BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: DOCKET NO. 20250011-EI

Petition for rate increase by
Florida Power & Light Company.
_____/

VOLUME 2
PAGES 178 - 342

PROCEEDINGS: HEARING

COMMISSIONERS
PARTICIPATING: CHAIRMAN MIKE LA ROSA
COMMISSIONER ART GRAHAM
COMMISSIONER GARY F. CLARK
COMMISSIONER ANDREW GILES FAY
COMMISSIONER GABRIELLA PASSIDOMO SMITH

DATE: Monday, October 6, 2025

TIME: Commenced: 9:30 a.m.
Concluded: 6:15 p.m.

PLACE: Betty Easley Conference Center
Room 148
4075 Esplanade Way
Tallahassee, Florida

REPORTED BY: DEBRA R. KRICK
Court Reporter

PREMIER REPORTING
TALLAHASSEE, FLORIDA
(850) 894-0828

I N D E X

EXHIBITS

NUMBER:		ID	ADMITTED
1141	As identified in the CEL		200
1218	As identified in the CEL		200

P R O C E E D I N G S

(Transcript follows in sequence from Volume 1.)

CHAIRMAN LA ROSA: Okay. Let's all maybe gather our seats. Thank you for the break.

Okay. I am going to go back to Commissioner Clark, I am going to ask him to restate the question. And then I will just add a little bit more to that.

COMMISSIONER CLARK: Thank you, Mr. Chairman. And I prefaced my question with the simple statement that since we do not have Mr. Pimentel back in front of us again I would like his perspective relative to the actual financial benefits to the customers in relation to the proposed settlement agreement. I think it's very important to have the President and CEO of the company's perspective. I think it provides not only good perspective from our understanding of what they perceive to be the benefits of the statement, but, you know, gives us some things to take additional and harder looks at as well. So that's my question, Mr. Chairman.

CHAIRMAN LA ROSA: Okay. Thank you. And it's hard for me to try to understand how the deciding

body, us, wouldn't have an opportunity to ask a question specifically that we are not involved in, obviously, the back and forth and negotiations of what gets decided. So I am going to allow the question. Based on the question, I will go to the concerns that the three other parties had.

MS. WESSLING: Thank you. And we would renew our objection, and we would renew all of the reasons that we stated for our objection, and we would add that if cross is going to be allowed, and if there is going to be -- if this door is going to be opened, it has to be opened for all of us, and we need time to prepare because we were not on notice this would ever be a subject that he could ever be crossed on.

We have been told time and time again, ask this person. Ask this person. It's not in the scope of my testimony, ask this person, and we are going to honor that, but it's not fair to ask him questions and allow him to testify about subjects that he has no testimony about. It's -- I cannot understate enough how much of a due process violation this is. We -- there is no testimony. His only testimony in this case he has already been questioned about.

And, again, no disrespect to Mr. Pimentel or Commissioner Clark, but this is a huge due process violation. And, again, if we need -- if we are going to be allowed to follow up and ask questions, which we demand to be able to do if this subject is going to be allowed to be questioned about, we need time to prepare, because this case has been pending -- his testimony has been filed since February 28th, and not a shred of a reference to a settlement agreement is in there, and we need time to prepare if this is going to be entertained. But again, we maintain all of our objections that this should not be, this is not a fair subject for cross-examination by either the Commission or any of the parties.

CHAIRMAN LA ROSA: FEL.

MR. MARSHALL: I would just ditto all of that and add that there were very strict deadlines as part of this commission's revised order establishing procedure for the submission of any witness testimony addressing the settlement, Mr. Pimentel was not part of that.

I mean, if this is something that the Commission is very interested in pursuing, I am not saying that we -- I am not saying it wouldn't be

objectionable, but certainly be less objectionable would be to ask for an opportunity for live testimony during the settlement phase of the hearing and reopen that so that it's not just limited to the witnesses that have prefiled testimony. That would seem to be the -- procedurally, the more correct way to go about this would be to revisit those orders establishing those strict deadlines and allow life testimony during the settlement phase of the hearing.

CHAIRMAN LA ROSA: Let me go to FAIR, only because they also offered comments prior. Do you have any further comments?

MR. SCHEF WRIGHT: Yes, I do, Mr. Chairman. Thank you.

I reiterate this is a straight up due process violation. It violates every procedural order relating to testimony to be proffered in this case. It violates your orders, and it violates the specific notice given to us all along, and specifically reiterated this morning, that we weren't going to talk about the settlement here.

If you allow this to come in today, it's a due process violation. It violates your own orders, and you can't cure it today because you can't

unring the bell.

I would go along with Mr. Marshall's suggestion, that if you want to hear from Mr. Pimentel, invite him back next week, live testimony, I guess. It would be better if he prefiled some testimony addressing Mr. Clark's general -- Commissioner Clark's general question. That would be okay. And I think you, as Prehearing Officer, could issue an order saying, yeah, we are going to do this. But if you do it today, it's a due process violation that you cannot cure.

Thank you.

CHAIRMAN LA ROSA: OPC.

MS. WESSLING: If I could just add one more point that just occurred to me, because, again, I am having to respond to this on the fly, but I would also add that allowing him to testify about the settlement agreement at this portion, or any other portion, they have a burden. They have to prove either the petition or that their settlement agreement is in the public interest. And to the extent that they didn't provide testimony from Mr. Pimentel about why this is in the public interest and why it satisfies the burden, this is completely inappropriate. This is -- this is --

this is a violation of the burden that they bear in this case, and I would just add that to the many reasons why this is completely inappropriate.

CHAIRMAN LA ROSA: I am going to ask FPL. Is there any objection to bringing the witness back during the settlement portion?

MR. BURNETT: No, sir. We will proceed however this commission tells us to proceed.

CHAIRMAN LA ROSA: Okay. If the witness was brought back and there was live testimony.

MS. WESSLING: No, Your Honor. We have two weeks of hearing. We are busy. We -- we are going to be in this room for the next two weeks. We don't have time to drop everything because, at the last minute, this is just -- this bomb is dropped into this case. This is completely inappropriate.

We have prepared. We were prepared two months ago, and this wasn't mentioned then. This is a brand new subject. This is completely inappropriate and unfair to FPL's customers to drop this on us in the middle of a case. This is so unfair, and it's a due process violation, and it is -- it must not be allowed and we would object from OPC's standpoint to having Mr. Pimentel testify next week.

We have been held at every corner to every deadline to every burden, every obligation in this case and we have done our best to satisfy it. And they had every opportunity to provide either direct or rebuttal testimony to the settlement agreement and they do not do so. That is their choice to make. That's perfectly fine, but that is their choice to make. And if we are not allowed to ask questions about testimony that other witnesses don't testify to, then they shouldn't be allowed to do the same.

CHAIRMAN LA ROSA: All right. I am going to talk with my General Counsel again if you don't mind.

Go ahead, FEL.

MR. MARSHALL: Just on the due process, if we -- if the Commission is inclined to have Mr. Pimentel come back next week and present live testimony, then we believe we should have the right for our settlement witnesses to present live testimony in response to that.

CHAIRMAN LA ROSA: All right. Let's take a two-minute break and we will come back.

(Brief recess.)

CHAIRMAN LA ROSA: All right. So,

Commissioner Clark, I won't to ask you to repeat it again. We got it -- yeah, got it the second time.

FPL you mentioned before the timeout that you would be willing to bring the witness back. Is there anything further?

MR. BURNETT: Mr. Chairman, I would mention too, if this is helpful, that in the settlement phase, Mr. Bores, whether we made a good decision or bad, and probably bad, will speak for the company. He will speak with Mr. Pimentel's voice and have the full authority to speak on the merits on the company's behalf. And I don't know if that's satisfactory to the Commission, but I just wanted to say that if that is an acceptable option, you know, we will live with our decision to not put Mr. Pimentel on, and he would be available for any questions that Mr. Pimentel would, if that's helpful to avoid the situation. I just wanted to bring that up. But to your question you just asked me, we will do whatever you tell us to do.

CHAIRMAN LA ROSA: Okay. So if I understand correct, you are saying Mr. Bores has the answer to the questions?

MR. BURNETT: He does, sir. He is getting a promotion without the title or the pay, basically.

But he will be able to speak for the company and answer -- I would imagine, from what the Commissioner has asked here, certainly, he could answer that question.

CHAIRMAN LA ROSA: Commissioner, is -- I don't want to ever want to limit a question that we may have as Commissioners, right. So, you know, I don't want to make a decision on any one Commissioner's behalf, so, Commissioner Clark, if that's satisfactory, great, if it's not satisfactory, I'm willing to proceed.

COMMISSIONER CLARK: I am all right.

CHAIRMAN LA ROSA: Are you sure?

COMMISSIONER CLARK: Yeah.

CHAIRMAN LA ROSA: Okay. All right. Further questions? Commissioner Fay.

COMMISSIONER FAY: Thank you, Mr. Chairman, and I appreciate the time on this. I do recognize that the parties had entered into this discussion and agreement on things. Obviously, the Commission is entitled to ask whatever they are going to ask, but I -- it does sound like there is a resolution. I obviously think we have prioritized due process in the past, and that's, I think, key priority to this hearing, especially with how everything has

been moved around to try to make this work and I think -- but I think Commissioner Clark's question was a good one and an important one, and so I just -- I don't want that to be taken away by the complexities of what's occurred here.

I think there were other objections, I think, that were raised by OPC based on maybe how we would proceed forward. If appropriate, maybe we just get clarity that those objections would no longer apply based on how we would move forward with Mr. Bores, so we are clear on the record what issues maybe have been resolved, and if any -- because I -- and I don't mean this in a challenging way, but you had a lot of objections, and so I just want to make sure we address all of those with the solution that's been presented.

CHAIRMAN LA ROSA: So let me tee it up. So if the question is deferred to a different witness, Witness Bores, then I will pose the question that Commissioner Fay just asked, is that fair?

COMMISSIONER FAY: Sure.

MS. WESSLING: Sure. In the absence of a due process violation, we have no problem with any of the witnesses who filed prefiled testimony answering any questions within the scope of their

testimony during the settlement agreement period.

CHAIRMAN LA ROSA: Any other party?

MR. MARSHALL: We would just echo that, that Mr. Bores has prefiled settlement testimony and certainly questions we have hard regarding the settlement would be well within the scope of his testimony and would be entirely appropriate questions for Mr. Bores during the settlement phase.

MR. SCHEF WRIGHT: We are good.

CHAIRMAN LA ROSA: Excellent. All right. FPL, the witness is back in your hands for redirect.

MR. BURNETT: No thank --

CHAIRMAN LA ROSA: Sorry. Sorry. Commissioner Passidomo Smith, so sorry.

COMMISSIONER PASSIDOMO SMITH: Sorry. Thank you, Mr. Chair.

I have some questions, Mr. Pimentel that are related to your direct filed testimony, so I will not cause the drama of my colleague here.

Okay. My first one -- and this actually, feel free if you do want to relay this to -- if Mr. Bores is more appropriate to ask, because I am just following up from Mr. Wright's line of

questioning about the -- FPL earning at the mid -- above the midpoint, and you said, you know, that that was -- that the RSAM does not allow -- that there is other things that cause to go above the midpoint that are cost efficiencies. I am wondering if you could go into a little bit more detail about what these are, what type of cost efficiencies, and just a little bit more granular on that point.

THE WITNESS: Sure. So just to kind of backtrack a little bit, and then I will move forward.

So what I said was that both the 2017 and 2021 rate cases, the RSAM was designed and sized to provide us a return for investments that we were making in the last two years of those four-year settlements, and is it was designed to get us up to the midpoint. And it's just -- it's math to get up to the mid, you know, what do you need, and then that's how you size the RSAM.

The tax adjustment mechanism is sized the same way, and so if nothing changes, all else held equal, you would not be able to earn above the midpoint in any year, so then the question -- then it gets to the first or second part of your

question, then what are some of those things that happened during, you know, during that period of time.

Mr. Bores will is a lot more detail, and Ms. Laney will have a lot more detail than I can provide, but this is from my point of view. So if you have, as an example, lower O&M costs, all else held equal, lower O&M costs, then you are going to be able to use those savings to increase your ROE above the midpoint.

If you have higher O&M costs, the reverse is also true, right, because you have sized the RSAM to get to the midpoint. If your O&M costs are higher, for whatever reason, additional inflation, work issues, whatever they may be, then you are not going to be able to get to your midpoint.

Weather works similarly. If you have weather that is worse than what you suggested, then you would not be able to get up to your midpoint. What could cause that? Unfortunately, extended outages as a result of storms could cause that, because you are losing revenue, you are not going to get that revenue back.

What could go the other way? The other way is you could have more customers than what you

predicted. In this case, we are predicting 335,000 new customers over the next four years. You could have weather be colder or hotter than what you had in the plan.

Interest rates. If interest rates, for example, are higher than what you predicted -- and, Commissioner, when I used each one of those, I am holding all else equal. So, like, interest rates, I am assuming everything else is held equal. So higher interest rates, what would that mean? All else held equal, that would mean you would not be able to get to your midpoint.

Interest rates held lower, what would that mean? All else held equal, you would be able to potentially earn more than your midpoint.

Those are three examples. There are a lot of other examples that could actually go up or down, and so my comment of the RSAM or the TAM in this situation only being designed to get to the midpoint is true. If everything else is held equal, then you are not going to be able to earn more than your midpoint. You shouldn't earn less than your midpoint either as long as you can control the costs, and interest rates are what they are, and so on and so forth.

So you have got to find other things to be able to earn more than your midpoint. And you also have all of the things that are going against you, you have got to find a way to modify those things, or if not, you will never get to your midpoint.

That's probably more confusing than helpful but --

COMMISSIONER PASSIDOMO SMITH: No, that was helpful actually. Thank you. It's -- and I will -- I will probably follow up with Mr. Bores too, but I just wanted to just get a little bit more detail about just the overall umbrella of cost efficiencies.

I mean, and one more question, if it's okay, Mr. Chair, and -- because you also just alluded to it, and you do have direct testimony on page 10 about the 355,000 additional customer accounts that are going to be added.

In my logic, adding more customer accounts, you know, but they are, at the same time we are going to, in the original case, FPL is asking to increase the minimum customer bill, I want to know why there is a need to increase the minimum customer bill with an additional -- with additional, that many additional more customer

accounts coming on-line.

