipment. It may require both. There are different ways to address it; right?

And so when we talk about reverse power flow, we have what we call safety buffers within our

TIR requirements. These safety buffers basically prevent us from getting to the absolute point of where we hit reverse power flow. They're designed to give us a little bit of margin.

So for example, if, you know, reverse power flow you would think would happen just when the power goes from zero kilowatts to negative. We have a little bit of buffer there. And that's to account for things like model inaccuracy, intolerance, seasonal changes of load. So we're not going right over the threshold immediately upon some minute change to the system.

What are the different types of equipment that can't -- that may not be able to handle reverse power flow? So voltage regulators are probably the most common ones. They require upgrades to the regulator itself in some cases, control and telemetry, to prevent mis-operation and high voltage.

So we've -- we've actually had cases in the field where we have reverse power flow to regulator that was not set properly, and we -- we had to disconnect the DER because it was causing high voltage.

So these -- these -- when we see these cases in different parts of our territories, we have to fix them.

Circuit terminals may need to be upgraded. It's -- it's rare, but in some cases the feeder relays may be sensitive to directional settings, and that's evaluated on a case-by-case basis. But this is much rarer, and it's not as common.

Network protectors are very common in D.C. It's probably -- actually that's probably the most common if you leave out the radial networks. Network protectors can handle no reverse power flow. So they are very sensitive. And where we have network protectors, we do need to evaluate if there is reverse flow going through them and mitigate as needed.

Capacitors may require adjustments through the reverse power flow. It's less common in Pepco because there is a centralized brain that controls them. But I -- I simply mention it. If there are Volt/VAR controls, this can cause issues as well.

And then the substation transformer is probably the most critical piece because if you reverse power flow through the substation transformer -- we talked about this a few meetings ago -- it can outage the entire substation, which could be thousands and thousands of customers.

Where we have preexisting limit violations of this type at the substation, we will restrict these feeders to type A, and you can see that on our website.

And where we have reverse flow on network feeders, that's primarily the network protector issue. Those feeders should be restricted to type N. And those will be shown on our website at the below links. These are preexisting violations. They do not account for in-review DER that are -- that currently have not committed to interconnecting.

Next slide.

All right. And now I will hand it off to Lonko and Kirabo. They will be talking about the actual -- a little bit more into the nuts and bolts about how the power flow processes run.

And Lonko, you can -- you can start it off. Just, I guess, remember to spell your name for the stenographer. Thank you.

MR. TUMA: Thanks, John.

Good morning. My name is Lonko Tuma. First name L-O-N-K-O. Last name T-U-M-A. I am a senior engineer at the DER Engineering Group. I will be going over the power flow process for below 50 kW on a radial feeder.

Next slide, please.

So this page is about the power flow for, like I said, for the below 50 kW on a radial feeder. I'll just go through this point by point.

So our powerful process starts with initially getting the application and technical review in CTG. And from there we move -- move forward with pulling the address in our GIS system and getting the service transformer.

Using that, we can isolate the circuit where the application is, and we can also pull into some of our existing database on existing DER on that circuit.

Next we would input that transformer in our DEW model. I believe John went over that. And -- and we'll pull up the -- the model in DEW. And we will verify that model with what we have in GIS and any other information that we may have, specifically with the existing generation on that circuit.

Next we would run what we call a before case study. This is just a power flow -- an initial power flow without the -- the current application that we are analyzing.

If that fails, that means we have an existing problem on -- on that circuit and we would run studies to mitigate that. And from that we can create a job to -- to address those before the customer can interconnect.

Now if that passes then we would move over to the second power flow, which is what we call an after case study. And this includes the current application. And again, if that fails then we run a circuit mitigation to analyze for a downsize option or if the case upgrades.

If it passes, it moves -- it moves over to technical review. No upgrades required. If it fails and we do the upgrades, then we have a technical review, complete with upgrades, required.

And from this we can come up with a scope of work for the customer and what is necessary to get that circuit back up to normal operating conditions before they can interconnect.

Next slide, please.

So during our power flow, these are some of the assumptions that we make. So the first one would be for each load on that circuit. We have a minimum daytime load that we apply to each of the residential loads on the circuit. So -- and this comes from a -- an average of a sample of real-time values that we have on our system.

And the next assumption we would make is for the existing generation on the feeder on the circuit, we -- we apply the PHI Volt/VAR curve to the power factor setting. And all other inverters we just apply a unity power factor.

And again, as I mentioned before, to

make sure -- we -- we do verify that the -- the model -- we do verify the model. So sometimes field verification may be necessary to make sure that we have an accurate model before we run our power flows.

And the starting voltages for our circuit transformers are based on feeder or the substation voltage.

Next slide, please.

So this is some of the common mitigation we do when we do have a failure when we'd run the power flow. So in case of, say, transformer overload, we -- we upgrade the transformer to the next standard size transformer. For voltage above the NC limit we upgrade the conductor to -- to the -- to the extent that it eliminates the violation.

Same thing for the TIR -- TIR flicker voltage violation, conductor terminal limit violation, and for line regulator reverse flow. I believe John mentioned as well. We could change the settings on the -- on the regulator to cogen mode.

Next slide, please.

This is for Kirabo.

MR. NSEREKO: Hello, everyone. My name's Kirabo Nsereko, as I mentioned earlier. First name is K-I-R-A-B-O. Last name N-S-E-R-E-K-O.

So here I'll be talking about power flow for secondary network in a connected PV. So if we -- if we receive an application less than 50 kW, and we determine that the point of connection is -- is on the grid network, then in general there's no power flow required.

If the aggregate PV generation on that network is less than 5 percent of the network peak load and basically this is done to expedite the review process.

Next slide. Next slide, please.

All right. So here I'll be talking about power flow process for applications 50 kW and above.

Next slide, please.

All right. So first of all, I'll be talking about power flow for radially interconnected feeders. So the software model we use in this case is DEW. And so some of the pre-checks that we do before performing the power flow analysis would be to verify the PV system size and location on the feeder.

And then in DEW we would confirm that the feeder model corresponds to that which is in GIS.

And then for power flow simulation inputs, some of the inputs are existing and prospective solar systems on the feeder. And the 8760 hourly customer loads on that feeder, and also the estimated hourly solar generation for the solar applications on that feeder, both existing and prospective.

And then for the power flow setup, we would identify solar systems within 2,000 feet of the system in review. And then we would verify critical days and times on which to perform the power flow. And these critical dates are based on the PV output and the daytime load.

And then we would select a scenario simulating PV generation swings from 100 to 20 percent.

Next slide, please.

All right. So after we obtain the

inputs and set up the simulation, we would run the power flow. We -- we run both a before case and a after case. The before case does not include the PV system that we'll be reviewing. And then we would run a after case that includes that PV system that we're reviewing.

And for the after case, if there's no power flow violations then, you know, we would say the power flow passes and we're good to go. But if there are violations then those violations need to be addressed.

And some of those violations are voltage -- overvoltages, flicker, and reverse power flows. And reverse power flow would be through the voltage regulators.

And some of the steps we use to mitigate these violations are, for example -- for example for overvoltage and voltage flicker, we may require a PV system size downgrade, or we could change the inverter settings to a leading power factor or absorbing VARs. And the power factor would be between 1 and 0.9.

And then for reverse power flow violation through a voltage regulator, we would upgrade the voltage regulator controller and that'd be at no -- no cost to the customer.

Next slide, please.

All right. So here I'll be talking about power flow for secondary network interconnected PV. The software that we use is EasyPower.

And one of the main differences when performing the power flow for network as compared to a radially interconnected system are that the networks, the PV system output, has to be limited to avoid reverse power flow through our network transformers because this reverse power flow could cause the network protectors to trip, thus potentially disconnecting customers from the network.

And so for our networks we -- we basically have two types of networks. We have a grid where the customer is connected to a mesh network of transformers. And in this -- this way there's more than one path for power to flow to the customer.

And the second type of network we have

is a spot network, and this is where the customer is applied from two or more dedicated transformers.

Next slide, please.

All right. So here I'll be going a little bit more into depth on how we perform the power flow for the secondary networks. So for a grid-connected customer power flow is required to determine the maximum export limit at that location. And that's basically so that there's no reverse power flow through the network protectors.

And the maximum power export or MEL, or maximum export limit, is determined under the network's minimum daytime loading conditions. And it's based on the excess power allowed at the customer location.

But in certain instances, for example when there's, like, a low load at the customer point of interconnection, the grid customer may be required to import power from the grid and maintain a minimum import level.

And then moving on to a spot-connected customer. Due to the spot network configuration, there is no power export allowed at any given time. And to prevent the reverse power flow through the network protectors, customers are required to always import power from the grid. And the minimum required import is 20 percent of the minimum daytime load, but no less than 21 kW.

Next slide, please.

I'll be turning it over to Lonko from here.

MR. TUMA: Yeah. So this is how we document the results of our power flow.

Next slide.

So currently what we submit to the -- to the customers after we -- we -- after the conclusion of our power flow is -- is scope of work with the upgrades needed. As you can see on the right-hand side, I highlighted that in yellow.

Moving forward what we plan to include in that -- in that estimate letter would be what you see on the left, which is the results from our power flow itself. This highlights the violations that we've identified during each power flow, so that what you see on the left-hand side gives you an example of a sample project.

So at the top left-hand corner there that's -- moving forward, that's something we would add to -- to our report for each -- for each project. And on the left-hand side at the bottom, that's also a sample of the capacity planning technical review, which we also plan to add to -- to the report. And that gives you an analysis of each project and from a capacity point of view.

And like I said, this is moving forward so this is currently not -- not on -- not being shown to the customer.

Next slide.

MS. BECKHAM: That's it. That's it, Lonko. That's the last slide.

MR. TUMA: That's it? Okay.

Okay. So that's our conclusion. Do you have any questions?

MR. KOMMINENI: Thank you for the presentation. This is Dillip from PSE. I have a couple of questions.

First question I have is, which stage of this interconnection process is this power flow done? I know there's several stages from pre-application to level 1 screening and level 2 screening. So is this done in multiple stages or -- or do you guys do it at the front end?

MR. TUMA: So this power flow is done during the technical review stage. So -- and we do technical review for level 1 and level 2s. So again, once you've completed the first stage and the completed review by CTG, and the engineering team gets the applications, we place them in technical review and this is part of that process.

MR. KOMMINENI: That would be level 1 screening within the process?

MR. ADEYEMO: Yeah. I was also going to say -- is it slide 15? I think that it might be. I don't know if this helps, Lonko, as you go through that. Sorry, Kunle Adeyemo with Pepco.

MR. TUMA: Yeah, thanks Kunle. So yeah, so as -- as it -- on the power flow sheet here, the beginning of the power flow process starts when we receive the application from CTG. So that's after your completeness review. I don't know if -- Dillip, I don't know if that answers your question.

MR. KOMMINENI: Yeah. That's good. Thank you. Let me turn it on to other folks on the call. I do see Kevin Mara.

MS. TANNER: Good morning, this is Knia Tanner. I'm just -- I'm taking notes and just real quick, if you use an acronym, can you spell out what it means so I can make sure I can capture that? Thank you.

MR. KOMMINENI: Thank you. I think I have first Kevin Mara on the call. That's whose hands are raised.

MR. MARA: Yeah. Thank you. On slide number 11, if we could go there. You list flicker at 0.35. What's the value for that? Are you using IEEE 1789 or -- or 519 or what -- what's the units for that flicker?

MR. BUDD: It's dimensionless.

MR. MARA: So you're -- you're using the -- the IEEE 1789 on that one.

MR. BUDD: It would --

MR. MARA: Is that right?

MR. BUDD: Good. It -- it would be basically taking the change of voltage ratio times some kind of shape factor. I -- I can't recall the exact calc. I'd have to go back and see what the exact -- but there's like a minute per second or changes per minute to estimate that value. And it's all just an estimate in the end. You're not going to really know what it is until you measure it in the field.

MR. MARA: Okay. And so the -- the other value there, the POI less than 3 percent, could you explain that one?

MR. BUDD: Yeah, so basically this is relating to the IEEE standard, the one above, 1547. It's around that RVC. Basically, you're looking at a change -- I believe 1547 says something like averaged over 1 second, a 3 percent change.

We don't really have a good way to do this with power flow. This is something that I mentioned there 'cause it's just a criteria that's in our RTIR that you're still held to because it's in 1547.

MR. MARA: Okay.

MR. ADEYEMO: Sorry. Can you guys spell out the acronym POI?

MS. WARD: Point of interconnection.

MR. MARA: Point of interconnection.

MR. BUDD: But effectively that change of 3 percent, that percentage is what feeds into the flicker calculation at the POI.

MR. MARA: Okay. So basically you're turning the -- the solar or DER off and on and seeing what the -- the change in voltage is?

MR. BUDD: Yeah. And Lonko or I think it was -- I forget who described it -- but we sort of outline that in a previous slide. We go from -- I think it's -- was it 20 to a hundred, and we look at only DERs within 2,000 feet.

MR. MARA: Right. Yeah, that was mentioned on the larger feeder analysis. And finally, as a -- as a point, I'm pretty sure -- and correct me if I'm wrong -- that within the District there are no line voltage regulators.

MR. BUDD: I don't think that's true. And we certainly have LTCs at every single substation.

MR. MARA: Oh, agreed.

MR. BUDD: So, there is regulation at every substation.

MR. MARA: Agreed. Agreed. We have regulation at all the stations, but pretty sure you don't have line regulators, or if you do, there's very few. Okay, thank you. That was all my questions. Appreciate it.

MR. KOMMINENI: Thank you, Kevin. Next we have Thomas -- Thomas, if you don't mind, can you spell your name?

MR. BARTHOLOMEW: Yeah. My first name Thomas, normal spelling. The last name is Bartholomew, B as in boy, A-R-T-H-O-L-O-M as in Mary, E-W. I'm with the Department of Energy & Environment.

I was wondering why you guys use different software packages to do the analysis for a different size system. Can you just explain, like, what the, you know, why you -- why the different software is needed for different -- the different analyses.

MS. BECKHAM: Do we have someone from the capacity planning team who wants to respond to that?

MR. NSEREKO: Yeah, I couldn't speak to that. So we use DEW for radially interconnected feeders, and we use EasyPower for our networks. Reason being is networks can't really be modeled in DEW. So that's -- that's why we use EasyPower for that. Hope that answers your question.

MR. BARTHOLOMEW: So I guess I'm just -- I mean, so EasyPower wouldn't also be -- couldn't also use for radial? I mean just it doesn't have that functionality or -- I'm just -- I'm just wondering why two systems? Do they -- do they both only work on the certain type of networks? Is that what you're saying?

MR. NSEREKO: Difference -- difference is that EasyPower doesn't have some of the functionalities that DEW has. So with DW -- DEW we could perform a time -- time series power flow, whereas networks, that's a bit -- we -- we're not really able to -- to perform that time series.

MR. BARTHOLOMEW: And so why is the time series important?

MR. NSEREKO: John Budd, are you able to help me out on this one?

MR. BUDD: I -- I don't think it's time series per se. I think you're talking about finding the minimum daytime load. The reason why it's -- it's because the networks are not in DEW. They're in EasyPower. I think that's the short answer.

MR. BARTHOLOMEW: Just again, I'm not sure what that means. They're not in -- you mean you just --

MR. BUDD: Electric models are not in DEW they're in EasyPower. I think that's the short answer.

MR. BARTHOLOMEW: Okay. So the -- the type of design of the network is not, like, preloaded in the software that you're working with. Is that --

MR. BUDD: Correct.

MR. BARTHOLOMEW: Okay. Okay. All

right. Thank you.

UNIDENTIFIED SPEAKER: Does that answer your question, Tom?

MR. BARTHOLOMEW: Yes. Yep.

MR. KOMMINENI: Moving on to the next person, Brian Lydic. Brian, if you can spell your name. Thank you.

MR. LYDIC: Yeah. It's Brian, B-R-I-A-N, Lydic, L-Y-D-I-C with Interstate Renewable Energy Council or IREC.

A couple quick questions on the reverse power flow limits or buffers that you mentioned. I didn't -- I didn't catch if you had listed them all or all the types of various power flow buffers on that slide. But are those listed in your TIR for -- for all the different potential types of buffers that you might have?

MR. BUDD: Yes, yes. They are in our TIR.

MR. LYDIC: Okay. Great. And then you mentioned there's -- you utilize an 8760 of customer loads that you input into the power flow. Is that --

is that like disaggregated AMI data that you're inputting there, or can you describe that real quick?

MR. BUDD: Are you referring to the larger than 50 or the less than 50?

MR. LYDIC: That's a good question. This was on the -- this was on the --

MR. BUDD: It was larger than 50.

MR. LYDIC: -- process flow diagram. I can't remember which one. But is there a difference between the -- the two and -- and how you input the customer data?

MR. BUDD: Can you go to the next slide? Oh, keep going. We're at the beginning now. We want to go to Lonko's part. One more.

So if you look at his -- the first point for less than 50 it's set to an average of sampled PHI real time load data. Lonko, Is this AMI?