THE WITNESS: Right, so the -- I will give it to you from my standpoint, and then the detailed questions that maybe I can't get to, I think Tiffany Cohen would be the best to be able to deal with that.

So the cus -- the increase in the customer bill is just another way to figure out what's the fixed cost that you are going to recover versus the variable costs that you are going to recover. Obviously, however the fixed cost is, then the less that you have got to recover on the variable costs of the business.

It also serves another purpose, right. And the other purpose is we have to invest for all of our customers. So taking, you know, the five Commissioners there, if one of you is only around 30 days a year, and another one of you is around 300 days a year in your house, we essentially have to invest in the infrastructure really the same way for both of you, right. We can't just assume you are only going to ever be there 30 days a year. And so what we are trying to do is find a way to share some of those costs, right. So give you a higher fixed cost overall on your bill than to give

someone that's there for a longer period of time.

I don't know that there is a perfect balance as to what the fixed portion of the bill is, but it's all part of the revenue that we get in. So if you lower that part of your bill, then we are going to need more revenue on the non-fixed portion of the bill.

The 335,000 customers, or 355,000 customers that's listed in my testimony, is a grounds-up calculation as to what the expectation in our part of Florida is going to be over the next four years and that is seeing -- that assumes that it's status quo kind of going forward, right, that what University of Florida provides, and other folks provide to that estimate is reasonable.

COMMISSIONER PASSIDOMO SMITH: Do you have off the top of your head how much it costs to serve a customer?

THE WITNESS: I do not.

COMMISSIONER PASSIDOMO SMITH: Okay. And then did you guys explore any alternative ways to recover these costs other than that minimum bill increase?

THE WITNESS: The alternative is -- the point I made is true, right. So if you reduce that $30

to $25, then that just means that $5 difference has to be recovered from all of the other customers in a non-fixed manner. So the customer bill on the non-fixed piece goes up while the fixed piece goes down.

COMMISSIONER PASSIDOMO SMITH: Okay. That is all my --

THE WITNESS: I am sure Ms. Cohen will have a better explanation, but that's my take.

COMMISSIONER PASSIDOMO SMITH: Thank you very much.

That's all I have, Mr. Chair.

CHAIRMAN LA ROSA: Awesome. Great.

All right. Back to FPL for redirect.

MR. BURNETT: Yes, sir. No redirect, and we with ask that Mr. Pimentel's testimony be moved into evidence and that he be excused.

CHAIRMAN LA ROSA: Okay. All right. So moved.

Do we need to give that a number, or we are good? We are good, okay.

You are excused.

THE WITNESS: Thank you.

CHAIRMAN LA ROSA: Thank you.

(Witness excused.)

CHAIRMAN LA ROSA: All right. My understanding it's Witness Olson, but I will leave it to you guys. I know, based on scheduling, that was -- that's what, I believe is next.

MR. BURNETT: Yes, sir.

MR. MARSHALL: Mr. Chairman, before we get there, we did have two exhibits we used with Mr. Pimentel --

CHAIRMAN LA ROSA: Go ahead.

MR. MARSHALL: -- that I believe we would like to move into the record.

CHAIRMAN LA ROSA: Go ahead.

MR. MARSHALL: That were Exhibits 1141 and 1218 on the Comprehensive Exhibit List. They are both confidential.

CHAIRMAN LA ROSA: Okay. Is there objection?

MR. BURNETT: No objection.

CHAIRMAN LA ROSA: Okay. Can we go ahead and assign exhibit numbers to those?

MS. CIBULA: I think we already have numbers for them, correct?

MR. SPARKS: We do. What was the second number?

MR. MARSHALL: 1218. It should be FEL 344.

CHAIRMAN LA ROSA: All right. Any other

exhibits?

(Whereupon, Exhibit No. 1141 & 1218 were received into evidence.)

CHAIRMAN LA ROSA: Seeing none, let's go ahead and call your next witness.

MR. BURNETT: Yes, sir. We call witness Arne Olson.

MR. BREW: Mr. Chairman.

CHAIRMAN LA ROSA: Yes, sir.

MR. BREW: On a totally unrelated matter, I do not have any questions for the witnesses scheduled for the remainder of the week and ask if I can be excused for this portion of the hearing?

CHAIRMAN LA ROSA: You may. We have a tentative schedule, so if there is a portion that you would like to come back for, I would just ask to follow along.

MR. BREW: That's fine.

CHAIRMAN LA ROSA: Yes.

MR. BREW: Thank you.

CHAIRMAN LA ROSA: You may be excused.

MR. GARNER: Mr. Chairman?

CHAIRMAN LA ROSA: Sure.

MR. GARNER: This is Bill Garner from SACE. I have a similar request, in fact, the exact same

request.

CHAIRMAN LA ROSA: All right. I would just ask the same -- the same thing. If there is a portion that you plan to come back into, just, obviously, follow along, and we are going to -- you know, we will keep the schedule, but, obviously, we will move as expedientially as possible, so...

MR. GARNER: Thank you, Chairman. We will be monitoring it.

CHAIRMAN LA ROSA: Okay. Is there any other parties that are intending to be excused?

MR. SELF: Yes, sir, Mr. Chairman --

CHAIRMAN LA ROSA: Mr. Self.

MR. SELF: -- I would as well.

CHAIRMAN LA ROSA: All right.

MR. MOSKOWITZ: My understanding is I have already been excused, but I would like to be excused as well.

CHAIRMAN LA ROSA: Okay. All right. So I have got my resident from EVgo and Fuel Retailers, same comment. So please follow along, and if you intend to head back in, just, obviously, let us know, but we are going to keep our schedule moving forward. So, yeah, you are excused.

All right. Well, I will let those parties

exit, if you plan on leaving now, so we are not disrupting a whole lot. I didn't mean for you to have to rush.

MAJOR NEWTON: Chairman --

CHAIRMAN LA ROSA: Yes.

MAJOR NEWTON: -- Chairman, this is FEA. We would request accommodation, and that might help out with the virtual issues that have been popping up.

CHAIRMAN LA ROSA: Yes, I will also grant that. And obviously, similar comments that I made to the other parties. So you are excused.

MAJOR NEWTON: Understood, sir.

CHAIRMAN LA ROSA: All right. Seeing nobody else looking for excusal, I believe the witness has not been sworn in. So if you don't mind standing and raising your right hand.

Whereupon,

ARNE OLSON

was called as a witness, having been first duly sworn to speak the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

THE WITNESS: I do.

CHAIRMAN LA ROSA: Excellent. I got it. Have a seat.

The witness is Your Honors.

MR. BAKER: Thank you, Mr. Chair.

EXAMINATION

BY MR. BAKER:

Q Mr. Olson, you were just sworn in, correct?

A Yes.

Q Could you please state your name and business address for the record?

A Yes, my name is Arne Olson, and my business address is 44 Montgomery Street, sweet 1250, San Francisco, California, 94104.

Q By whom are you employed and in what capacity?

A I am employed by Energy and Environmental Economics, or E3, and I am a senior partner there, and I lead our integrated system planning practice.

Q And have you prepared and caused to be filed 41 pages of prepared rebuttal testimony in this proceeding?

A Yes, I have.

Q And on July 31st of 2025, you filed an errata to your rebuttal testimony. Beyond that filed errata, do you have any further changes or revisions to your prepared rebuttal testimony?

A No, I do not.

Q With the corrections from your errata, if I

asked you the same questions contained in your rebuttal testimony, would your answers be the same?

A Yes, they would.

MR. BAKER: Mr. Chairman, I would ask that Mr. Olson's prepared rebuttal testimony be inserted into the record as though read.

CHAIRMAN LA ROSA: So moved.

(Whereupon, prefiled rebuttal testimony of Arne Olson was inserted.)

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 20250011-EI

FLORIDA POWER & LIGHT COMPANY

REBUTTAL TESTIMONY OF ARNE OLSON

Filed: July 9, 2025

D13-598

TABLE OF CONTENTS

I. INTRODUCTION

Q. Please state your name, title, and business address.

A. My name is Arne Olson. I am a Senior Partner at Energy and Environmental Economics, Inc. ("E3"). My business address is 44 Montgomery Street, Suite 1500, San Francisco, California 94104.

Q. Have you previously submitted direct testimony in this proceeding?

A. No. I was, however, made available for a deposition and was deposed in this proceeding on May 29, 2025.

Q. For whom are you appearing as a rebuttal witness?

A. I am appearing as a rebuttal witness for Florida Power & Light Company ("FPL" or "the Company").

Q. Please provide a description of your relevant employment experience and other professional qualifications.

A. I have over 30 years of experience in the electric utility business in consulting and state government. Since joining E3 in 2002, I have worked extensively in the areas of resource planning, asset valuation, transmission, wholesale electricity market design, retail rate design, and energy policy. I currently lead E3's Integrated System Planning practice and contribute frequently to projects across many practice areas. I have particular expertise in the area of electric system resource adequacy and have led advisory and modeling projects on behalf of dozens of utilities, electricity system operators, and other clients across North America over the past 20 years.

Prior to joining E3 in 2002, I served for six years as an energy policy specialist in the energy policy division of the Washington State Energy Office and Department of Community, Trade and Economic Development (now the Department of Commerce). I received Master of Science degrees in International Energy Management & Policy from the University of Pennsylvania and the French Petroleum Institute's National Superior School of Petroleum and Motors (now "IFP School"), and Bachelor of Science degrees in Mathematical Sciences and Statistics from the University of Washington. The attached résumé (Exhibit AO-1) further describes my qualifications, experience, and publications.

Q. Have you ever provided testimony before the Florida Public Service Commission ("Commission") or other regulatory agencies?

A. I have not provided testimony in front of this Commission. I have provided expert witness testimony in front of state and provincial regulatory commissions or civil trial courts in Oregon, Montana, California, Colorado, New Mexico, South Carolina, Georgia, Alberta, Ontario and Nova Scotia.

Q. Are you sponsoring any rebuttal exhibits in this case?

A. Yes. I am sponsoring the following exhibits:

- Exhibit AO-1 Résumé of Arne Olson
- Exhibit AO-2 California ISO's History of Energy Emergency Alert Events
- Exhibit AO-3 2026 LOLP Analysis
- Exhibit AO-4 Corrections to Calculations of Office of Public Counsel witness Dauphinais.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to rebut assertions made by witness James Dauphinais on behalf of Office of Public Counsel ("OPC") and witness Karl Rábago on behalf of Intervenors Florida Rising, League of United Latin American Citizens of Florida, and Environmental Confederation of Southwest Florida, Inc. (together "FEL") regarding the stochastic loss-of-load probability study that E3 performed for FPL, and which was described in FPL witness Andrew Whitley's direct testimony. In responding to witness Dauphinais, I also provide a general description of E3's study approach, methodology, and the Renewable Energy Capacity Planning ("RECAP") model used to conduct the study.

Q. What work did FPL retain E3 to perform as relevant to this proceeding?

A. FPL retained E3 to perform a stochastic loss-of-load probability ("LOLP") study to answer three primary questions:

- What is FPL's need for resource adequacy capacity in 2027 and beyond?
- What is the aggregate contribution of all existing and planned resources toward meeting FPL's need?
- Beyond existing and planned resources, how much does each potential individual resource addition contribute to meeting FPL's need?

Q. Have you performed similar work for other utilities?

A. Yes. Under my supervision, E3 has performed dozens of similar studies for utilities and regional entities across North America. E3 has performed resource adequacy studies using RECAP for El Paso Electric, NV Energy, NorthWestern Energy, Puget Sound Energy, Portland General Electric, the Sacramento Municipal Utility District,

the Los Angeles Department of Water and Power, Black Hills Energy, Public Service Company of Colorado, Northern States Power, Omaha Public Power District, Nova Scotia Power, NB Power, Calpine Corporation, California Public Utilities Commission, California Energy Commission, California Independent System Operator, New York State Energy Research and Development Authority, New Jersey Board of Public Utilities, Massachusetts Department of Energy Resources, and others. E3 was recently selected by the California Public Utilities Commission for a 4-year contract to continue our technical and advisory support for the state's Integrated Resource Planning process.

E3 also has significant experience advising wholesale market operators on issues related to resource adequacy. Under my supervision, E3 experts advised the New York Independent System Operator ("NYISO"), PJM Interconnection ("PJM"), and the Mid-Continent Independent System Operator ("MISO") in developing reforms to their methods of determining resource adequacy need and accrediting resources toward those needs within their wholesale capacity market structures, including submission of testimony to the Federal Energy Regulatory Commission ("FERC").[1] These reforms have been approved by FERC.[2,3,4] Also under my supervision, E3 prepared studies for

[1] Midcontinent Independent System Operator, Inc., *Tariff Filing per 18 C.F.R. § 35.13(a)(2)(iii): 2024-03-28 Resource Accreditation Reform*, Tab F, Docket No. ER24-1638 (filed Mar. 28, 2024).
[2] Federal Energy Regulatory Commission, *Order Accepting Tariff Revisions Subject to Condition*, New York Independent System Operator, Inc., Docket No. ER22-772-001 (May 10, 2022). 179 FERC ¶ 61,102.
[3] Federal Energy Regulatory Commission, *Order Accepting Tariff Revisions Subject to Condition*, PJM Interconnection, L.L.C., Docket Nos. ER24-99-000 and ER24-99-001 (Jan. 30, 2024). 186 FERC ¶ 61,080.
[4] Federal Energy Regulatory Commission, *Order Accepting Proposed Tariff Revisions*, Midcontinent Independent System Operator, Inc., Docket Nos. ER24-1638-000 and ER24-1638-001 (Mar. 28, 2024). 189 FERC ¶ 61,065.

the Public Utilities Commission of Texas ("PUCT") in the aftermath of Winter Storm Uri, exploring alternative market designs to ensure resource adequacy and evaluating the potential benefits and drawbacks of various capacity market designs including the PUCT's preferred Performance Credit Mechanism ("PCM"). E3 subsequently worked for the Electric Reliability Council of Texas ("ERCOT") to develop a more detailed PCM design for the PUCT's consideration. E3 has performed similar studies for the Alberta Electric System Operator ("AESO").