MR. TUMA: Yes. Averages --

MR. BUDD: Okay. Yes. There would be --

MR. TUMA: Okay. That would be the average.

MR. BUDD: It is? So that's correct. It's an average for less than 50 and if you go to greater than 50, it's on the next few slides where Kirabo -- keep going. That one. Sorry. Back up. First slide. One more. One more. Okay. This one. Okay.

So this uses the exact load, I believe. Yes. Is that -- is that true?

MR. TUMA: Yeah. Here the 8760, that's the hourly AMI load.

MR. BUDD: Yep.

MR. TUMA: Customer load.

MR. BUDD: Okay. Yep. And it just pulls the minimum load at that time and pulls it in. That's what I thought. I just wanted to confirm with Kirabo.

UNIDENTIFIED SPEAKER: Okay. So that's, yeah. So that's just basically for selecting -- selecting the one hour that you're doing the power flow analysis at is analyzing that 8760; correct?

UNIDENTIFIED SPEAKER: Correct.

UNIDENTIFIED SPEAKER: Got it. Okay. Thank you.

MR. KOMMINENI: If you're all set next, moving on to Laura Ward. Can you spell your name and where you're from? Thank you.

MS. WARD: Yeah. Good morning everyone. My name is Laura Ward, W-A-R-D. I am the Energy Innovator Fellow Department of Energy & Environment. Thank you for your presentation.

Related to the power flow studies, so while traditional power flow analysis primarily focuses on voltage levels as you explain in every single level of voltage and power flows through transmission lines, incorporating frequency considerations is essential for -- for understanding of system dynamics and stability.

My question is related to this. If Pepco is considering frequency violations in their power flow analysis for the future?

MR. BUDD: So if we were going to consider frequency, it would have to be a level 4, and I believe there's a provision in there that would allow us to do additional analysis that could evaluate frequency, but I don't think it would be powerful. I think it'd have to be another type of analysis.

MR. KOMMINENI: John, can you be a bit louder here? I think -

MR. BUDD: Yeah. Sorry. Is that -- is that better?

UNIDENTIFIED SPEAKER: Just FYI folks who are joining virtually can hear you just fine, John, but sounds like -- in the room.

MR. BUDD: Oh, okay. So to -- to review frequency, I think you're getting at stability -- system stability maybe at, like, the transmission level. That would have to be a level 4 review. And there's a provision in level 4 that talks about evaluating stability. So that would have to go to a level 4 review, and it would probably take a little bit more than what we do right now as part of our power flow.

MS. WARD: Okay. Thank you.

MR. KOMMINENI: All right. If you're all set, then moving on to Albert LaFrance.

MR. LAFRANCE: Thank you. My name is Albert LaFrance. That's L-A-F-R-A-N-C-E, first name Albert. I'm with Solar Solution.

A question regarding interconnections on secondary networks. I'm wondering if -- if Pepco is investigating any of the potential technologies that would allow some degree of power export through a network protector, you know, limited in -- in -- both in -- in magnitude and duration.

I'm looking, you know -- so I know some utilities have looked at desensitizing the network protector and then there are even more sophisticated solutions such as being used by the ENMAX Canadian -- excuse me -- Canadian utility that would actually put a restraint on the network protector so that it will not operate unless there's actually a fault detected on the network.

And of course, that requires high-speed communications. That's a more advanced technology. But just wondering if -- if Pepco is looking at any of those possibilities.

MR. BUDD: I mean I -- I can't speak to

those specific ways, but we're always looking to increase the amount of solar on our secondary networks. I don't know -- yeah.

MS. BECKHAM: Sorry. John, can you just spell your name and let the court reporter know what you're from?

MR. BUDD: Oh, J-O-H-N B-U-D-D.

MR. KOMMINENI: Albert, are you all set or do you still have any questions?

MR. LAFRANCE: Just -- yeah. If I could just -- actually not really follow up, just somewhat related to that. We don't do a whole lot of network interconnections, but one thing I've noticed that's changed is -- is, you know, in your presentation you mentioned that, you know, the -- the minimum import would be at least 21 kilowatts.

And I've noticed that more recently that's being specified on a per phase basis. In other words, the operating requirements, we'll say 7 kilowatt minimum on any phase rather than 21. And so that causes, you know, more curtailment and -- and relay trips.

And I was just wondering if -- if you could discuss, you know, the reasons for that. I assume it's the way the -- the network protector relays are set up, but you know, it -- it does cause more -- if there's an imbalance, you know, a lot of times we'll see that the total load will be -- will exceed the -- the minimum but one phase will be below the -- the per phase limit. So I was just curious about that.

MR. BUDD: We'll have to follow up with our protection teams, but I believe it's because the network protector operates on the worst phase.

MR. LAFRANCE: Okay. Yeah, that makes sense, yeah. But are you seeing -- again, I -- I guess a follow-up on that would be on many of the older systems that just worked on the -- that were given operating requirements on an aggregate basis -- in other words, say 20 -- it just says "maintain minimum import of 21 kilowatts."

Were you seeing mis-operations because of those imbalances, or is that more of like a -- just a -- a proactive change in the requirement?

MR. BUDD: Again, I -- I'd have to follow up. I have not seen it personally, but it -- it's possible other folks have. So we'll have to follow up.

MR. LAFRANCE: Okay. Thank you. That's -- that's all I had. And by the way, I appreciate all of your presentations today. They've been very informative.

MR. BUDD: You're welcome.

MR. KOMMINENI: Thank you, folks. It's five minutes to eleven. Maybe we can take a quick stretch break and regroup at eleven. And then we will move to the next item, which is the OPC's presentation.

Knia, would you be presenting the -- your slides or is someone from your team going to be presenting?

MR. MARA: This is Kevin Mara. I'll -- I'll be presenting --

MR. KOMMINENI: Yeah.

MR. MARA: -- for OPC.

MR. KOMMINENI: Perfect, Kevin. Kevin,

would you like to bring up the slides at eleven, or do you want me to bring it up?

MR. MARA: I'll go ahead and pull them up now to get ready.

MR. KOMMINENI: Perfect. Thank you. We'll regroup at eleven. Thank you.

(Off the record.)

MR. KOMMINENI: Kevin, do you want to get this going?

MR. MARA: Sure. Thank you. Good morning, this is Kevin Mara. Last name is M-A-R-A. I'm a consultant working with the Office of the People's Counsel on this case and -- and other cases. And so I'd like to just kind of review some of OPC's comments regarding the -- the power flow and some of our thoughts regarding power flow for the customers.

Okay. So I'm going to talk about some of the screening levels, the starting voltage assumption, and -- and some transparency issues that we see. And that's what I'm set up to talk about today.

So in -- in level 1 it allows for

screening for those applications less than 20 kW. We heard today from Pepco that sometimes they skip the screening process and jump right into -- to modeling the screening process. And -- and our opinion is there to try to speed up the process even more by not having to do the power flow.

And so in a lot of jurisdictions, small kW solar has minimal impact and therefore doesn't require the full-blown power flow analysis. And so one of the screenings that's currently in there is the export shall not exceed 15 percent of the line section, and so in the line section that would be down line of a fuse or some type of overcurrent protective device.

The intent is with the 15 percent. If the -- if the DER was greater than the minimum load, it's possible to have an -- an island, an unintentional island. And if the DER is not big enough to support the load, then an island can't be sustained.

And so this has been a -- a longstanding screening, which is very conservative to use the -- the 15 percent. We already heard from Pepco that they have the ability to pull out the average -- I mean the hourly demand of customers on a feeder. Presumably, they could do it on a subset of that which would be a group of customers served by a transformer.

So it would be possible to get the minimum daytime loads either at the transformer or on the feeder itself. And again, that's really what we're after is to find that -- that minimum daytime load.

A 33 percent penetration is a level that's contained in 1547.7. It's a slightly older standard, but it is a screening tool that's used in a lot of areas because it's recognized that commercial residential feeders have a higher minimum demand, especially a daytime demand.

And further, because we're using inverters that are already UL certified, the need to use minimum load as a screening criteria for anti-islanding really is -- has limited value.

So distribution feeders, the minimum

load, and -- and it can vary from feeder to feeder. So this is sort of a generic number -- is approximately 15 percent. And so the screening of 15 percent is also, therefore, a very conservative value.

And so the recommendation is to -- to move to a higher screening level or utilize the -- the minimum daytime load, right, especially for solar. Most people, their minimum load is at nighttime. But with the -- with solar it's the daytime minimum load that we're really focused on.

This graph is a typical distribution feeder. It does not represent Pepco. So don't -- don't take it that as just a typical feeder. And you take the demands of the feeder for every hour in the year, and you sort them so that the top value here is the peak demand of the feeder. And then this would be the minimum demand.

And you can see as the -- the graph goes down, most of the time the load on the feeder for most of the period during the year is between 60 and 40 percent. The dashed line is more of a suburban non-industrial feeder. Same thing. It's slightly lower. The bottom red line on this graph is that 15 percent. And you can see that that's very conservative. It's possible to move that up and still be able to capture or screen for more and more solar interconnects and not have to do the level 1 modeling.

This is also not a Pepco feeder. It's just a -- a typical feeder. The -- the point of this is to see that if you looked at the hourly demands over a year from January to December, and the feeder load is going to go fluctuate up and down, and this particular one peaked in the summertime at 5.6 megawatts.

The minimum load is 23 percent of that peak. But the minimum daytime load is actually higher than that and ends up being 33 percent. So when we look at a feeder, we do need to look at, you know, the entire period of the feeder and try to -- to then pull out the minimum daytime load.

And again, Pepco has stated in the earlier presentation, they have the ability to pull out the hourly demands for -- or the hourly usage and therefore the demands of the customers and aggregate those to be able to know what it is on a feeder level as well as on the individual customer level, and therefore below any distribution transformers where the application could be occurring.

Another consideration for small generation facilities in 4003, the customer is allowed to request information at the point of common coupling, which is the PCC. Also some people refer to it as the point of -- of interconnect, which we heard earlier, the POI.

With a small generator, 20 kW less, than 50 kW, the problem is more on the secondary side, the low voltage side. So information on the primary side doesn't provide as much information.

In California in Rule 21, it does allow for customers to ask for a enhanced pre-application to get that data so that they can help themselves to try to figure out what the problems might be beforehand as they're putting in their applications.

Or if they're using a third party to help them size the solar on their house, they're going to know on the front end a pretty good idea of what it is they can install if they know the minimum load and the existing transformer size. And possibly the other generation served by the -- the transformer can help in doing their own screening to be able to -- to then accelerate the approval.

We heard John Budd talk this morning about modeling and the importance of the input values. And one of the important values is the -- is the voltage. As he stated that ANSI 84.1 has a criteria of 5 percent above and 5 percent below nominal voltage. Nominal voltage is 120 volts. So 5 percent would make it 126 volts; 5 percent below would make it 114 volts.

So according to that standard utilities can't deliver or should not deliver below 114 volts nor deliver above 126 volts. In the standard 87 -- this should be C80 -- C84.1. Sorry about that. We'll correct that slide.

In C84.1, it's a utilization voltage. So the appliances that you plug into your outlets are designed to work in this range of voltage. If the voltage is too high, for example, one of the -- if you have incandescent light bulbs, they burn out faster. But you also can damage equipment if you have high voltage above 126.

So that's a criteria that's used for utilities and example of good power quality.

During minimum load periods for solar, if I put a 8 kW solar on my house, and I go on vacation, right, the -- the solar is still going to be operating and potentially then going to be backfeeding onto the system. And in order for it to backfeed on the system, the voltage at the inverter has to go higher than the utility voltage.

And that's where you run -- often run into trouble in the modeling that shows a problem with the inverter because it can not only damage the equipment at my house, but it could damage my neighbor's house. So it's an important criteria.

Also, most inverters will have a shutdown if the voltage is -- exceeds a certain amount. That shutdown voltage typically is above 126, but that's something that can occur. The voltage --

the inverter is going to want to protect itself as well as the appliances in the home. It just makes sense for the manufacturer of the inverter to do that.

And thinking about the voltage rise, an analogy I like to use is the pool analogy. The -- the swimming pool is filled up at a 124, 125 volts here. In order for solar to feed in, the voltage has to be higher for that power to feed in.

When we feed a house, we get a voltage drop going to the house. So that's prior to having solar or any kind of DER utility. Designer is worried about the voltage drop and not going below 114 volts.

To keep from going to below 114 volts the standard practice is make this voltage high without going over 126, and then you won't have a low voltage. The problem with that is that when we make that pool of water high, we're not left with a lot of bandwidth here to have a voltage rise.

Remember our voltage rise is limited to 126. So 127 would be too much. And as you put more and more solar on that, that voltage has to go up.

And that's also part of IEEE 1547. It

says the DER should not regulate this voltage. So that voltage -- the pool is so big compared to a pail of water over here, which is really the solar. It's not going to change the level of the -- of the pool water. But it has to be at that higher voltage level.

Now in some of the data responses, Pepco has stated what their starting voltage was. One where feeders, where they have conservation voltage reduction, CVR, that's -- those feeders are set at 122 volts. In non-CVR feeders they're using 124.5.

So CVR is a technique used by Pepco and other utilities. By lowering the voltage, you reduce the power consumption of consumers. Power is equal to voltage times current. You lower the -- the voltage and in turn will lower the current, and therefore lower power consumption.

And so feeders that start at 122 can handle more solar than a feeder that starts at 124.5. And so it -- it really depends on -- on the luck of the draw as to where your house is as to which feeder you're going to be attaching to and then, therefore, what your starting power factor is going to be.

So the non-CVR feeders have -- have very limited headroom for that voltage rise, where the exact same house, the exact same solar could be on a circuit that does have conservation voltage reduction, and it will work just fine without concern of the voltage rise.

Another part of that modeling is the minimum loads, right. We heard Pepco say that they used a average of the minimum loads of homes. And I'm not sure that I agree with -- with that modeling. And -- and again, it's a different ways of looking at it. It's like saying the average load on a house. Well every house is different.

And then when you look at the coincidence of those loads, it's going to be different. And for doing the power flow, especially with the voltage rise, the minimum loads on the transformers are going to be an important factor. So if a transformer serves ten or more homes, what's the minimum load going to be?

If my -- if the minimum load happens to be higher, then my solar won't have a voltage rise problem. But if the minimum load is low, then I will have a voltage rise problem.

So the -- the minimum -- input of that minimum load is a critical factor in trying to make sure that we can squeeze as much solar into the system while still being safe using a very conservative value, which I -- I have that Pepco hasn't publicly disclosed it that -- that I know of.

I've seen it in some confidential documents, but I just don't think that it's -- it's publicly available at this time to be able to understand how exactly the -- the minimum loads are influencing the results of the power flow.

Transparency of -- of data. OPC as -- as well as many of the other interveners have noted the lack of transparency that when a application fails, it's very difficult for the customer or others, including myself on those that I have reviewed, to understand what the problem is and the need for greater transparency.

Today we heard that -- that Pepco is -- is showing more transparency. It was kind of hard to read that slide at the scale on my screen, but I -- I'd be interested to see that appears to be a -- a good move forward. Just the level of information I think is going to be important.

We already know that the standard 4005.2 says "The utility shall make available upon a request a copy of the power flow based study for the applicant or -- or the commission."

So the key here is that to understand why -- why that it failed, and then therefore, why am I paying for an upgrade? Sometimes I'm having to pay an upgrade or I'm having to reduce the size of my solar to avoid a problem. Was it because of flicker? Was it because of high voltage? What -- what was the reason?

And I think that that customers and their suppliers, the -- the folks who are installing the solar and advising them about the use of the solar, need to understand that so that they can help their customers not only in this particular one but in the future, be able to fix those problems.

So we think that the -- the power flow

should have a list of screens and criteria which, you know, list the -- here's the -- the -- we talked about earlier today, the -- the TIR, the technical interconnection requirement, whether it's a table that has a list of the requirements and a pass/fail. If they pass it, they pass it. If they fail it, what's the number? That's an idea of having a very clear indication of what the cause is.

And IREC in their comments had a similar suggestion about using something like the TIR to -- to list the -- the values to have a clear transparency to the consumers.

And I believe that was the -- the last of my slides. If anyone has any questions, I'll be glad to try to address those.

MR. KOMMINENI: Thank you, Kevin. Just open it up for questions.

MR. ADEYEMO: This is Kunle Adeyemo on behalf of Pepco. Mr. Mara, I just wanted to ask if you've had a chance to review Pepco's small NEM petition? Because I believe everything you're talking about is mostly dealing with small NEMs; correct?

MR. MARA: That's correct.

MR. ADEYEMO: Okay.

MR. MARA: Most of my slides were dealing with small, yes, sir.

MR. ADEYEMO: Okay. Based on our small NEM petition, do you think that that would do a good job of addressing a lot of the questions that you have raised here since there would be a general -- general fee and then all of these other aspects regarding the upgrades would be -- would be handled?

MR. MARA: I'm -- I don't think I can answer that from a position as a representative of OPC.