E3 has evaluated the resource adequacy and stochastic loss-of-load probability studies prepared by Duke, Santee Cooper and Georgia Power in their integrated resource plans, and I provided expert witness testimony in front of the South Carolina and Georgia Public Service Commissions on resource adequacy and capacity accreditation, among other topics, on behalf of clean energy business interests. Finally, I led teams that performed operational studies of higher solar penetration for Tampa Electric Company including the award-winning 2018 study *Investigating the Economic Value of Flexible Solar Power Plant Operation*.[5]

Q. Did you recently speak at an invitation-only event hosted by NERC staff to discuss changes in resource adequacy evaluation methods?

A. Yes, I was one of ten speakers, and one of four independent experts, invited to a workshop entitled "Evaluating Resource Contributions for Reliability and Capacity Supply Workshop" hosted by NERC on June 5-6, 2025 in Washington, DC. The purpose of the workshop was to "explore methods for evaluating resource contributions

[5] https://www.ethree.com/projects/investigating-the-economic-value-of-flexible-solar-plants/

to ensure system adequacy and facilitate effective representation of expected resource performance, … assess different approaches, their strengths and limitations, and how best to measure the reliability contributions of diverse resources to support capacity planning, and … inform NERC's reliability assessments as well as existing capacity planning constructs." My presentation summarized the emerging "Critical Periods" framework for need determination and resource accreditation that has been adopted by NYISO, PJM and MISO as well as a number of utilities, and that is being proposed by ISO-NE and the California PUC. This is the same framework that E3 used to evaluate resource adequacy need for FPL.

Q. Please summarize the conclusions of your rebuttal testimony.

A. I conclude that the concerns raised by witnesses Dauphinais and Rábago about the stochastic LOLP modeling and FPL's resource need are unfounded, and that the methodology and resource need calculations are robust and appropriate for use by the Commission in evaluating FPL's proposed resource additions.

II. RECAP & STOCHASTIC LOLP MODELING

Q. OPC witness Dauphinais states that he "conceptually agree(s)" the use of stochastic LOLP analysis is the most appropriate approach for a utility system with high levels of renewable (especially solar) generation. Did E3 perform a stochastic LOLP study of the type referenced by witness Dauphinais?

A. Yes, E3 used RECAP to perform simulations of expected resource availability across multiple years of weather conditions and a wide range of potential resource outage states to derive a statistically robust estimate of the frequency of expected loss-of-load

events for FPL's system, using 2027 as a test year. E3's study used state-of-the-art techniques to evaluate the availability of FPL's portfolio of thermal, solar, battery storage and demand response resources to provide energy during periods of system stress whenever they might occur. Thus, E3's study provides robust estimates of FPL's total resource need and the contributions of individual resources, alone and in combination, toward meeting that need.

Q. OPC witness Dauphinais points to two other software packages used to perform stochastic LOLP analysis. Is RECAP similar to other loss-of-load models used in the industry?

A. Generally, yes. Other models used in the industry include SERVM[6] and GE-MARS.[7] While the models have unique features, each uses simulations of resource availability across multiple weather years and Monte Carlo draws of resource outages in a similar manner to RECAP as described below.

Q. Witness Dauphinais references a number of criteria that FPL has used to measure its resource adequacy. How should "resource adequacy" be understood?

A. Resource adequacy refers to the ability of an electric power system to meet electricity demand across a broad range of weather and system operating conditions, subject to a long-run reliability standard. The resource adequacy of a system depends on load characteristics (*e.g.*, seasonal patterns, weather sensitivity, hourly patterns) as well as resource characteristics (*e.g.*, dispatchability, outage rates, variability).

[6] https://power-gem.co/software/servm-resource-adequacy-planning/
[7] https://www.gevernova.com/consulting/planos/resource-adequacy

Q. How do utilities typically plan for resource adequacy?

A. Utilities typically plan for resource adequacy by quantifying how much firm capacity is required to meet a specified reliability standard (Total Reliability Need or "TRN"). This quantity is often compared to the expected peak load, with a planning reserve margin ("PRM") defined as the TRN divided by the median peak load, minus one. These studies are typically done using a stochastic LOLP model. Individual resources are assessed based on their ability to contribute to the system need using an Effective Load-Carrying Capability ("ELCC") approach by adding or subtracting small quantities of a given resource to the system and observing the changes in the total effective capacity provided by the portfolio of resources. Because the events that can give rise to resource shortfalls are stochastic in nature and are expected to occur very seldomly, the use of stochastic LOLP modeling to evaluate resource adequacy need is widespread.

Q. OPC witness Dauphinais references in his testimony the LOLP modeling E3 performed through RECAP. Please describe, at a high level, how RECAP functions.

A. RECAP is a stochastic LOLP model developed and maintained by E3. RECAP simulates the availability of electric supply to meet demand across a broad range of system conditions using a Monte Carlo approach, accounting for factors such as weather-driven variability of electricity demand, forced outages of power plants, the natural variability and energy limitations of resources such as wind and solar, and operating constraints for resources like storage and demand response. Observed correlations are preserved within the model to ensure appropriate statistical

relationships among load, weather, and renewable generation conditions, based on historical observations. This approach ensures that rare events that may be unlikely to occur in a single year but are highly likely to occur across a number of years are appropriately sampled. These simulations determine the frequency and magnitude of loss-of-load events – time periods during which not all energy demand can be served due to insufficient resource availability – and provide the basis for calculating the PRM and ELCC values.

Q. Has RECAP been used to study resource adequacy in other jurisdictions?

A. Yes, as described above, RECAP has been used to support utility integrated resource plans and energy procurement activities in many jurisdictions including California, Nevada, Oregon, Washington, Montana, Colorado, New Mexico, Texas, Nebraska, Minnesota, New York, New Jersey, Massachusetts, Nova Scotia and others. Additionally, E3 has used RECAP for widely-cited regional resource adequacy studies sponsored by multiple utilities or other market participants including:

1. *Virginia Data Center Study: Electric Infrastructure and Customer Rate Impacts* (2024), prepared on behalf of the Virginia Joint Legislative Audit and Review Commission (JLARC).[8]
2. *Resource Adequacy in the Desert Southwest*[9] *(2022)*, sponsored by a consortium of six electric utilities serving over 90% of the electric load in Arizona and New Mexico.

[8] https://www.ethree.com/jlarc-load-growth/
[9] https://www.ethree.com/projects/resource-adequacy-in-the-desert-southwest/

3. *Net Zero New England: Ensuring Electric Reliability in a Low-Carbon Future*[10] *(2020)*, sponsored by the Calpine Corporation and undertaken in cooperation with the Energy Futures Initiative.
4. *Long-Run Resource Adequacy in California*[11] *(2019)*, sponsored by the Calpine Corporation.
5. *Resource Adequacy in the Pacific Northwest*[12] *(2018)*, sponsored by a consortium of thirteen electric utilities serving the majority electric load in Washington, Oregon, Idaho and Montana.

Q. How were FPL's electric loads characterized in RECAP?

A. E3 developed simulated load shapes for FPL's system using an artificial neural network model based on relationships between actual load and daily high and low temperatures across 44 weather years including 1980 through 2023. The simulated load shapes were then benchmarked to ensure that the median peak load matched FPL's 2027 median peak load forecast. Multiple weather years were used to ensure that the model accurately assessed resource adequacy across a range of average, mild, and extreme conditions as well as the relative frequency with which each of these different types of conditions would be expected to occur.

Q. How were thermal generating resources characterized in RECAP?

A. Each resource was characterized by its summer and winter capacity rating, forced outage rate, mean time to failure, and mean time to repair. Thermal resources were

[10] https://www.ethree.com/new-study-evaluates-deep-decarbonization-pathways-in-new-england/
[11] https://www.ethree.com/wp-content/uploads/2019/06/E3_Long_Run_Resource_Adequacy_CA_Deep-Decarbonization_Final.pdf
[12] https://www.ethree.com/wp-content/uploads/2019/03/E3_Resource_Adequacy_in_the_Pacific-Northwest_March_2019.pdf

represented as available to generate energy at their summer and winter capacity ratings subject to either planned or forced outages. Planned outage schedules were provided by FPL. Forced outages were stochastically introduced by RECAP on a unit-by-unit level using random mean-time-to-failure and mean-time-to-repair variables, in a manner that is consistent with each unit's annual average forced outage rate. Unit-level outages were simulated for plants with multiple units, *e.g.*, 2x1 or 3x1 combined cycle plants.

Q. How were solar generating resources characterized in RECAP?

A. Solar resources were assumed to be producing energy during particular hours based on fixed solar output profiles provided by FPL. FPL provided E3 profiles for the weather years 1997 through 2020 based on locations provided by FPL for existing sites and planned sites. During the simulation, RECAP selects daily solar output shapes to match the historical weather conditions across the entire sample of weather years using an algorithm that enforces observed correlations between solar output and load to ensure an accurate representation of solar availability during the critical periods.

Q. How were energy-limited resources represented in RECAP?

A. Energy-limited resources – storage and demand response – were characterized in RECAP by: (1) a maximum charge and discharge capacity represented in MW and (2) a maximum energy capacity represented in MWh. Dividing energy capacity by discharge capacity yields the duration (in hours) that a storage resource could discharge at its maximum discharge rate before running out of energy. Storage resources were assumed to be available for dispatch whenever they were online and charged. Charging was assumed to occur in any hour in which there was more energy production capability

than electric load. Energy storage resources were also subject to roundtrip efficiency losses and an assumed forced outage rate of 5%.

Q. How were demand response programs represented in RECAP?

A. Demand response programs were dispatched in RECAP as a resource of last resort after thermal, variable renewable, and storage resources have been fully utilized. Per instruction from FPL and consistent with FPL's tariff for these programs, demand response was assumed to have a limit of 25 calls per year at a maximum duration of six hours per call.

Q. What reliability standard did the RECAP study use?

A. Under instruction from FPL, E3 used a loss load expectation ("LOLE") standard of 0.1 days per year, meaning loss-of-load events occur no more frequently than one day every ten years.

Q. Both OPC witness Dauphinais and FEL witness Rábago reference 0.1 days per year LOLE as a common standard used in the industry for resource adequacy planning. Is this accurate?

A. Yes, 0.1 days per year LOLE is a common standard used widely for resource adequacy planning across the industry. This standard is used by the vast majority of utilities and system operators across North America as summarized in Table AO-1, below.

Table AO-1: Probabilistic Standards for Resource Adequacy for Select Utilities & Jurisdictions

Utility/Jurisdiction	Metric	Current Standard
Utilities		
Alabama Power	LOLE	0.1 days per year
Arizona Public Service Co	LOLE	0.1 days per year
Avista Corporation	aLOLP	5% per year
Black Hills Energy	LOLE	0.1 days per year
Dominion Energy South Carolina	LOLE	0.1 days per year
Duke Energy Carolinas	LOLE	0.1 days per year
Duke Energy Progress	LOLE	0.1 days per year
Duke Energy Florida	LOLE	0.1 days per year
El Paso Electric Co	LOLE	0.1 days per year
Georgia Power Co	LOLE	0.1 days per year
Idaho Power Company	LOLE	0.1 days per year
Nova Scotia Power, Inc.	LOLE	0.1 days per year
NV Energy	LOLE	0.1 days per year
Portland General Electric	LOLH	2.4 hours per year
Public Service Company of Colorado	LOLE	0.1 days per year
Public Service Company of New Mexico	LOLE	0.1 days per year
Puget Sound Energy	LOLE	0.1 days per year
Tucson Electric Co	LOLE	0.1 days per year
RTOs & Resource Adequacy Programs		
California Public Utilities Commission	LOLE	0.1 days per year
ISO New England	LOLE	0.1 days per year
Midcontinent ISO	LOLE	0.1 days per year
New York ISO	LOLE	0.1 days per year
PJM	LOLE	0.1 days per year
Southwest Power Pool	LOLE	0.1 days per year
Western Resource Adequacy Program	LOLE	0.1 days per year

Q. Do any of the utilities and systems shown in Table AO-1 use stochastic loss-of-load probability modeling to determine their resource adequacy needs?

A. Yes, all of them. Stochastic loss-of-load probability modeling is the industry standard practice for determining resource adequacy needs, used by numerous electric utilities and power systems in North America including in the SERC region.

Q. Both OPC witness Dauphinais and FEL witness Rábago raise questions about how RECAP was used to model FPL's resource adequacy. Can you please explain how RECAP was used in determining FPL's resource adequacy need?

A. E3's analysis consisted of the following steps:

1. Develop a RECAP case for FPL's system using 2027 as a test year and calculate the "perfect capacity" ("PCAP") need or TRN and perfect capacity planning reserve margin ("PCAP PRM"). Perfect capacity represents a theoretical capacity resource that is always available to produce energy whenever needed, without any outages or other limitations. The perfect capacity need is the quantity of perfect capacity that would be needed to meet FPL's load, subject to the 0.1 LOLE standard. The PCAP PRM is the perfect capacity need, divided by the 1-in-2 or median peak load, minus one.
2. Calculate the portfolio ELCC provided by FPL's planned portfolio in 2027. The portfolio ELCC is the total amount of equivalent perfect capacity that can be displaced by the actual resources in FPL's portfolio.
3. Calculate the capacity shortfall for the 2027 FPL system. The capacity shortfall is equal to the perfect capacity need minus the portfolio ELCC.

4. Calculate the achieved LOLE of the 2027 FPL system. The achieved LOLE is the actual count of loss-of-load events observed in the FPL system, given the 2027 resource portfolio, expressed in days per year.
5. Calculate marginal ELCCs or "firm capacity" equivalents for each individual resource type at varying penetrations and in various combinations, expressed as a % of nameplate capacity.
6. Recalculate the 2027 capacity shortfall after the addition of 1,400 MW of battery storage resources.
7. Calculate the perfect capacity need for the additional years (2028, 2029, 2030 and 2035) through additional RECAP runs. The perfect capacity need is the median peak load forecast multiplied by (1 + PCAP PRM).
8. Calculate the Portfolio ELCC for the additional years through additional RECAP runs.
9. Calculate the capacity shortfall for each additional year by subtracting the Portfolio ELCC from the perfect capacity need.
10. Determine the marginal ELCC values in each year through reference to the marginal ELCC table described in Step 5.