Knia, Do you want to respond to that?

MS. TANNER: Sure. Good morning. This is Knia Tanner. Last name is Tanner, T as in Tom, A-N-N-E-R.

I think we've had this conversation before, and I think one of our biggest concerns was, especially in the flat rate fee, is making sure it was the right size and -- and the information that Pepco used to come up with that fee and how frequently it would change, and -- and also the issue of passing on the -- some of the difference to all of rate payers.

So there was -- there were some -- I don't -- so I guess the -- my answer really is no. It doesn't completely solve the issues that we're having in having a flat rate. And also the slide that we're on right here with transparency of the data and understanding what Pepco is doing in terms of doing these evaluations.

It -- that doesn't really answer it at all, especially when you're considering the systems that have been downsized because the District has its climate goals and the proliferation of solar is so important. Like losing even, you know, just one panel over the course of -- you know, one panel per project over the course of the -- of -- over the course of the city over the course of time could have a big impact.

So I -- I don't think it quite addresses it. We're glad to see Pepco moving in the right direction, but I don't think it -- it quite -- quite gets it.

MS. BECKHAM: This is Taylor Beckham

from Pepco Assistant General Counsel. Just wanted to go back to, I think, the beginning of your presentation, Mr. Mara, where you indicated that Pepco skips screens listed in four oh oh -- let me make sure I get it right -- 40005. Is -- is that correct, what you -- how you characterize what you understand the process to be?

MR. MARA: -- presentation this morning that in some cases they jumped directly into modeling as opposed to using the screening. And so that's what I was referring to.

MS. BECKHAM: Okay. Okay.

MR. MARA: In -- in my verbal comments, the -- the standard does call for screening, but I believe, as John pointed out, it also provides Pepco with the option to jump into modeling.

MS. BECKHAM: Correct. Okay. I just wanted to make sure that that was clear, that the regs do allow Pepco to use a power flow study as it's screening.

But do you -- are you aware of any ways that outside of the power flow study that Pepco could

use or that are just used in the industry for -- for
determining the aggregate generation on a line
section?
MR. MARA: Well the -- the aggregate
generation on the line section is typically taking
from utilities facility maps and -- and understanding
where they have facilities on their system, whether
it's a -- a transformer or a solar panel on the
backside of the meter.
And -- and oftentimes I find utilities
are using their mapping systems to summarize those and
that doesn't necessarily require a power flow to do
that.
MS. BECKHAM: Okay. And then -- and
you -- I think you discussed a -- the kind of what
your understanding was of the line section. And I
think you included fuses; is that correct?
MR. MARA: Yes. I mentioned that
typically a line section is protected by a fuse or
some type of overcurrent protective device.
MS. BECKHAM: So I think we just want
to clarify that definition. I don't -- I don't -- I

think it's Pepco's position, and I invite the technical team to chime in here, that those fuses really don't count, and that the definition of a line section is the portion of the EDC's electric distribution system connected to an interconnection customer, bounded by automatic sectionalizing devices or the end of the distribution line.

So I think we just want to clear that and make sure we're all working from the same -- same sheet of music there.

MR. MARA: I -- I think that's a -- a better definition. I've just seen other utilities use line fuses, but automatic device is a -- is what the standard says, and I would agree with that.

MS. BECKHAM: Okay. And then you talked a bit about the pre-application screening process in California. Are you aware of whether or not Pepco charges a fee for a pre-application screen?

MR. MARA: I can say that I am not.

MS. BECKHAM: Okay. I think for the record, we do not. Are you aware that -- that that California does charge a fee for their pre-application screens?

MR. MARA: I am aware of that, yes.

MS. BECKHAM: Okay. I think, John, I -- I think you -- oh, one thing I also wanted to say. I think -- I can't remember which slide, the slide talking about voltage levels. I think we -- those voltage levels are not correct. For non-CVR it's 125.5, not 124.5.

MR. MARA: Well thank you for that clarification. I -- I took that from a data response, and if I mistyped that, I apologize for expressing it incorrectly.

MS. BECKHAM: No, no, no. That's okay. I just want to make sure that we've got it right.

And I think that's all from me. Thank you.

MR. MARA: Thank you.

Brian, I think you had a question.

MR. LYDIC: Yeah. Thanks Kevin. Actually on this slide here, I -- I was curious, I think you bring up a great point, you know, that this affects the voltage headroom and -- and you know, there are potentially other operational practices that address the voltage headroom along the feeder.

Just curious if you have specific input into how that might be reflected, you know, in -- in your proposal to, you know, provide criteria and whatnot for the power flow analysis. You know, when we were thinking about it, it's easy enough to -- to kind of state the thresholds that you're looking for, like, you know, the -- the ANSI C84.1 range A threshold setting.

But in terms of providing data on -- on this type of, you know, input data, I'm curious if you have thoughts. You know, would it be useful for the customers to know that it's just on a CVR feeder or not, or -- or any more detailed information regarding that?

MR. MARA: We haven't laid out proposals specifically for this but, you know, one obvious item of information is on the hosting maps to indicate whether it's a CVR or non-CVR feeder would be a way to clearly identify the amount of headroom that's -- that's there for -- for adding solar.

Whether or not, you know, Pepco could change their operating criteria and go to 124 instead of 125.5, that has a lot of implications because of how they do their design for the voltage drop on their feeders. So we -- we weren't making any specific recommendation to -- to lower the voltage because of the -- the cascading impacts that may have.

MR. LYDIC: Right. Yeah. I was thinking just more -- more in terms of the reporting aspect of it, of what they're doing.

MR. MARA: Yeah.

MR. LYDIC: Yeah. Thanks for that. And I -- I'll just follow on. It sounds like there's no contention about the -- the line section definition, but we have seen other utilities in -- in other states interpret automatic sectionalizing device to include a fuse.

But we've -- we worked with EPRI to try and, you know, define that more clearly as, you know, a recloser type device. So -- but as long as, you know, it sounds like Pepco is already taking that interpretation. So it doesn't sound like it's an issue. That's all for me. Thanks.

MR. MARA: All right. Thank you, Brian.

MR. KOMMINENI: Thank you, Brian. Next, I have Lonko Tuma.

MR. TUMA: Yeah. Hi. This is Lanko Tuma with Pepco DER Engineering. Kevin, this is less of a question, just some information for some of our stakeholders. We are intending to implement a -- an automation for level 1 screening. So this is in lieu to your question about, you know, screening as opposed to power flows.

So we should be seeing that in the next 90 days for that to be deployed. So that -- that level 1 one would be for applications 10 kW and below. And so we could, you know, use screening as opposed to power flows.

MR. MARA: That would be very exciting to see. I know that in -- in Georgia there is -- if it's 10 kW and less, the utility has to interconnect. They don't -- they don't even get screening. So we see that in -- in different jurisdictions. And so I think screening for small ones is a great step forward and look forward to seeing it.

John, I think you have your hand up.

MR. BUDD: Yep. Yeah. I just -- question and clarify. So you talked about changing the level 2 and level 1, 15 percent screen. And you talked about it was originally intended for anti-islanding.

I -- I just wanted to clarify that while the inverters do have some of the onboard, these rules do apply to more than just inverters. So you'd have to caveat out somewhere in the regs that it needs to be a certified inverter.

If we're going to -- you mentioned something about it not being as critical. It is critical. It just depends on the type of technology that we're working with here. So I just wanted to emphasize that.

MR. MARA: No. I -- I agree with you. That's a -- that's a -- a very valid point using rotating machinery as a -- as a DER for example needs -- isn't going to have an inverter and needs way more relaying and -- and more scrutiny for anti-islanding. So yes, I -- I would agree with you that there would have to be caveats to move to a higher level for that anti-islanding screen.

MR. BUDD: Thank you.

MR. KOMMINENI: I don't see any more questions. So thank you, Kevin, for your presentation.

Moving along the agenda, next we have IREC present the power flow. Brian, would you like to bring up the slides?

MR. LYDIC: Yep. Trying to share my screen. You might just be seeing the video. Are you seeing the slides right now?

MR. KOMMINENI: No. I see the other black screen.

MR. LYDIC: Oh.

MR. KOMMINENI: Yep. No.

MR. LYDIC: Shoot, okay. I shared the wrong thing here. Try that again. All right. How's that?

MR. KOMMINENI: This is good.

MR. LYDIC: All right, thanks. I'll try to move fast so we can -- so we can try to end on time. You might have already seen our proposal and our power flow comments. I tried to just --

MR. KOMMINENI: Sorry to interrupt. Can you spell your name? Yeah. No --

MR. LYDIC: Yeah, yeah. Again, Brian, B-R-I-A-N, Lydic, L-Y-D-I-C with Interstate Renewable Energy Council.

So I think, you know, Pepco did a great job of -- of looking at the different parameters involved in power flow studies. Don't really need to go over everything, but I tried to just kind of create a -- a bit of an educational presentation on this stuff for folks that, you know, probably non-engineers to -- to understand this a little bit more and to understand perhaps why it's important.

So we'll see how much I can get through of this, but if not, you'll have the slides to -- to take a look at. And let me see if I can move along here.

So you've kind of probably already seen

a part of this, but grid impacts are -- are generally -- fall under the category, one of these four categories. Voltage violations. We talk a lot about thermal violations, protections, and then there's operational flexibility, which can mean a few things, but generally just means the ability to reconfigure a circuit.

And so the -- the impacts that are going to be evaluated in power flow or any kind of, you know, DER application are going to be often in relation to these things. And I'll try to hit on some of these. I won't -- I won't go over everything due to the time.

ANSI C84.1 has already been mentioned in terms of steady state voltage limits. And then we've got rapid voltage change, which I think John pointed out, which comes from -- there are limits in 1547. There's also limits for instantaneous overvoltage, which is kind of more of a protection issue, and then flicker under 1453 typically.

And you know, really, we're looking typically at voltage rise. You could also be looking at voltage -- voltage dips as well or dips and swells. And then regulation considerations in -- in relation to voltage regulators.

And then load rejection overvoltage and ground fault overvoltage are -- are overvoltage issues that can happen during switching events or are kind -- kind of like short-term islanding events that are -- typically wouldn't be evaluated in power flow but might have other evaluations related to them.

And then just keep in mind that the reactive power functions and potentially -- can -- can have an impact on the inverters or -- or DER's ability to -- to avoid those voltage thresholds or mitigate getting near those voltage thresholds.

This is just a -- just a representation of a feeder in terms of voltage level and distance from substation. So you consider the substation on the left here and this is a radial feeder. It could -- as the further you get out under normal power flow conditions where load is flowing towards the -- or yeah, power is flowing towards the loads, then voltage would typically drop.

And so this is where that, you know, that CVR voltage comes into play in terms of what the starting voltage out of the feeder at the substation would be, whether that's shown as 129 here, but say 125.5 or something or maybe lower. And you're trying to maintain that all -- all the loads on that feeder are within the ANSI C84.1 ranges.

And then when you start putting DER onto the system, that changes the -- the voltage profile across the feeder. So radially, you can -- you can wind up with a voltage rise out towards the end of the feeder when you're pushing power back towards the substation.

And so that's when you can start violating that ANSI threshold and you know, typically, is more of an issue at the end of the feeder or at small sections of the feeder where the -- the wire isn't as large but you're feeding a decent amount of power back through there.

Just -- oh yeah, I'll just move steadily through here. And then those voltage regulators affect that -- that voltage profile. So if you've got a voltage regulator in the middle of a feeder, which is more often done on rather long feeders -- you'll see them out in the country a lot -- then that'll step up the voltage in order to keep that voltage for the last customer within that ANSI C84.1 voltage range.

Another issue with -- with voltage regulators as I think was mentioned, is potential for reverse power flow through that. The settings for that voltage regulator may determine whether it reacts in the right way to that reverse power flow. It basically just needs to be set up for bidirectionality. And I think Pepco said that they -- they will do that change free of cost. I hope I'm quoting that correctly.

And then there's voltage dips and sags. I -- I won't go through that too much more, but those are more -- more extreme shorter term voltage changes, and then flicker, which was talked about a little bit before. That's more -- flicker is the perception of lights flickering.

And -- and so there's parameters in

some of the standards around like 1453 around short-term and long-term effects of voltage changes in -- in relation to that perception of voltage -- or perception of light flicker that we want to try to avoid.

And then there's load rejection overvoltage. Again, this one is more almost a protection-related issue in a way because it depends on a breaker opening. So typically, if we've got -- consider that the substation which isn't shown here would be on the right-hand side and power is flowing back from this large DER solar towards the substation and also feeding all the loads on that system.

So if it's feeding back through this breaker and then for some reason that breaker opens, the voltage is going to -- is going to raise up rather high because you've got more power than can feed the loads at -- at that point because you don't have the connection to the larger grid to soak up that power. And that basically just creates a larger impedance path which raises the voltage and that can damage equipment. So we want to make sure that that's taken care of.

This is basically taken care of simply by the certification of inverters to IEEE 1547 and 1547.1 includes a test for load rejection overvoltage to make sure that under these scenarios, under very high penetration scenarios, that you would never have a damaging overvoltage.

So something to be aware of but not really a concern because they're certified for it.

And then with ground fault overvoltage, typically more a concern for rotating machines. Same type of situation here. If you're feeding back power towards the substation and the loads, and it doesn't -- it doesn't actually have to be more power or -- or being -- or being backfed to the substation. But just the fact that this generator is -- is feeding loads.

And if you do have a fault, a -- like a single line to ground fault out of the three-phase system, just one phase is shorted to ground through a tree or something else, say, then you have fault current that flows through this breaker. The breaker opens because it sees the fault current, and then you've lost the ground source basically.

It's a bit of an engineering explanation to -- to get through why this happens. But the -- this -- this connection to ground kind of shifts all the voltages on the three phases and you wind up with the non-faulted phases going very high up to potentially over 138 percent.

Actually, it could be 172 percent -- I should probably change this number here -- 130 -- if it only goes to 138 percent, then that -- they have the term "effectively grounded," meaning you're -- you're okay.

But so you want to make -- basically you have to design the entire ground system of this section of the grid as well as potentially the interface transformer of this unit to avoid voltages over 138 percent so that you don't damage loads.

And then inverters act completely differently from rotating machines in this respect, and the loads actually affect the ability to be effectively grounded and -- and typically as long as a third of the load is -- is a grounded load, then that provides the grounding necessary for the inverters.

And this is kind of a new concept that is still education getting out to utilities in terms of how to evaluate inverters in terms of effective grounding. And IREC will actually have a paper coming out next month that'll -- that'll help collate some of the -- the research on that.

And then this is the transient overvoltage limit in 1547 that applies to both load rejection overvoltage and ground fault overvoltage.

And then moving on, there's the thermal violations which I think was explained pretty well in Pepco's presentation, that you've got, you know, basically every piece of equipment that the power would flow through needs to be checked to ensure you're not going to exceed its equipment ratings.

And we'll just note that there's continuous ratings but also withstand ratings, and there may be emergency ratings as well. Emergency ratings, I -- I don't think are typically looked at in -- in most power flows or studies because you're looking at generally normal conditions. And so you'd be looking at the continuous thermal rating. But for -- for short-term overloads, it's good to know that there are typically higher emergency ratings for those -- those conditions for pieces of equipment, especially conductors.

And then, let's see. Yeah. I -- I included backfeeding here. Backfeeding is actually, you know, potentially its own thing to -- to look at depending on what the utility considers is necessary to look at. And -- and Pepco has got some, you know, some unique situations that not all utilities have in terms of looking at reverse power flow. And so that might be considered kind of its -- its own area of evaluation.

I won't really go over the conductor ratings any further here.

And then there's protection violations, which would be doing a -- doing a protection coordination study. It's typically different from doing a power flow but can be important. Inverters, fault current is not very high. It's not very much different from its continuous output current.

So protection issues generally aren't as big of a concern as they would be with a rotating machine. But you -- you don't want to mess up the protection system or cause unintended fault device -- protection device operation due to just the normal DER operation or -- or even, you know, operation during faults.

Which if -- if things aren't coordinated you might have a fault say on an adjacent feeder and you trip the feeder that the DER is connected to even though it's not the feeder that the fault is on. And so got to just make sure that the -- the -- or the protection devices are all coordinated in that manner.

And then -- and then typically underprotection is also the grounding of DERs, which is the -- really that ground fault overvoltage scenario that I was talking about before, is typically what's being looked at. And you might be looking at ground fault sensitivity as well.

And then island is usually lumped under

that protection bucket -- islanding or unintentional islanding is -- is usually lumped under that protection bucket as well.

And that, you know, varies widely, I will say, across the country from utility to utility in -- in terms of how they perceive the risk of islanding. Whether there is a risk of islanding with inverters that haven't -- that have active anti-islanding methods already, or whether they apply DTT. And if they apply DTT, what are the parameters and thresholds under which they apply DTT?

IREC will have another paper coming out about that pretty soon that might shed some light on what those practices are across the country.

And then I probably don't need to go over that one. Then operational flexibility typically dictated by, you know, contingency planning in order to maintain the ability to reconfigure feeders.