Q. Why did the study use a 2027 test year?

A. Because of the computational requirements of stochastic LOLP studies, it is common to select a single "test year" for detailed simulations. Parameters such as the PRM and ELCC values derived from the test year simulations can then be used in adjacent years to calculate the total need and individual resource contributions based on changing

loads and resource penetrations. The year 2027 was selected because 2027 is the year following FPL's accelerated addition of over 1,400 MW of battery storage resources.

Q. Is the PCAP/ELCC method used by E3 to characterize the total need and the contributions of individual resources different from the methods FPL has used in the past to calculate its 20% PRM?

A. Yes, the PCAP/ELCC or "Critical Periods" framework updates and generalizes the conventional methods for assessing resource adequacy to accurately assess the contributions of dispatch-limited resources such as solar, wind, and battery storage, while also providing a more accurate assessment of the contribution of thermal resources. The updated method differs from FPL's past practice in several ways, providing a more accurate measure of the total need and the contribution of resources individually and as a portfolio:

1. The PCAP/ELCC method calculates the total reliability need assuming a portfolio consisting only of perfect capacity, whereas FPL's past practice counted all thermal resources at their nameplate capacity and solar and storage resources at a reduced capacity based on a heuristic that measured average production during high net load hours.
2. The PCAP/ELCC method measures the marginal contributions of resources individually and in combination toward meeting FPL's resource adequacy need. The loads and resources table shows the marginal ELCC values for each resource for each year's portfolio, *i.e.*, the marginal value of the next MW of capacity. The marginal value of resources with dispatch limitations such as

solar, storage, and demand response changes each year as the entire portfolio changes.

3. The difference between the portfolio ELCC and the sum of the marginal ELCCs of each individual resource type is shown as the interactive effects. This is capacity provided by the portfolio that cannot be uniquely attributed to any individual resource. The interactive effect is also equal to the difference between the highest peak load and the load during the new critical hours as the hours change due to solar saturation.

Q. What were the results of the RECAP analysis?

A. The RECAP analysis found that a PCAP PRM of 8.8% would be needed to meet a 0.1 LOLE standard. This is equivalent to an Installed Capacity ("ICAP") PRM of 24.7% in 2027 using FPL's past practice of calculating resource adequacy need and resource contributions, demonstrating that FPL's past practices would be insufficient to meet a 0.1 LOLE standard. FPL's planned portfolios had small capacity shortfalls ranging from 19 to 273 MW in 2027-2030 and a larger shortfall of 1,218 MW in 2035. Additional results are included in Exhibit AWW-1.

III. REBUTTAL TO OPC WITNESS DAUPHINAIS

Q. OPC witness Dauphinais provides seven reasons why he believes E3's resource adequacy study is "overly conservative". Have you reviewed those?

A. Yes. The seven reasons witness Dauphinais believes E3's stochastic LOLP analysis may be conservative are:

1. FPL has not called any Energy Emergency Alert ("EEA") events since 2017.

2. FPL has not provided evidence of a current resource adequacy problem on its system or an expected one in 2026.
3. The North American Electric Reliability Corporation's ("NERC") 2024 Long-Term Reliability Assessment categorized the SERC-Florida Peninsula and SERC-Southeast regions as having a Normal Risk.
4. The stochastic LOLP analysis may have been "rushed."
5. E3 modeled the FPL system as an electrical "island," without assuming FPL can rely upon its neighbors for firm capacity.
6. Not all of the workpapers for the stochastic LOLP analysis were provided in a timely manner.
7. No FPL stakeholders were given an opportunity to provide input with respect to the assumptions utilized in the analysis.

Q. Do any these reasons indicate that E3's resource adequacy study is "overly conservative"?

A. No, none of the seven reasons noted by witness Dauphinais warrant such a conclusion. I address each of his concerns in turn.

Q. Witness Dauphinais's first reason that he believes the stochastic LOLP analysis may be conservative is because FPL has not called any EEA events since 2017. Is the lack of EEA events during historical periods determinative of the lack of resource need during a future time period?

A. No. A stochastic LOLP model is a much more robust method for determining resource need than anecdotal observations of events in recent years. There are many reasons

why a lack of recent EEA events should not be construed as being determinative of the lack of future resource need, including the four following principal reasons:

1. Loss of load events are rare and are only expected to occur once every ten years. This means that many years can go by without experiencing the combination of very high electric loads and an unusual number of resource outages that can create the conditions for loss-of-load. Moreover, the frequency and magnitude of loss-of-load events increases exponentially as the resource shortfall grows. For these reasons, it is unsurprising that a system with a steadily declining reserve margin such as FPL would experience a sudden, dramatic increase in the frequency of resource shortfall events.
2. E3's study evaluated loss-of-load probability for a 2027 test year using historical weather patterns over a 44-year weather history. The analysis incorporates years prior to the recent history to which witness Dauphinais alludes, including weather years before 2010 in which loss-of-load events were observed in the simulation such as 1980, 1993, 1998, 1999, 2005 and 2009.
3. Power systems are always changing due to load growth, resource retirements, and changing resource performance. Systems with high load growth and a changing resource mix are especially susceptible to the cumulative impacts of inaccuracies in resource accreditation. For example, FPL is experiencing load growth of approximately 1.4% per year. This would add 400 MW of load per year, or nearly 1,200 MW between August 2024 and 2027 and 4,000 MW between 2017 and 2027. At the same time, FPL's solar penetration has grown

rapidly and is expected to reach 11,071 MW by 2027. In short, FPL's 2027 system will be very different from its system in 2017.

4. Annual high temperatures in FPL's system have been increasing in recent decades, and E3 used a temperature detrending analysis to create the load shapes for the 1980-2023 weather years. This means that simulated future loads would be higher in 2027 than they would have been in 2017 even under the same macroeconomic conditions, creating a higher loss-of-load probability.

Q. Do you know of any examples where a power system encountered resource adequacy issues despite having negligible recent history of EEAs?

A. Yes. The California ISO experienced rotating blackouts during a peak load event on August 13-14 of 2020 due to insufficient available capacity. As indicated in Exhibit AO-2, CAISO had only called a single EEA1 alert over the 12 years preceding the event, *i.e.*, between 2007 and 2019. California's experience provides a real-life illustration of the risks associated with failing to closely examine how changes in weather, loads and resource portfolios can add up to create resource adequacy challenges.

Q. Did California undertake studies of its power system prior to the 2020 blackouts that indicated heightened potential for loss-of-load events?

A. Yes, in 2019 the CPUC performed a stochastic LOLP analysis and a "stack analysis" based on the LOLP analysis that stressed key parameters such as expected reduced import availability and more extreme high temperatures being experienced in recent years. The studies indicated the potential for resource adequacy shortfalls as early as 2021. As a result of the studies, the CPUC ordered the procurement of 3,300 MW of

new resources by 2023 as well as the retention of 3,800 MW of existing resources that were set to retire in 2020.[13] Unfortunately, the new resources were not available in time to prevent the August 2020 events, but 4,800 MW of resources did come online in time to help prevent rotating blackouts during the EEA3 event called by CAISO on September 6, 2022.

Q. Witness Dauphinais's second concern is that FPL has not indicated a resource adequacy problem in 2026. Does this concern have any merit?

A. No. In response to intervenor testimony, E3 conducted a RECAP model run and prepared a Loads and Resources table for 2026, which is shown in Exhibit AO-3. The results indicate that FPL, prior to the addition of 1419.5 MW of battery in 2026, has a resource adequacy shortfall of 1,829 MW and an LOLE of 0.92 days in that year. These results strongly support the need for FPL's 2026 resource additions; in particular its acceleration of battery storage as proposed in its resource planning.

Q. Witness Dauphinais's third reason that he believes the stochastic LOLP analysis may be conservative is that NERC's 2024 Long-Term Reliability Assessment ("LTRA") and SERC's 2024-2034 SERC Annual Long-Term Reliability Assessment Report categorized the SERC-Florida Peninsula and SERC-Southeast regions having a Normal Risk. Does this concern have any merit?

No. While the study may indicate that sufficient capacity exists in the broader region, it is not determinative of whether any individual utility faces a resource need.

[13] CPUC, Assigned Commissioner and Administrative Law Judge's Ruling Initiating Procurement Track and Seeking Comment on Potential Reliability Issues, June 20, 2019 (R.16-02-007).

Q. Does NERC or SERC have a formal role in regulating resource adequacy or developing standards that must be used by utilities such as FPL?

A. No, NERC's formal role and primary expertise is in developing standards for interconnected system *operations*. NERC has no formal role concerning resource adequacy. SERC's role as a Regional Reliability Entity is primarily to report on and enforce standards developed by NERC.

Q. What is the role of NERC's regional long-term resource adequacy assessments in the industry?

A. NERC's long-term resource adequacy assessments are considered to be advisory in nature, and to be an indicator of the need for more detailed LOLP studies to be undertaken by individual utilities. NERC does not have primary expertise in resource adequacy or loss-of-load modeling. NERC relies on the regional reliability entities such as SERC to provide the primary analytics behind the regional assessments.

Q. Are you aware of any differences between the SERC and NERC study methodologies or data inputs as compared with E3's stochastic LOLP study?

A. Yes, with respect to SERC's loss-of-load modeling, I am aware of three major differences that may cause the SERC and NERC study results to be overly optimistic about resource adequacy as it relates to FPL:

1. First, the SERC study is using an earlier, lower load forecast for FPL than E3's study. FPL's current forecast for 2027 is 500 MW higher than the value used by SERC. If other Florida utilities are also expecting a proportionately larger amount of load, the SERC study may be underestimating load for the Florida Peninsula by approximately 1,000 MW.

2. Second, SERC treats demand response as better than a perfect capacity resource, deducting it from load before applying its 15% reserve margin and thereby accrediting it at 115% of its "nameplate" value. This would be an accurate measure for load that is perfectly interruptible, that is, load that can be interrupted instantaneously at any time and with no limitations. However, the demand response programs in the FPL system have limitations based on number of calls per year (25) and call duration (6 hours) that meaningfully constrain its ability to provide energy during critical periods, especially as the penetration of battery storage increases. These limitations require FPL to carry resources to continue to serve the host load during the instances in which the DR program does not perform. E3's methodology accredits demand response at 81% of its "nameplate" value in 2027 after the addition of FPL's planned 1,400 MW of batteries. Extrapolating to the Florida Peninsula, this implies that SERC over-accredits 2,937 MW demand response by 115%/81%, or 540 MW.
3. Third, and most importantly, SERC models the entire Southeastern region as if it were a single load-serving entity with centralized dispatch across the region, rather than modeling FPL or any other utility individually. This has significant implications for interpretation of the results, as I discuss below.

Q. Do the NERC and SERC studies use the modernized resource accounting framework adopted by the Regional Transmission Organization ("RTO") markets and used by E3 for FPL?

A. No, the NERC and SERC studies accredit solar resources based on their "on-peak" capacity, rather than using a more precise method like ELCC. Solar is accredited at a

value of 55.5% in the NERC study, whereas the E3 study shows the cumulative ELCC for a proportionate amount of solar for the FPL system dropping to 41%, with the marginal ELCC dropping to 17% by 2027. Similarly, the NERC study accredits batteries based on their peak-hour contribution, resulting in an accredited value of 97.2% for the FPL system. E3's methodology accredits storage based on its marginal contribution to meeting FPL's resource adequacy needs, which changes as a function of the portfolio, declining to 76% by 2027 and 50% by 2028. While the penetration of solar and storage in the rest of the SERC region is lower than in the FPL service area, SERC's over-accreditation of these resources is likely to mask the appearance of resource adequacy issues in the broader SERC region in a similar manner to what is observed for the FPL system, if its methodologies are not updated.

Q. How do the projected reserve margins in the NERC and SERC studies compare to the reserve margins the RECAP study shows are needed to meet a 0.1 LOLE standard for FPL's system?

A. Both SERC and NERC project approximately 25% reserve margins in 2027, which is very close to the 24.7% reserve margin that the RECAP modeling indicates is needed, using FPL's past accounting methodology. This indicates that, while the studies currently show a resource surplus for the SERC region, the realized reserve margin is close to what the region might need within a few years as solar and storage penetration grow.

Q. Is it surprising that a study of a large region like SERC would show only a small amount of lost load while a single utility within the region has a capacity shortfall?

A. No, the SERC studies look at the entire SERC region and assume that energy from any part of the region can flow to any other part of the region whenever needed, as if there were a binding resource adequacy construct and centralized dispatch of the type operated by RTOs such as PJM or MISO. In reality, there is no centralized dispatch and the utilities have no obligation to dispatch their plants for the benefit of their neighbors. The SERC studies do not specifically evaluate the resource adequacy of any individual utilities within the broader region, including FPL. A study of a large region can mask an issue with one of the utilities in the region.

Q. Are you aware of any jurisdictions that rely on the NERC assessments in lieu of utility-specific studies?

A. No, I am not aware of any jurisdiction that relies on NERC LTRAs as the definitive word on resource adequacy for its utilities. Utilities in Florida, as in other states, are required to conduct their own studies of resource adequacy needs for their own systems, and those studies are the primary evidence upon which utilities and state commissions rely.

Q. Should FPL and the Commission rely on the SERC or NERC regional studies, rather than a robust stochastic LOLP study conducted for FPL's system using FPL-specific data?

A. No, FPL and the Commission should rely on the FPL-specific study because it evaluates conditions specific to FPL including FPL-specific loads, it includes detailed information about the nature of FPL's system including unit-level outage data, and it

adopts a modernized resource adequacy framework that more accurately characterizes the performance of FPL's resources during critical periods.

Q. Witness Dauphinais's fourth reason that he believes the stochastic LOLP analysis may be conservative is that the study was "rushed". Does this concern have any merit?

A. No, E3 was allocated sufficient time to perform the resource adequacy and derive accurate study results. There is no reason to expect, and witness Dauphinais provides no evidence, that this or any other resource adequacy study is overly conservative or biased in any way due to the time frame in which the study was conducted. E3's study provides an unbiased estimate of FPL's resource adequacy needs that is fully reflective of the analytical rigor that E3 applies to each of its resource adequacy studies.

Q. Was it prudent for FPL to commission a stochastic LOLP study after learning that it may have a resource adequacy shortfall, and to bring the study results forward in support of its planned resource acquisitions?

A. Yes. Once FPL had information about an impending resource adequacy challenge, it would have been imprudent for it *not* to act on that information.