And so that might mean that, you know, you can only allow so much power up to a point where you need to be able to transfer that power over to another feeder, and that other feeder might be more limited than the one that you're on in terms of its ability to host capacity.

This is -- the amount that this is evaluated depends from utility to utility. Often this might only be done in a detailed study and not necessarily in a -- a typical power flow, which is looking at normal conditions. But they might be taking potentially conservative, you know, assumptions about N minus one conditions in order to deal with that -- that possibility without necessarily evaluating it, you know, in detail.

So good to know -- good to know what those contingency assumptions are in terms of what the DER is going to be exposed to in the evaluation. And it's just an example of that operational flexibility where you've got two feeders coming out of the substation. There's a tie switch here.

And typically, you know, if it's backfeeding the solar system would -- would go through this feeder to the substation, but under a reconfigured state. You might wind up going through this adjacent feeder, and that -- that's got different properties than the feeder that was evaluated in the power flow.

And then beyond that, there's some things not mentioned. Imbalance between the three phases in terms of power flow and -- and voltage imbalance. Harmonic distortion. Harmonic distortion is not often looked at in these quick studies.

Maybe tap changes, but there may be assumptions about what's allowable in terms of regulators or LTC tapping in order to improve their lifetime so -- so they're not tapping all the time due to changes in solar output and whatnot. But there may be restrictions and thresholds in the power flow analysis that are put in place for that reason.

There's short circuit current rating of -- of equipment that's -- that's kind of a protection issue. I just didn't review that one there.

And then again, I mentioned reverse power flow. There can be multiple assumptions layered upon them. The only one I heard Pepco talk about was that voltage regulator issue in terms of whether the settings allow bidirectionality or not.

But I think another -- another one would be the -- the 40 percent backflow restriction through the substation. Some utilities put a -- use reverse power flow as a restriction for islanding screening. And that goes into the power flow analyses.

So all these things that I just talked about are things that, you know, at least the ones that are related to -- to the power flow study itself are things that would go into the power flow study as, you know, input threshold for, you know, flagging whether the system exceeds a certain threshold or not.

And then in the end the customer gets the results. And, you know, previously the customer -- it looks like Pepco is -- really glad to see that Pepco is improving the results going to the customer because that's one of our main proposals.

But you know, the customer, if they just see that they failed, they have no idea which one of these evaluations failed or what threshold they failed at, or what the assumptions going into that were in relation to, you know, just as an example, which is typical and -- and not the most interesting one. But an example would be the steady state voltage being within 105 percent of nominal or 1.05 per unit. So that's the steady state voltage limit aligned with ANSI C84.1.

But if, for some reason, you know, it was a different value than -- that, you know, the -- the customer wouldn't necessarily know what -- why they failed or what the -- what the value was.

And so what we're proposing here is basically that Pepco would publish in the TIR -- well publish the TIR and -- and that the, you know, generally those requirements would be addressed through advanced inverter working group. And -- and updates would be subject to approval by the commission after an opportunity for public comment just to ensure that, you know, if there's -- if there's a major change to those that if that would, you know, potentially have a large effect on the ability of DERs to connect to the grid.

If it's, you know, super conservative

and -- and maybe there's reasons to believe that that conservative is -- conservatism isn't warranted, then you know, there'd be an opportunity to weigh in on that before it's published.

And that, you know, basically all these studies that I talked about, there would be assumptions in terms of, you know, the inputs to the study and then what thresholds or technical criteria are used for each of the screens or power flows for each of those evaluations. Or if it's a detailed study evaluation aspect, there may -- there may be more of those assumptions and thresholds that that would need to be listed.

But the, you know, the idea would be to expose those. They should be harmonized, you know, across the -- the territory we would think. And so, you know, everything -- I'm not going to -- I just listed them here -- but basically everything I talked about before and what Pepco talked about that could be listed in the TIR in terms of knowing what the -- what the inputs are and what the threshold would be or criteria for passing -- for passing that evaluation.

So that allows us to, you know, understand, okay, are there any -- any levels of extra conservatism that need to be addressed in order to get to higher levels of -- of DIR penetration? You know, what are the bottlenecks in the system that -- that might be holding projects back.

And -- and that can help if we have better reporting of the -- the -- the passing or failing of those systems. And that can help pinpoint places in the system that may be targeted for upgrades or changes in operational practices, whatnot, or changes in interconnection practices in terms of, you know, potentially changing the operation of the DER to -- to avoid those thresholds and -- and avoid having to -- to do upgrades in relation to those thresholds.

So then the third part of the proposal there is just to have those detailed screening results. We have language in our model rules related to this that we've brought in here, basically saying that "The utility shall provide the specific screens that the application failed including the technical reason for failure and shall provide the information and details about the specific system threshold or limitation causing the application to fail the screen." It's going to be screen or -- or power flow issue or power flow parameter, however you'd want to say it.

And this is pretty general language. This is, you know, what we've used in other states and this could be evolved. It could be -- honestly, it could be more detailed if we wanted it to be more detailed to get into potentially, you know, like the specific items.

I don't think that's necessarily needed, especially if the TIRs, you know, are reviewed by the commission and -- and potentially discussed in -- in working group manner in order to get the right elements in there and -- and have the, you know, some sort of harmonized screening results that are used for all customers or at least customers of a certain class that they'd be getting the same information.

And you know, that could all be worked

up in coordination with stakeholders and hopefully just increase the transparency of the entire process so that everyone understands what's going on and -- and what are the pinch points in the system.

And that's it. So any questions?

MR. KOMMINENI: Thank you, Brian. Thanks for going through this. I'm just going to open it up for questions. All right. There's no questions at this point. I'm seeing none. Thank you, Brian.

MR. LYDIC: All right. Thank you.

MR. KOMMINENI: Now we are at the top of the hour here. I'm going to quickly switch to my screen and share something the staff has put together. The staff here, we did put together a tracker. I know we have gone through, like, five of these technical sessions at this point, and we have covered two topics.

The topic 1 was the interconnection process and timelines, and then we are at the power flow topic right now. We have touched upon multiple topics and issues, and a lot of them were also answered through the compendium and multiple addendums.

At this point we are at the junction where we want to decide if we want to go with an interim report or the final report. With that said, we thought -- the staff thought that this will be a good tool to capture the issues. So we put a matrix together. We have different tabs here.

First tab is for the topic 1, "Process and Timelines" where we would like the stakeholders to input their specific issues for those topics as listed here. They could add their name and add their specific concern, which is still pending based on all these sessions.

That way we could go through a round of, you know, comments and reply comments for those in this spreadsheet.

So this will be a good tool for us to either develop the interim report or the final report. And this will provide the solution or the consensus on a specific topic. So this would be the tracker which we are going to be using to develop the final consensus and the report.

So that's our recommendation and we will post this in the SharePoint so that folks could start, you know, entering their specific concerns so that we could get some feedback and arrive to a consensus.

Any questions on this?

MS. BECKHAM: So I think I circulated an email about this last week. The order did direct Pepco to write the technical conference report, and then I think it allows 20 days. I think Pepco has got to write the technical conference report within 30 days of the technical conference. Obviously, we've got multiple meetings, so technical conferences.

And then I think interested parties are given 20 days to comment on that report. So I think, you know, I -- I think this is a -- a great template to discuss or -- or use towards understanding kind of what we've talked about. But I think it really is Pepco that's going to be writing the final report.

I -- I understand -- I think Brian's point was wanting to at least give the commission some level of a update. So I think a status report would be great and maybe this could aid in that. But I think, you know, relating to comments and characterizations of parties' positions, that's probably better for a report, in which case I think that's really what Pepco would be drafting.

And if that is in the form of an interim report or in a overall final report, we can certainly talk about that. But I think just based off of the directives in the order, we want to raise that.

MR. KOMMINENI: Yeah. Thank -- thanks for bringing that up, Taylor. And I think we would still need that interim report or the final report from Pepco. And this is just a tool for us to get everything and to aid to develop those reports. So any questions on this?

So we will include this in the box, and I would also list the timelines by when we would like all the issues to be listed in this matrix, and also the timeline for other folks to provide solutions or their recommendations for these items. So each of those folks could, you know, go into their specific issue and add their, you know, comments or solutions.

If your organization is not found here, please do use these stakeholder names where you could update your name and start entering your recommendations. Like I said, this would be a tool to develop the interim report for Pepco or -- and the final report.

With that said, going back to the agenda, I know we touched upon the power flow today, and there were only nine questions in the compendium, which was already responded. And I know there were further questions which was responded by Pepco in various occasions.