Q. In your judgment, after a utility first learns that it may be facing a reliability issue, how long should it wait before acting upon that information?

A. In my judgment, a utility has an affirmative obligation, upon learning that it may be facing a reliability issue, to act upon that knowledge *immediately* and to implement cost-effective solutions as quickly as is practicable. Any delay in addressing the challenge increases the likelihood that its customers may experience loss of power during an extreme hot or cold weather event, with the attendant health and safety risks.

The 2020 blackouts in California, as described above, provide a cautionary tale about the risks of waiting until too late to address an impending resource adequacy issue.

Q. Witness Dauphinais's fifth reason that he believes the stochastic LOLP analysis may be conservative is that E3 modeled FPL's system as an electrical "island". Does this concern have any merit?

A. No. It is a common practice for utilities not to plan to rely on non-firm imports, and I am aware of a number of utilities that assume no, or only a very small amount of, non-firm imports in their resource adequacy studies including El Paso Electric, Public Service Company of New Mexico, NV Energy, NorthWestern Energy, and Nova Scotia Power. While practices vary across the industry, my general observation is that utilities in areas with (a) robust interconnections to neighboring systems, (b) strong load and resource diversity, and (c) a liquid bilateral market for forward wholesale electricity trade tend to assume some amount of intertie support in their resource adequacy need determinations. For example, the Pacific Northwest region has many unique features that make it reasonable to assume some amount of import availability:

1. There is a liquid bilateral wholesale market for forward power trading centered around the Mid-Columbia trading hub.
2. The 500-kV regional power system is operated by the Bonneville Power Administration and serves as a common carrier for transactions to and from the Mid-Columbia hub.
3. It has some utilities that are winter-peaking and some that are summer-peaking, facilitating seasonal exchanges that reduce the total regional need.

4. There is a diversity of resources, with some utilities relying primarily or exclusively on hydroelectric power while others rely primarily on thermal generation.

By contrast, utilities in peninsular regions without strong interconnections or meaningful diversity do not plan to rely upon their neighbors. In the Desert Southwest, there is no regional transmission operator, all utilities have very high summer peaks, and all rely primarily on a combination of thermal and solar generation. Hence, utilities in that region do not plan to rely on imports in lieu of firm capacity on their own systems. Similarly, utilities located at the edge of interconnections such as El Paso Electric, NorthWestern Energy, and Nova Scotia Power have less ability to connect to neighboring systems with different characteristics and therefore plan to meet their own needs with resources that are owned or under long-term contract.

Even in the Pacific Northwest, commissions and utilities have expressed increasing concern about the practice of some utilities in the region to rely on non-firm imports in lieu of firm capacity. In response to such concerns, the utilities in the region tasked the Western Power Pool in 2019 with creating the Western Resource Adequacy Program. The purpose of the program is to eliminate the risks associated with the haphazard way in which utilities in the region made assumptions about import availability. It will do this by evaluating needs on a regional basis and establishing a binding obligation to procure resources sufficient to meet the regional needs as determined by the program, subject to financial penalties.

Q. Is it imprudent for FPL to require firm capacity resources to ensure resource adequacy for its system?

A. No, most of FPL's service area is in a geographically-constrained peninsula with very limited load or resource diversity. It is prudent for FPL to assume that its neighbors will experience high loads and challenging conditions at the same time that FPL does. It is also prudent to assume that imports from outside Florida would also be limited due to transmission constraints. Both of these factors support requiring FPL to have sufficient firm capacity resources to ensure resource adequacy for its system.

Q. Does FPL, or any other Florida utility, plan to rely on non-firm imports in lieu of firm capacity for their resource adequacy need?

A. No. As discussed by witness Whitley, the longstanding practice in Florida, including for FPL, is to rely only on firm capacity resources and not to rely on non-firm imports for meeting their resource adequacy needs.

Q. Witness Dauphinais's sixth reason that he believes the stochastic LOLP analysis may be conservative is that some workpapers were produced later in time. Does this concern have any merit?

A. No, as explained in the rebuttal testimony of FPL witness Whitley, a small number of workpapers were initially omitted from a discovery production due to a clerical error. This clerical error, which occurred long after the study was complete, did not have any bearing on the study results.

Q. OPC witness Dauphinais's seventh reason for his concern the stochastic LOLP analysis may be conservative is that stakeholders were not given opportunity to provide input in the analysis. Does this concern have any merit?

A. No, E3 has no reason to believe, and witness Dauphinais has provided no evidence, that the study is biased due to lack of third-party input. The methodologies and inputs used in a study of this nature are highly technical and idiosyncratic to the FPL system. It is unlikely that additional input from stakeholders would have meaningfully changed the stochastic LOLP methodology, input data, or results.

Q. In short, do any of witness Dauphinais' reasons for concern about the study being overly conservative have merit?

A. No, witness Dauphinais's testimony provides no evidence or any other reason to believe that E3's study results are biased and/or overly conservative.

Q. Does witness Dauphinais take issue with the use of stochastic loss-of-load probability modeling in general to determine FPL's resource adequacy need?

A. No, witness Dauphinais "conceptually agree(s) the use of stochastic LOLP analysis is the most appropriate approach for a utility system with high levels of renewable (especially solar) generation" (p. 35, lines 19-21) and recognizes that "FPL has a high level of solar generation penetration that does require a move to stochastic LOLP analysis" (p. 43, lines 14-15). Additionally, witness Dauphinais recognizes that "some amount of additional capacity beyond that which would be required to meet FPL's traditional 20% PRM criterion may be necessary to provide resource adequacy in 2027" (p. 43, lines 8-11) because of the limitations of FPL's conventional, deterministic methods and the operational challenges FPL is experiencing.

Q. Witness Dauphinais provides high-level calculations in his Exhibit JRD-5 that purport to show that "the total nameplate capacity amounts of solar generation and battery storage proposed by FPL for 2026 and 2027 with in-service dates prior to summer 2027 significantly exceed the amounts assumed in the stochastic LOLP analysis case that FPL uses to justify the need for them from a reliability perspective." Is his calculation accurate?

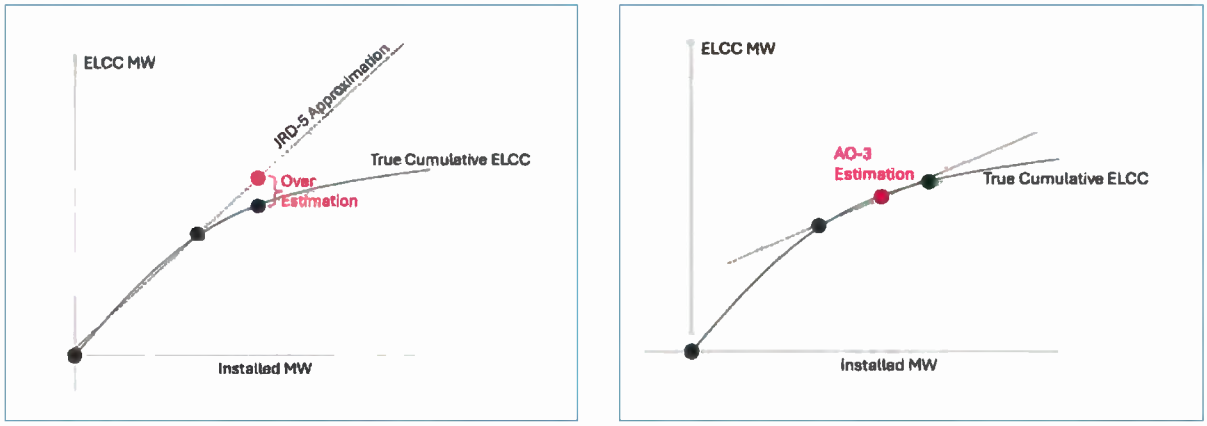
A. No. Witness Dauphinais used an incorrect method to interpolate the incremental ELCC values for the additional 476 MW of solar and 467 MW of storage with in-service dates by summer 2027 by linearly scaling up the ELCC of solar based on the quantity of storage. Specifically:

- He incorrectly calculated the cumulative ELCC of 11,071 MW of solar with 2,858 MW of storage by scaling up the cumulative ELCC of 11,071 MW of solar with 2,391 MW of storage (3,096 MW) by a ratio of 2,858/2,391. The incorrect value is 3,263 MW. He then (correctly) scales up this incorrect value using the ratio of the change in the quantity of solar. The final, incorrect value is 3,325 MW.
- The correct way to calculate the cumulative ELCC of 11,071 MW of solar with 2,858 MW of storage is to interpolate between the values published in the cumulative solar and storage ELCC tables for the cumulative ELCC value of 11,071 MW of solar with 2,858 MW of storage (3,096 MW) and the cumulative ELCC value of 11,071 MW of solar with 3,211 MW of storage (3,178 MW), which is the next largest quantity of storage modeled in RECAP. The interpolated value is 3096+(3178-3096)/(3211-2391), which yields a

cumulative solar ELCC value of 3,142 MW at 2,858 MW of storage. This can then be scaled in the same manner used by witness Dauphinais to reflect the larger amount of solar in the portfolio, to arrive at a final value of 3,205 MW. This is 120 MW lower than witness Dauphinais's incorrect value.

The conceptual error made by witness Dauphinais is illustrated in Figure 1 below: he assumed that the solar ELCC scales linearly with the quantity of storage capacity, rather than observing from the published cumulative ELCC tables that the marginal benefit of solar declines as a function of storage penetration.

Figure 1



After correcting this error, the FPL portfolio has a small capacity surplus of 84 MW in summer 2027, rather than the 204 MW calculated by witness Dauphinais. This does not show an error in FPL's analysis, but rather underscores the fact that FPL must be adding resources in the beginning of 2027 in order to meet its resource adequacy target in that year. A corrected version of witness Dauphinais's calculation is provided in Exhibit AO-4.

Q. Did witness Dauphinais make a similar error in his Exhibits JRD-6 and JRD-7, where he purports to show that FPL's 2026 and 2027 proposed solar generation additions are not necessary to meet FPL's "perfect" capacity need for 2027?

A. Yes, once again witness Dauphinais starts by incorrectly scaling up the cumulative ELCC of 7,000 MW of solar with 2,391 MW of storage (2,423 MW) by the ratio of 2,858/2,391. The incorrect scaled value is 2,538 MW. He then scales that to 10,057 MW of solar, to arrive at a value of 3,122 MW. Instead using an interpolation between published ELCC values at various levels of solar and storage results in a correct value of 3,004 MW. Whereas witness Dauphinais claims that FPL's short position without the solar additions is only 89 MW, the corrected analysis shows that FPL's short position is actually 209 MW. The corrected calculation is shown in Exhibit AO-4.

In his Exhibit JRD-7, witness Dauphinais estimates a perfect capacity surplus of 90 MW excluding only FPL's 2027 proposed solar generation additions, which he describes as "clearly a resource adequate result." A corrected calculation, provided in Exhibit AO-4, shows that FPL's portfolio actually has a small deficit of 31 MW, and is thus not quite resource adequate in 2027 without FPL's proposed 2027 solar generation additions.

IV. REBUTTAL TO FEL WITNESS RÁBAGO

Q. What is FEL witness Rábago's concern with the stochastic LOLP methodology?

A. Witness Rábago implies that the robust statistical methods employed in LOLP modeling should not be relied upon for decision-making because they inflate the likelihood of loss-of-load events, and that human judgment should be used instead.

Q. Is there any merit to this concern?

A. No. While human judgment always has the final say in cases such as electric utility investments, it is important to recognize its limits and where additional tools such as sophisticated computer models can play an important role in informing judgment. In particular, human judgment is notably deficient in understanding risks related to low-probability events. Daniel Kahneman was awarded the 2002 Nobel Memorial Prize in Economic Sciences for his work on the psychology of judgment and decision-making and its implications in behavioral economics. Kahneman's work shows that human intuition is poor at reasoning about probabilistic, low-frequency events—particularly when outcomes are complex and contingent—and that expert judgments can vary significantly between individuals, lack reproducibility, and systematically diverge from statistical models.[14]

Q. What role do sophisticated models play in informing resource adequacy needs and resource procurement or retention?

A. Sophisticated models are needed to calculate the relevant probabilities for the precise reason that human beings are likely to misperceive the likelihood of low-probability

[14] Judgment Under Uncertainty: Heuristics and Biases Daniel Kahneman, Paul Slovic & Amos Tversky (eds.) Cambridge University Press (1982).

events, such as the loss of multiple generating units coinciding with high load events. Stochastic LOLP models calculate the probability of these events happening using a "Monte Carlo" approach where outages of individual units are randomly drawn. There is extensive academic literature in the field of statistics supporting the use of Monte Carlo methods to calculate statistical problems that would be difficult or impossible to solve in closed form. Stochastic LOLP models provide invaluable information to humans to help inform their judgments about important matters such as generation resource procurement. This is why stochastic LOLP modeling is overwhelmingly the most common method used in resource adequacy analysis across the United States and Canada, including by SERC and many utilities in the SERC region.

Q. Witness Rábago provides an example of resource outages observed in the RECAP model outputs that he claims demonstrates a cumulative probability of 0.00000000004%. Is his claim accurate?

A. No, this claim is wildly inaccurate. Witness Rábago does not provide the derivation of his calculation, but I observe that 0.00000000004% is equal to 0.05^8 and assume he attempted to calculate the likelihood of eight generating units, each having a 5% forced outage rate, being simultaneously out of service. Leaving aside complexities such as outage durations, this would be an accurate calculation, using the binomial distribution and assuming a plant is either online with 95% probability or offline with 5% probability, of the likelihood that a power system with *exactly eight generating units* would suffer a simultaneous outage *of all eight units*. However, FPL's system has many more than eight units; E3 modeled 84 different thermal units including individually modeling the steam turbines and combustion turbines of combined-cycle gas plants.

The probability of any eight of these 84 generators being out of service in a given hour is much higher: in fact, using the binomial distribution and hypothetically assuming a 5% forced outage rate for each plant as witness Rábago appeared to do in his theoretical calculation, the correct probability would be 5.9%. The derivation of this probability is shown below.

Let

$$X \sim \text{Binomial}(n = 84, p = 0.05)$$

be the number of offline plants.