So the next two topics we have is topic 3, which is the small system upgrades, and topic 4, which is the interconnection cost, transparency, and accountability. My understanding is that we touched upon these two topics in topic 1. In fact, the compendium had only one question for those topics.

So if -- if folks agree we -- we should be moving on to the -- the topic 5, which is the hosting capacity. So I would like some feedback if you guys have any specific items for topic 3 and 4. If not, we could move on to topic 5.

MS. BECKHAM: I think you're right as far as topic 4 and cost transparency. We've -- we've talked through that or we -- I know in the compendium we had combined actually topic 4 with topic 1. And so we kind of already touched on that.

But for topic 3 I think we would -- Pepco at least would appreciate talking more about the small NEM petition that it's put forward, and using that opportunity to talk about that within topic 3, small system upgrades.

I think that's really a key filing that we think that, you know, we've heard various positions or maybe not positions, but various, just, thoughts. But I think it would be worth it for us to have a more direct conversation about the small NEM petition, as that's Pepco proposed solution to kind of a lot of this.

MR. KOMMINENI: Yeah. We do agree with that. And so in that case we will -- the next session would be on the topic 3, and Pepco could present their, you know, topic on this topic.

And then, like I said, we still -- we are going to be using this tool which I just shared to track any concerns. If you have any further concerns or questions or things which need to be resolved, please include it in the tracker. That way we can keep that moving.

So with that, I think the next meeting would be scheduled for the first Tuesday, which falls on July 1st. I think we will keep it in the same time from ten to twelve. Does anyone have any issues with that date?

MS. BECKHAM: The only thing about July 1st, I know I'm not going to be here, but that doesn't mean that we have to move on account of me, but that is a big vacation week. And I -- I think it might be better if we do July 8th or the -- the week of July 8th.

MR. KOMMINENI: Okay. Does July 8th work for folks? If not, we will --

MS. RENTZ: That won't work for me. Also, can we clarify whether -- what small system upgrades means in topic 3? Like what size are we talking about there?

MR. KOMMINENI: That would be level 1, I believe.

MS. RENTZ: It says level 1 and 2, but level 2 obviously --

MR. KOMMINENI: Yeah. Level 1 and 2.

MS. RENTZ: -- goes above small systems.

MR. KOMMINENI: -- or

MS. BECKHAM: For the small -- the small NEM petition is related to 20 kW and below. But understanding that level 2, I think, encompasses -- I think it encompasses systems larger than 20 kW. But I think -- I think that's, you know, there's -- we're still -- we'll still see residential systems in level 2. And so I think talking about those NEM systems that come through level 2 should be included in that conversation.

MS. RENTZ: Right. So are we talking about residential systems 20 kW and below?

MS. BECKHAM: I don't want to -- no. I

don't -- I don't want to confine us to that. That is what our small NEM petition is about. But happy to talk about other upgrades that are within level 2 as well.

MS. RENTZ: So we're going all the way -- like any system that -- so that includes crafts and all that as well? Sorry. I just want to clarify what it's about.

MS. BECKHAM: I mean I don't want us to get too -- maybe because the power flow study is delineated by that 50 kW, so maybe going there. I think -- why don't we take that back. I don't want us to -- because I'd like to talk to the team and talk through where we're looking at things, because I don't want to just say, you know, this is specific for something 20 kW when we -- it might be able to be beneficial to something that's like 30 kW or something like that.

MS. RENTZ: Yeah.

MS. BECKHAM: So can we get back to you on that?

MS. RENTZ: Yeah, of course. I mean it

could -- you could try defining it as systems that are eligible for level 1 review but can get kicked up to level 2, which is what happens to those residential systems when they require distribution system upgrades.

I mean that's -- that would make sense, you know, for -- as far as I -- how I think about things. But yeah, I'll leave that to you guys.

MS. TANNER: This is Knia Tanner from OPC. I just wanted to chime in on that conversation. When we put together our position, level 2 was included because of the very fact that Nicole just mentioned, being moved from level 1 to level 2 when it was determined by Pepco that the systems required upgrades.

So I think we're -- and I'm fine if whatever we want to talk about, but that was the initial request.

MR. KOMMINENI: So in this case, who wants to present for the next session? If you can provide your material prior to the meeting. And I will include this in my email, too. So that way we

have the information prior to the meeting.
MS. BECKHAM: Sorry. I'm talking to three different people at once. Can you say what you just said one more time, Dillip? Sorry.
MR. KOMMINENI: No. In addition to Pepco, if other folks want to present on this topic, I would like to get the material prior to the meeting.
MS. BECKHAM: Okay.
MS. TANNER: I'm sorry. What was the -- what's the -- the topic that we were going to do for the next meeting?
MR. KOMMINENI: It would be the small -- small system upgrades. It's level 1 and level 2.
MS. BECKHAM: I'm also getting kind of a scheduling point here. Are we possibly able to do Thursday the 10th of July?
Nicole, I don't know if that'll work for you, but we've got -- we might have a lot of conflicts on the Pepco side.
MS. RENTZ: Yeah. I'm -- I'm going to be out of town that whole week, but the next week,

maybe the 16th. I could also do -- what -- what was -- what was the -- the week of July -- sorry.

MS. BECKHAM: It's -- a July 4th week is a heavy vacation week as well.

MS. RENTZ: Right. Yeah. Yeah. Well I'm around that week, you know, obviously except for the Friday the 4th, and then the week after that on the -- the week of the 14th. But it'd be hard for me to participate the 7th through the 11th. And then, yeah, the week of the 21st, yeah. But yeah, just really that week is the biggest problem.

MR. KOMMINENI: Why don't we -- why don't we take this offline and see how the schedule works because you know --

MS. BECKHAM: That works. That works.

MR. KOMMINENI: With that said, I think the last item I have is -- I know we have another educational session which is going to be recorded tomorrow. But Cody Davis from Electric Power Engineering, it's going to be scheduled between 2 and 3 p.m. tomorrow. If you can't attend, I think the recording will be still placed in the box for you to view.

MS. RENTZ: Can I ask a question as well before we wrap up? So Pepco is writing the technical conference report that they're going to present every policy position that has been presented by all of the parties here and characterize them and all the responses?

MS. BECKHAM: The order directs that Pepco prepare a technical conference report --

MS. RENTZ: Right, as long as directed --

MS. BECKHAM: -- within a certain timeline. So --

MS. RENTZ: -- that they file it, but that was before the reconsideration request that CHESA had filed asking that we clarify that the commission was leading technical conferences.

MS. BECKHAM: And the reconsideration order clarified that the commission would be setting -- commission staff would be setting the agenda and leading the technical conference reports. But it didn't make any change to its order related to

Pepco writing the technical conference report. So I think that's still what stands.

What the order does also provide is interested parties a chance to comment on the report. I think given the conversations that we've had here, Pepco is certainly prepared to provide a report on this technical conference, which is to say what we've talked about, you know, kind of the different positions that we've seen from the parties and what Pepco's position is.

But I think the parties themselves have all the opportunity to provide their comments and opinions on the technical conference within 20 days of that report.

MS. RENTZ: Can we clarify that with the commission is -- if that's what the commission intended with the reconsideration order? I -- I --

MR. DAVIS: Yeah. So this is Hunter Davis with the commission. So we -- in the order that was the reconsideration order, we clarified that the commission was leading the technical conferences, presentations by stakeholders, and that the technical report would still be written by Pepco.

So Pepco is writing the report. They're going to compile all of the information from all the parties, and then if you have issues with the report then you can file comments and replies. So I think we have a pretty clear setup of how this should be kind of closed out at the end of the process but --

MS. RENTZ: Yeah. I just kind of feel like it misses the point of the reconsideration request to have Pepco actually writing the report. And if that -- but if that's what the commission meant with its reconsideration order, I mean that's what you meant. I just think it's inappropriate, actually. But --

MR. KOMMINENI: Nicole, probably we could look into it. I know Brian isn't here today. So we -- we could certainly look into what --

MS. RENTZ: Okay.

MR. KOMMINENI: -- actual needs are.

Any other questions before we wrap up? Hearing none. Thank you all. Thanks for joining the call. We'll keep you posted. Thank you.

(Whereupon, at 12:14 p.m., the proceeding was concluded.)

CERTIFICATE

I, AUSTIN K. WHITE, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Austin White

AUSTIN K. WHITE

Notary Public in and for the

District of Columbia

CERTIFICATE OF TRANSCRIBER

I, SHAUNA WOOLLEY, do hereby certify that this transcript was prepared from the digital audio recording of the foregoing proceeding, that said transcript is a true and accurate record of the proceedings to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

SHAUNA WOOLLEY

l

m