We seek:

$$P(X \geq 8) = 1 - P(X \leq 7) = 1 - \sum_{k=0}^{7} \binom{84}{k} (0.05)^k (0.95)^{84-k}$$

Evaluating this sum:

$$P(X \geq 8) = 1 - \left[\sum_{k=0}^{7} \binom{84}{k} (0.05)^k (0.95)^{84-k} \right] \approx 1 - 0.94096 = 0.05904$$

$$\boxed{P(X \geq 8) \approx 0.05904}$$

Q. Can you provide some additional context about the difference between a probability of 0.00000000004% and a probability of 5.9%?

A. Yes. Without ascribing any merit to it, the calculation performed by witness Rábago implies that there would only be a *1-in-25 billion* probability of eight simultaneous unit outages on FPL's system in a given hour. Using witness Rábago's theoretical paradigm, and correctly applying the binomial distribution shows that the actual probability is 1-in-17. Witness Rábago miscalculated the probability of this event occurring by a factor of 1,511,323,062. Correct application of the binomial distribution in witness Rábago's hypothetical shows that it would be expected to occur on average over 500 times each year, or more than once daily.

Q. Has E3 benchmarked the thermal outage distributions resulting from its Monte Carlo process against closed-form statistical distributions?

A. Yes, E3 regularly benchmarks all results against intuition and expected results from closed-form calculations. It must be understood that closed-form distributions such as the binomial distribution will not provide precisely accurate estimators of the results of the Monte Carlo analysis because RECAP does not use a binary variable of whether a resource is online or offline as the random variable. Rather, for each generator, it uses two random variables that more accurately reflect the impact of generator outages:

1. "Mean-time-to-failure" reflects the increasing likelihood that a resource will go offline as a function of the number of hours it has been in service.
2. "Mean-time-to-repair" reflects the increasing likelihood that a resource will come back online as a function of the number of hours it has been out of service, in effect providing a randomly-drawn outage duration.

Nevertheless, the outage distribution resulting from the Monte Carlo process should generally align with a simplified binomial distribution. Figure 2 compares the probability density function of outages from RECAP's Monte Carlo simulations for the FPL system on the left with the closed-form distribution calculated using binomial outage probabilities. Figure 3 compares the cumulative probability density function from RECAP with the closed-form distribution.

In both cases, the results are not uniform because they reflect the sizes of specific FPL generators.

Figure 2

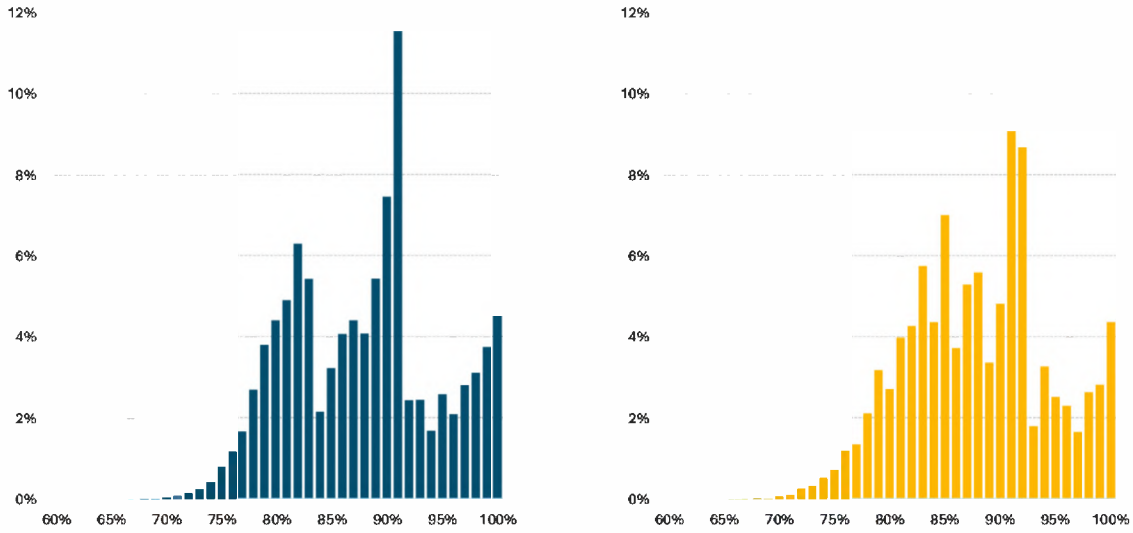
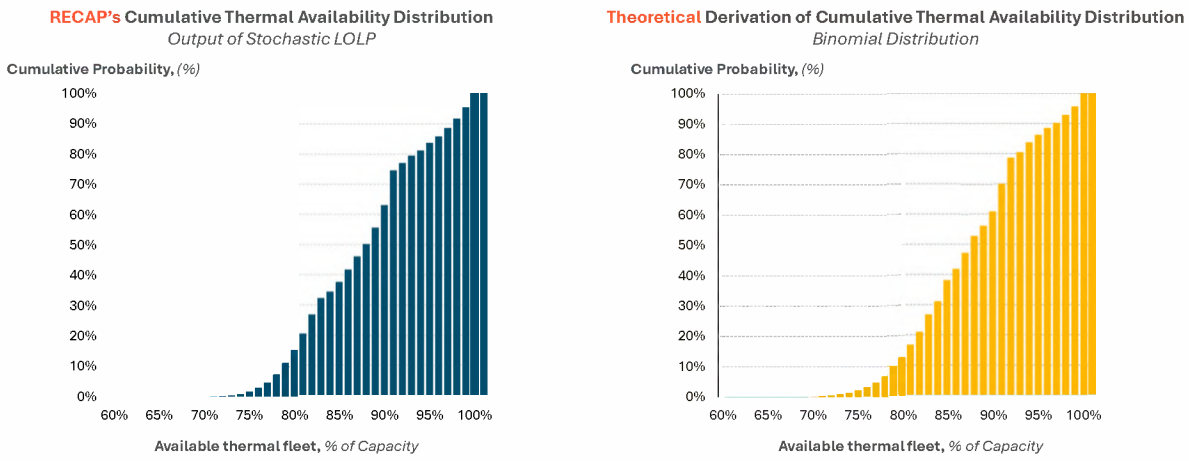


Figure 3



Q. Do the results of this analysis show that the outages simulated in RECAP are reasonable and in line with what should be expected based on their statistical properties?

A. Yes, the analysis shows that the thermal outage profiles are reasonable, in line with the underlying probabilities, and suitable to use to inform human judgment about the need for resources to meet a resource adequacy standard.

Q. What else does witness Rábago allege about generator unit outages?

A. Witness Rábago alleges that "certain generation units that contribute to calculated LOLPs that are below the target .1 day/year level always have issues of forced outages or significant reductions in output or are always out or reduced on specific days."

Q. Does this raise a legitimate concern about the results?

A. No. E3 modeled each generating unit as specified by FPL. While witness Rábago does not make any allegations that are specific enough to rebut with reference to the RECAP results, I will note that there are three reasons why specific generators might appear repeatedly on resource outage lists:

1. Each generating unit has a fixed planned maintenance outage schedule that was provided by FPL and was modeled consistently by E3 through each RECAP run.
2. Some units are always unavailable during certain seasons, *e.g.,* Manatee 1 and 2 are always unavailable during the summer season due to operating limitations.
3. Random outages are drawn once and repeated consistently for each RECAP run. This avoids introducing noise into the model results that might make interpretation difficult.

V. CONCLUSION

Q. Does this conclude your rebuttal testimony?

A. Yes.

ERRATA SHEET

WITNESS: ARNE OLSON
REBUTTAL TESTIMONY DATED JULY 9, 2025

Page	Line	Change
14	2	Change "5%" to "3.82%"
23	11	Change "1,829" to "1,764"
23	11	Change "0.92" to "0.76"

Exhibit No.	Page No.	Change
AO-3	1 of 2	Replace originally filed Exhibit AO-3 with attached Exhibit AO-3 Errata
AO-3	2 of 2	Replace originally filed Exhibit AO-3 with attached Exhibit AO-3 Errata

BY MR. BAKER:

Q Mr. Olson, do you have exhibits that were identified as AO-1 through AO-4 attached to your rebuttal testimony?

A Yes.

Q Were these prepared under your direction and supervision?

A Yes.

Q And the errata that you filed on July 31st of 2025 included a revised version of Exhibit AO-3. Do you have any further revisions to your prepared exhibits?

A No.

MR. BAKER: Mr. Chairman, I would note that these exhibits have been pre-identified in staff's Comprehensive Exhibit List as Exhibits 29294.

CHAIRMAN LA ROSA: Okay.

BY MR. BAKER:

Q Mr. Olson, would you please summarize the topics addressed in your rebuttal testimony?

A Yes. My rebuttal testimony addresses the stochastic loss of load probability analysis that E3 performed for FPL, and the need determination and resource accreditation methodology that underlie it.

My testimony also demonstrates that the methodology and resource need calculations performed as

part of the analysis are robust, they are in line with the methods that are used by utilities across the country, and are appropriate for use by the Commission in evaluating FPL's proposed resource additions.

Q Thank you, Mr. Olson.

MR. BAKER: Mr. Chairman, I tender the witness for cross-examination.

CHAIRMAN LA ROSA: Thank you.

OPC.

MS. WESSLING: Thank you, Mr. Chair.

EXAMINATION

BY MS. WESSLING:

Q And good afternoon, Mr. Olson.

A Good afternoon.

Q Nice to see you in person, and welcome to Tallahassee.

All right. So it's my understanding you are a senior partner at the Energy and Environmental Economics company, also known as E3?

A Yes, that's correct.

Q All right. And I would like to start my questions by establishing somewhat of a timeline of your involvement in this case, you and your -- and E3's involvement, that is.

So in 2024, FPL contracted with E3 to perform

certain work unrelated to either FPL's Ten-Year Site Plan or this rate case, correct?

A That's correct.

Q And during the course of that work, E3 identified a resource adequacy issue with FPL's system, correct?

A Well, it's a little more complicated than that. E3 was first retained to perform operational studies because of issues that the operations team were experiencing related to planning, maintenance, ramping, addressing uncertainty -- operational issues associated with higher solar penetrations, and so we conducted a detailed operational study for the company.

As part of -- well, in the course of conducting that study, we identified that the model was having trouble serving all of the load during certain times of the year, during our 2027 test year. So that wasn't a determination by itself of a resource adequacy issue, but it was certainly an indicator of one.

And then subsequent to that, the company retained us to conduct a much more detailed and much more thorough stochastic loss of load probability analysis, which is sort of the definitive word in the industry as to whether there is, indeed, a resource adequacy issue.

Q And on October 14th of 2024, E3 provided a proposal to FPL to conduct this stochastic loss of load probability analysis that was ultimately used to support both FPL's 2025 Ten-Year Site Plan and this rate case, correct?

A Yes, that's correct.

MS. WESSLING: And if we could, I would like to identify CEL Exhibit 627, which should be OPC's Exhibit 142, and the Case Center page number is F2-1312.

And I guess I hadn't -- this hadn't occurred to me yet, but sometimes the Case Center allowed to be up on the screen, but since there is the GoToMeeting, is that not going to be an option?

CHAIRMAN LA ROSA: Let me ask. So FEA is no longer on. Is anybody else on?

MR. STADEN: Technically, they are still on the GoToMeeting.

CHAIRMAN LA ROSA: Okay.

MR. STADEN: I mean, if I kill the GoToMeeting, we can do Case Center on the big screen. It's just your call.

MS. WESSLING: Well, and maybe I could ask a question. So if I were to call out a Case Center page number, would it be visible to the witness as

well as the Commissioners?

MR. SCHULTZ: I am still pushing it all out from here. I just pushed that one out. Just we don't have it on there.

MR. STADEN: You should have it on your laptop. It's just not on this screen.

MS. WESSLING: Okay. Can the Commissioners see --

CHAIRMAN LA ROSA: Yeah, we have the screen in front of us --

MS. WESSLING: Okay.

CHAIRMAN LA ROSA: -- down below. But to the point with FEA, they would still see us. They would still see everything?

MR. STADEN: We can kill the GoToMeeting internally --

CHAIRMAN LA ROSA: Yeah, let --

MR. STADEN: -- just for that, and put Case Center up there.

MAJOR NEWTON: Commissioner, this is Major Leslie Newton. I can't see anybody in the GoToMeeting. I am streaming the live version of the hearing from the website, and have the GoToMeeting up for realtime audio since there is about, what I can estimate, 10 to 20 second lag,

but I do not see any video or pictorial image in the GoToMeeting.

MR. STADEN: So she just called in.

CHAIRMAN LA ROSA: Yeah. Okay. Perfect. So that clarifies. I think we can cut this.

MS. WESSLING: Or could we minimize it? Could we minimize that and just have Case Center up?

MR. STADEN: Let's do that.

CHAIRMAN LA ROSA: I can't see that, obviously, so until you pointed it out, I did not realize it.

MS. WESSLING: It looks like -- all right. If I may continue?

CHAIRMAN LA ROSA: Yeah, let's roll.

MS. WESSLING: All right. Thank you.

BY MS. WESSLING:

Q And, Mr. Olson, is this the redacted version of the proposal that E3 presented on October 14th, 2024, to FPL?

A Yes.

Q And this proposal, in the first paragraph, describes the resource adequacy problem that E3 ultimately identified, correct?

A Is it possible to scroll on the version that I have on my screen?

MR. SCHULTZ: Yeah, you should be able to.

THE WITNESS: I can do that. Very good. Thank you.

BY MS. WESSLING:

Q And I can start with the first line if you want me to --

A I can see it.

Q -- my questions. Okay.

So the first line of this states that Florida Power & Light Company is experiencing a dramatic increase in solar energy penetration. Do you see that?

A I see that. Yes.

Q All right. And to be clear, this dramatic increase in solar energy penetration was not accidental, correct? What I mean is FPL -- every megawatt of solar energy on FPL's system is there because FPL wanted it there, correct?

A That would be my presumption, that FPL procured those megawatts, and certainly the utility-scale megawatts would be ones that they had contracted with and procured. There would also be a not insignificant amount of rooftop solar that would not have been, due to a company action.

Q All right. And this proposal goes on to state that, later on in that paragraph, that FPL is already

experiencing operational challenges related to solar variability, correct?

A Yes. In that sentence that you see there, including unit commitments, forecasting, operating reserve needs, et cetera, I mean, those were the operational issues that I just described a little bit earlier that led to our production of an operational study.

Q And solar variability meaning that it's not -- solar is not always available, correct?

A I am sorry, could you repeat that?

Q Solar variability means that solar is not always available, correct?

A Yes, that's correct. And also, when it is available, sometimes the output can fluctuate.

Q Okay. Things like time of day and cloud cover can contribute to the solar variability that you are referring to here, correct?

A Yes.

Q And this proposal also warrants that FPL's operational challenges will grow in the coming years as the penetration of solar increases, correct?

A Yes.

Q So then the opposite is also true, that if FPL does not increase its solar additions, these operational

challenges will not increase, correct?

A That's correct. And, you know, I think what I mean by this, and what should be understood by this, is that adding a variable resource creates different challenges from what a utility might be used to that didn't have it on their system before. But many utilities have gone through this transition already, and successfully integrated larger amounts of solar and wind, and so those aren't challenges that are insurmountable. They are just challenges that need to be understood and prepared for.

Q And the rest of this proposal details the various steps and work that E3 was proposing to do on FPL's behalf, correct?

A Yes. So in this proposal E3 was suggesting a variety of work streams that we thought that the company might find useful based on our experience working with other utilities that have been in similar situations.

Q And the proposal also includes various explanatory diagrams and comments to give context to the work that E3 was proposing to conduct, correct?

A Yes, there are a variety of diagrams which we have taken from previous projects of a similar nature.

Q All right. If we could go to page 13 of the proposal, which is Case Center F2-1234, please?

A Yes, I am there.

Q I need to get there myself.

All right. On this page, the first plus sign states that the growth of solar penetration and the uncertainty introduced by it are positively correlated and follows a complicated relationship, do you see that?

A Yes.

Q And would you agree that if uncertainty is introduced to a system, then that system, all things held equal, is less reliable?

A I don't think I would agree with that stated that way. Uncertainty is a challenge that utilities always face. Load is always uncertain. The actual amount of output from a generator is intern uncertain. They can vary a little bit based on the temperature, based on the barometric pressure, based on the heat content of the fuel, the utility's operators might have to address variations in flow that comes across on an unscheduled basis from their neighbors. So there is always uncertainty that operators have to d it deal with.

Solar adds a new dimension of uncertainty that they hadn't had to deal with before, but I wouldn't agree that it necessarily degrades reliability. It might if the utility didn't take proper steps to prepare

for that variability and to manage it. But part of the proposal was to help them give them tools with which they could manage that variability without degrading the reliability.

Q Generally speaking, are you saying, then, that introducing uncertainty to a system increases reliability, all things held equal?

A Not that either. Again, it introduces a challenge that the utility has to address. If they take into steps to address it, then I would agree that it might increase -- it might degrade reliability. If they take the proper steps, then there is no reason why reliability would need to be degraded.

Q The next plus sign on this page states that additional solar installation either enlarges the footprint of solar sites or increases the number of solar sites, both of which increase the geographical diversity of solar profiles. As a result, it decreases forecast error and variability of solar normalized by nameplate installation, correct?

A Yes, that's correct. So if you were to -- and what that means is as you add solar in more different places, you have the law of large numbers working in your favor. So if you add it all in one place and it all got exactly the same sun at exactly the same time,

which vary in every minute and every hour, then adding more solar would increase uncertainty in a linear basis.

Q So adding -- please go ahead.

A Yeah, because you are adding solar all across the FPL system, the more -- when you add a resource on one side of the system and one on the other side, then there is diversity between those two. They don't always vary at the same time. In fact, one might go up and then one might go down. So there is sort of a curved relationship. The more you add, the less variability you are adding per megawatt of solar as you add it.

Q So in other words, adding a lot of solar to a system causes uncertainty on the system, and the solution to that uncertainty is to add more solar?

A No. Adding solar adds variability to the system. The more solar you add, and the more diverse the solar is that you add, the less var -- the less the marginal variability that you are adding.

So if you were to say -- just think about variability as a function of the number of megawatts. So the first hundred megawatts might have a pretty high variability per megawatt, but the thousandth megawatt would have a lower amount of variability per megawatt than that first amount, because that first amount all just, you know, it fluctuates a lot just based on the

sun at that one site. The more you have solar across a wide variety of sites, and then as you add more, you are still adding variability, but you are adding less and less variability the more and more solar you add.

Q Customers presumably paid for the solar, and are paying for the solar that's on FPL's system, the utility-scale solar, would you agree?

A I am sorry, did you say that if the customers are paying?

Q Customers -- so speaking about the solar that's currently on FPL's system, that has led to these operational challenges, FPL customers presumably have paid for that solar, correct?

A I mean, this isn't part of my testimony, but that's what I would presume.

Q So if that's true, then, they -- customers paid to introduce this uncertainty to the system?

MR. BAKER: Chairman, if I may. The witness has just indicated that the -- that the customers' payment for resources is not part of his testimony. This question is asking exactly that.

CHAIRMAN LA ROSA: Yeah, can you reframe the question. I mean, he did mention that he is not -- he is unaware of the payment.

MS. WESSLING: I think he said he would assume

that to be true, but I can rephrase my question.

CHAIRMAN LA ROSA: Please.

BY MS. WESSLING:

Q You do -- you agree is that FPL's solar additions up to this point have led to increased uncertainty on FPL's system, correct?

A Yes, I would agree with that.

Q And that uncertainty has made the system less reliable at this point in time?

A No, I don't know that to be the fact. Again, whether it makes it more reliable or less reliable depends on what steps the utility is taking to manage it, and I don't have clear insight into all the things that the utility is doing, or has done, to manage that increased variability.

Q E3 was retained to provide that -- provide those steps to FPL to address this uncertainty, though, correct?

A Yes. So it's fair to say that the -- that the operations team are experiencing variability. They are seeing the variability and seeing the need to get their hands around it to analyze it better and perhaps to introduce tools that would help them to manage that variability.

Q And is your understanding that, in this case,

FPL is asking the Commission to authorize FPL to add even more solar to its system, correct?

A Yes.

Q And you have testified many times in many jurisdictions, correct?

A Yes.

Q And in those occasions, you have testified during -- in rate cases, request for rate increases?

A Yes.

Q And those, generally speaking, involve requesting to increase base rates that customers have to pay, correct?

A Generally speaking, yes. My testimony has, in those cases, has typically been of a technical nature related to things like stochastic loss of load and probability modeling, so not directly about the dollars and about the payments.

Q Is it your understanding, just generally speaking about this particular proceeding, that this is also a base rate case, where, if approved, customers will be required to pay more, correct?

A Yes, that's my understanding.

Q Okay. In your rebuttal testimony on page 28, starting at line 12, which is Case Center page D13-624. If we could go there, please.

A Okay.

Q All right. And there is a question and answer beginning on line 12, and you can read it to yourself if you like. But would you agree that this question and answer relates to the prudence of FPL's decision to commission a stochastic loss of load study, correct?

A Yes.

Q And your answer here, beginning on line 15, states that once FPL had information about an impending resource adequacy challenge, it would have been imprudent for it not to act on that information, correct?

A That's correct.

Q And the resource adequacy challenge that you are referring to here is not having sufficient resources to allow the system to perform to the resource adequacy standard, correct?

A Yes. So if we are still in the proposal time period, the concern that we had was that if we were to study the system in detail, that we might uncover a real resource adequacy challenge, and so because our early -- our earlier studies had indicated that that might be the case, then my opinion is that it's prudent for the utility to then investigate further and to find out if they really do have a resource adequacy challenge by

investing in the state-of-the-art analysis.

Q It's FPL who decides what generation resources to add to its fleet, correct?

A Yes.

Q E3 is not involved in advising FPL which resource generation additions it should add to its fleet, correct?

A No, that's correct. Our role was to calculate the loss of load probability -- conduct the loss of load probability study.

Q And again, FPL uses that information to decide on its own what resources to add?

A Yes, FPL, in the future, would rely on that information as well as a variety of other information to determine whether solar, in combination with other resources, is the most cost-effective resource for FPL ratepayers going forward.

Q E3 did not tell FPL what resources it should add over the next four years, correct?

A No, we did not.

Q And if it's FPL who decides what resources to add to its generation fleet and there is a resource adequacy challenge, isn't it true that FPL is responsible for the resource adequacy challenge that you refer to in your rebuttal testimony?

A I guess I would say that it's the utility's responsibility to respond to the challenge and to plan its system in a reliable manner using all manner of tools and resources that are available to it, and in doing so, it's incumbent upon the utility to have good information about what the reliability value of various resources is going forward.

All resources have some reliability value when you add them to the system, they make the system more reliable. It's just some have more value than others with respect to resource adequacy. So the utility doesn't create the challenge. The challenge is created by the load that the utility has to serve. The utility's role, then, is to marshal all the tools that are available at its disposal to help meet that challenge and serve its load reliably.

Q And, Mr. Olson, I am not sure if you are familiar with this portion of the prehearing order, but for yes or no questions, witnesses are required to answer yes or no first, and then if clarification is needed, then you are welcome to clarify that.

So perhaps I could ask the question again, you could answer yes or no, and then whether you want to repeat our clarification or just refer to it, and we can handle it whichever way you prefer, but if I could just

ask the question again.

If it's FPL who decides what resources to add to its generation fleet and there is a resource adequacy challenge, isn't it true that FPL is responsible for the resource adequacy challenge that you refer to in your rebuttal testimony?

A I mean, I guess I will call that a yes, but. But again, the way that I would phrase it is that it's the loads that the utility has to serve that creates the challenge. So maybe -- let me amend that. I am going to say no. The challenge is created by the loads, not by the utility. The utility's responsibility is to manage that challenge by marshaling resources.

MS. WESSLING: Your Honor, if I could just have one moment?

CHAIRMAN LA ROSA: Sure.

MS. WESSLING: If I can pass out --

CHAIRMAN LA ROSA: Yes. Do you mind just explaining what you are looking to pass out because it was off the microphone? Thank you.

BY MS. WESSLING:

Q All right. Mr. Olson, so it's my understanding that the answer to my last question was no, correct?

A It was a -- it was a no but, with an important

but.

Q Okay. And you were deposed in this case on your rebuttal testimony, correct?

A Yes.

Q That was on or about July 15th of this year?

A Yes.

Q And on that day, you took an oath to tell the truth just like you did here today?

A Yes.

Q All right. If we could go to page 26 of your rebuttal testimony deposition, please?

MR. BAKER: I am sorry, Ms. Wessling, did we pass around copies of the deposition transcript? I don't believe I have one in front of me here.

MS. WESSLING: One moment.

THE WITNESS: I also don't believe that mine have numbers, page numbers.

MS. WESSLING: In your rebuttal testimony.

THE WITNESS: In my -- oh, I'm sorry.

BY MS. WESSLING:

Q All right. So, Mr. Olson, on page 26, beginning on line 15, you were asked the same question that I just asked you, correct?

A I am sorry, I am going to need a little bit of help.

Q Sure. Do you see that question, Mr. Olson?

A Okay. I am sorry. Can you repeat that?

Q Sure.

So starting on line 15, I asked you substantially the same question that I just asked you here today, correct, about whether or not if it's -- if FPL who decides the generation resources to add, and if there is a resource adequacy challenge, isn't it true that FPL is responsible for the resource adequacy challenge that you refer to in your rebuttal testimony; do you see that?

A I do see that, yes.

Q And do you see where you answered yes, and then explained further?

A Yes, I see that. And I think what you will say -- what you will see is that the words that follow my yes here are very similar to the words that I said earlier when I said no but, so, you know, I am not sure how to answer that other than to say that there are challenges the utility has to face. They have the responsibility to address those challenges by planning their system in a prudent and reliable manner. So I honestly don't know if that's a yes or a no to your question.

Q All right. That's fine. All right. You can

set that aside for now.

And, Mr. Olson, you did not provide direct testimony in this case, correct?

A That's correct.

Q But you were deposed, again, like we said, twice, once on May 29th, and once -- I am sorry, I guess your first deposition, that occurred on May 29th, is that correct, subject to check?

A Yes.

Q And in that deposition, you were deposed as a corporate representative of E3, correct?

A Yes.

Q All right. And then on July 9th of 2025, you filed this rebuttal testimony that we were just looking at on the screen, correct?

A That's correct.

Q And then the deposition transcript we were just looking at, that deposition took place on July 15th, correct?

A Yes.

Q All right. And during your rebuttal deposition, you were asked about whether or not there were any corrections that needed to be made, and you indicated that -- to your rebuttal testimony, and you noted that you needed to correct a number on page 14,

line two of it your rebuttal testimony, correct?

A Yes.

Q All right. And if we could go to D -- Case Center page D13-610? And on that page, line two, you indicated -- or noted a change from five percent to 3.82 percent, correct?

A That's correct.

Q You were asked if there were any other changes to your rebuttal testimony or your exhibits, and you said no, correct?

A That's correct.

MR. BAKER: In case it's helpful for the record here, this is part of Mr. Olson's filed errata, where the change was indicated, and he has indicated in his testimony today that that errata should be part of his testimony.

MS. WESSLING: My questions are about what he -- are about that errata.

CHAIRMAN LA ROSA: Okay.

BY MS. WESSLING:

Q On July 31st, after your rebuttal deposition, as counsel just identified, FPL filed an errata to your rebuttal testimony and exhibits, correct?

A Yes.

Q And you verified that errata before it was

filed, correct?

A I beg your pardon? Say that again.

Q You verified that errata before it was filed, correct?

A Yes.

Q If you could go to Case Center page D13-637A, please.

All right. And this errata notes the change that you referenced during your deposition from five percent to 3.82 percent, correct?

A Yes.

Q And then there is two other changes listed on your errata, correct?

A That's correct.

Q One was to page 23, line 11, from 1,829 to 1,764. And then another change on page 23, line 11, from 0.92 to 0.76 correct?

A Yes, that's correct.

Q So in between your rebuttal deposition on July 15th and when this errata was filed on July 31st, you noticed two other corrections that needed to be made to your rebuttal testimony, correct?

A That's correct.

Q All right. And this errata also contained replacement pages for your Exhibit AO-3, correct?

A Yes, that's correct.

Q And if we could go to case center page D13-872B. And this is page one of AO-3, correct, the corrected version?

A Yes.

Q And you corrected three values on the 2026 line, correct?

A Just two values, the 1,764 and the 0.76. Well, I have changed them to 1,764, so the top right two.

Q So on the firm megawatt column, did that number change between the first version of AO-3 and the second version of AO-3 from 30,292 to 30,297?

A Oh, yes, that would have changed too. Yes, I apologize.

Q And then looking at the second page of AO-3 replacement, page which is D13-872C. On this page, there were a total of nine different values that were changed for this page, correct?

A Subject to check.

Q And -- all right, so switching gears a little bit. FPL has not produced a traditional LOLP analysis for 2026, correct? Non-stochastic, I mean.

A I am not aware if FPL has done -- has used its old loss of load probability modeling for 2026 or not.

Q Okay. In your rebuttal testimony, FPL did direct E3 to determine a stochastic LOLP as of January 1st, 2026, though, correct?

A Yes, and the results are what you see here on the screen.

Q FPL did not ask you to conduct a stochastic LOLP analysis for 2025, correct?

A That's correct. Stochastic LOLP analysis is a long-term planning tool typically, and that's the way it's used in this case. 2025 is three-quarters of the way over by now, and even at the time that we were doing our studies in the spring, was sort of well past the stage where a longer term loss of load analysis would have been useful, so it's a long-term analysis.

If we had been asked to produce an analysis -- a short-term analysis, that might have been, like, a summary assessment summer, then that would have been a different study -- a study of a different nature, taking into consideration realtime information about which units were on-line, what their planned and potentially will forced outages were, what the weather was looking like over the summer, you could do loss -- stochastic loss of load, and it is done for summer reliability assessments and wintertime reliability assessments, but that wasn't what this study was about. This was a

forward-looking planning study, and so there would have been no use for a 2025 case.

Q But had FPL asked you to conduct a 2025 stochastic loss of load analysis, whether it's the short-term or the long-term, it could have been performed by E3, correct?

A Yes, it could have been performed.

Q Regarding the 2026 stochastic analysis, FPL dictated to you which resources to reflect as being on FPL's system as of January 1st, 2026, correct?

A Yes, that's correct. We modeled the system as they indicated that we should.

Q FPL did not include FPL's planned solar and battery resource additions for 2026, correct?

A Yes, that's correct. And this might be a good place to maybe just say a couple words about the nature of these studies.

Q Well, and I will ask -- counsel will have a chance on rebuttal to clarify whatever they think needs to be clarified, so if we could just stick with the questions, that would be great.

A I would like to clarify just so that the Commissioners can understand this point about --

CHAIRMAN LA ROSA: You will get the opportunity through rebuttal. She asks the

question, and if it's pertinent, then you can respond accordingly, but stay in the line of questioning if you can.

BY MS. WESSLING:

Q And FPL also did not include the FPL 522-megawatt Northwest Florida Battery Project in the stochastic analysis for 2026, correct?

A Yes, that's correct. So each of these studies is -- it's a point in time. We have to freeze the portfolio at a specific point in time and say, this portfolio, how would it perform under a wide range of weather conditions, resource outage conditions, et cetera, how would this -- what would the reliability of this portfolio be? That's the primary output of the study.

A secondary output -- now, if that was all the study did, it wouldn't be very useful, because the next day, something changes. New resources are added, the load forecast changes. So the study also produces a derivative output literally, which is how do individual resource types help the system become more reliable? What's the capacity contribution of new gas resources, new solar resources, new battery resources, et cetera?

So the study should -- the 2026 study should be thought of as, if you did nothing after December, you

know, 25th, whatever was the last day before the 522 megawatts of batteries in the northwest came on-line -- or will come on-line -- then what would 2026 look like? But then because many things will happen between the time when we flash froze the portfolio and the peak loss of load season, which is sort of April, May through September, it's not meant to be a forecast of what will actually happen in 2026. Again, that will be a different type of a study. It's a study that's an indicator of, given this portfolio, what's the long-term perspective, and then as things change, how do those changes affect the reliability position of the portfolio.

Q Just to clarify. So January 1st, 2026 was the point in time for the stochastic analysis, correct?

A Yes. So for each of our studies, we froze the portfolio as of the beginning of the year. In this case, there was a little bit of a question about the 522-megawatt battery project, because that was going to come on-line right about the end of the year, whether that should be there or out of the base portfolio. And the decision was made to exclude that from the base portfolio. So it's January 1st, but if that resource comes on-line December 27th, then maybe you can think of it as December 26th.

Q But just to be clear, the 2026 stochastic analysis did not include the December 2025 522-megawatt Northwest Florida Battery Project, correct?

A That's correct.

Q And that was FPL's decision not to include it?

A Yes, in the end, FPL had the final say about these types of, you know, scenario type of inputs, but it would have been a discussion that we had with them.

Q Ultimately FPL decided --

A Yes.

Q -- not to include it?

All right. You would expect that including the battery project would have an impact on the stochastic LOLP, correct?

A Yes. It certainly would, and you can go to the -- well, in fact, the table up here, that's up there now, gives you an indication of how it would affect it. So, again, the outputs of the study are the loss of load expectation, the resource shortfall or surplus, but then also this information about, as I change the portfolio, how does the picture change?

So that's what the percent of firm capacity column on the right is, percent of nameplate. It's a marginal ELCC, effective load carrying capability, that tells you if I add more battery storage, what percent of

that -- of the nameplate of that battery storage would I be able to count toward my gap? So in this case, the battery storage is 94 percent. So that gives me a tool to know if I add 522 megawatts of batteries, 94 percent times 522 megawatts would be its contribution towards filling the shortfall that was identified on the previous page of 1,764 megawatts.

Q And when you filed your rebuttal testimony, you stated that the stochastic LOLP for 2026 was 0.92, correct?

A Yes. So in the rebuttal testimony, originally, it was 0.92. When we filed -- when we found some issues with that case, we filed -- we reran it and filed an errata that reduced that to zero 0.76.

Q And discovery closed in this case on July 23rd, correct?

A Subject to check.

Q And your errata was filed on July 31st, correct?

A Yes.

Q And per the errata, your revised stochastic LOLP for 2026 is 0.76 correct?

A That's correct.

Q And the 0.76 stochastic LOLP for 2026 still does not include the 522-megawatt Northwest Florida

Battery Project as a resource, correct?

A That's correct.

Q You are aware that FPL has recently entered into a purchase and sale agreement to acquire the Vandolah generating facility, correct?

A Yes.

Q But you have not updated any of FPL's stochastic LOLP analyses for 2027, '28 or and '29, to incorporate any potential impacts of the acquisition of Vandolah, correct?

A Yes, that's correct. Again, the studies are useful at first blush to identify what the resource gap or shortfall or surplus would be in a given year, but then they also give you a tool that helps you understand, as you make a change to the portfolio, how does that change affect the overall position?

So Vandolah being a gas-fired resource, you could look at the table that's up on the screen now, gas thermal capacity as a firm capacity rating of 89 percent, so it would be relatively easy to take the Vandolah megawatts, multiply it by the 89 percent, and that would give you the effective megawatts from that resource.

So it wouldn't have been necessary -- so these models are complex. They take a long time run. There

is a lot of data inputs. We don't want to rerun them every time there is a small change to the portfolio. That's why we produce planning reserve margin numbers. That's why we produced these ELCC numbers, so that you can, from a starting point, understand, as I change the portfolio, how does my loss of load probability, my resource shortfall change along with it?

Q Is it your position that the 522-megawatt Northwest Florida Battery Project and the 660-megawatt Vandolah gas plant are small projects?

A I guess small is a relative -- let's see. I don't know if that's a yes or no again.

Small is a relative term. Certainly, for -- well, for a gas plant, there is -- gas plants aren't subject to any type of saturation effects, and so this 89 percent value would be a value that would be a good one for any new gas plant addition.

Storage is subject to saturation effects. So for a very large storage project, I would want to maybe look at, you know, the next increment to see how much that marginal value might have degraded. But again, the tools are there for you to do some math and understand how much that story helps you.

Q The 660-megawatt Vandolah plant has a much higher firm capacity value to the company than, let's

say, solar projects, correct?

A Are you -- are you -- can you be more precise?

Q I will try.

So a 660-megawatt Vandolah gas power plant, that can provide more firm capacity than a variable solar facility, correct?

A That 660-megawatt gas plant would provide more capacity value than a 660-megawatt solar plant, yes.

Q And the 660-megawatt gas plant is something that could be incorporated into a stochastic analysis. It just wasn't done so in this case, correct?

A Yeah. So the acquisition was done after we had performed our loss of load studies in February, and so it was sort of after we flash froze the portfolio.

I would expect in the future, as FPL updates these numbers with its next and subsequent ten-year site plans, that the portfolio will have changed, and Vandolah would have been in addition to that, and so that would go, then, from the solution side of the ledger to the existing capacity side of the ledger. But in both cases, again, we have the tools to assess the reliability of the portfolio as it stood, and the effect of that specific plant.

Q If FPL's capacity need is decreased once it acquires Vandolah, then the need for FPL's planned

resource additions after that point will also decrease, correct?

A Yes. All else being equal, that would be a source of capacity that would make it less likely to need other sources of capacity.

Q So once FPL fully acquires Vandolah in or about June of 2027, it's possible that FPL will not need some of FPL's requested resources after that point in time until potentially after this four-year rate plan, correct?

A That's possible. It depends on load growth and other factors, but it's possible.

MS. WESSLING: Just one moment.

CHAIRMAN LA ROSA: Sure.

MS. WESSLING: Nothing further from OPC. Thank you, Mr. Olson.

CHAIRMAN LA ROSA: Great. Thank you.

Let's go to FEL.

MR. MARSHALL: Thank you, Mr. Chairman.

EXAMINATION

BY MR. MARSHALL:

Q Good afternoon, Mr. Olson.

A Good afternoon.

Q I'm going to -- I will ask some questions first about the 0.76 LOLP that you found for 2026. What

does that mean?

A Well, the technical definition of the 0.76 is that FPL, again, with the portfolio that was flash frozen as of January 1st of 2026, if no changes were made for that portfolio, then FPL would expect to experience a loss of load event on 0.76 days per year. So it's a days per year metric.

Q And the -- what's the industry standard for reliability that utilities aim for?

A The practice across the industry is a bit varied. There are a variety of standards that are used. However, the most common by far, the vast majority of utilities use a 0.1 LOLE standard, corresponding to one loss of lead event every 10 years.

Q And that's the standard FPL uses?

A That is the standard that FPL uses, correct.

Q And the original number you filed with your rebuttal testimony was point -- was 0.92, is that right?

A Yes. That's correct.

Q And why was it -- why was the number higher in your original testimony?

A Well, we became aware during the course of discovery that there were a number of solar plants that would be on-line in 2026 that had been excluded from the case inadvertently.

Q Was that 21 currently existing solar power plants?

A Yes.

Q And did you find out about it when I asked you about that in your deposition?

A Yes.

Q Can you tell me what -- the model that E3 uses is the RECAP model, is that right?

A Yes.

Q Can you tell us about that model?

A I guess this isn't a yes and question.

Q This is not a yes or no question.

A RECAP is a loss of load probability model, stochastic loss of load probability model, that's maintained by E3. It's used in a variety of jurisdictions around the country by utilities to help with their resource planning, help them establish their loss of load probability, you know, standard, assess the ability of their fleet to meet that standard, and to assess the contributions of new resources toward helping them meet that.

It's used in Hawaii and Washington state, in Oregon. There are a couple of utilities in California that use it. It's used in Nevada. It's used in New Mexico for El Paso Electric, a variety of utilities

around the country use that model.

It uses a Monte Carlo method of incorporating load variability, solar variability and resource outage variability. So it looks at 44 different weather years and evaluates what load levels might look like across those 44 different weather years on an hourly basis, simulating, I think it's 3.8 million operating hours over 44 years times 10 different draws of unit outages. So 440 years total.

Yeah, it's used to calculate loss of load expectation. It's used to calculate marginal effective load carrying capability values in jurisdictions across the country.

Q And for you analysis for FPL, you relied on a variety of inputs from FPL for input into the RECAP model?

A Yes, in all of our cases, most of the inputs come from the utility. They are the ones that have the detailed data regarding the nature of their fleet of resources, the nameplate capacities, the outage rates, those sorts of things. So those type of data come from the utility. The load data would come from the utility E3 might also add our own data in cases where the utility either didn't have it or where E3 might have better data.

Q Here, you talked about with Ms. Wessling that the E3 did not do an analysis of loss of load probability for FPL for 2025, but if the load was the same and the resources were the same, would you expect the results would be the same as for 2026?

A Yeah, so if the -- yes. If the load were exactly the same and the resources were exactly the same, then the result would be exactly the same.

Q And if the load were, say, you know, just ballparking, about 500 megawatts below that of 2026, would the almost 1,800-megawatt shortfall E3 identified for 2026 be more like 1,300 megawatts?

A I haven't done those calculations, but that's probably a reasonable approximation.

Q Are you aware of any utilities with a higher loss of load probability than FPL for 2026?

A So I don't have a log -- a catalog of loss of load values for utilities around the country. What I will say is that there are a variety of places that utilities find themselves in.

What I have observed throughout the country is that over the past several years, that also been really a lot of movement with respect to the methodologies that are used for determining resource adequacy. There has been a lot of changes in the portfolio. So where a

utility -- where a region might have had a surplus of capacity in the past, and a utility might have planned to rely on purchasing surplus power from the market, they might now find themselves with a short position that they are trying to fill.

And so, yes, I have worked with utilities with a much larger loss of load probability than what we have observed here, and those utilities have taken steps to fill those short positions with acquisition of firm -- of capacity resources to help them meet their load going forward.

Q And so is that true for 2026, you are aware of other utilities that have a higher predicted loss of load probability than FPL for 2026?

A I am.

Q Looking at 2026 specifically, would you agree that batteries that come on-line after October 30th, 2026, wouldn't help avoid loss of load events -- help avoid loss of load events during the summer months?

A Yes, I would agree. Most of the loss of load events and our modeling occurred in October or before, so those resources would not help with those events.

Q And also looking at 2026, would you agree that batteries that don't come on-line until the end of July in 2026 wouldn't be able to help avoid loss of load

events before that time?

A Yes. Clearly, they would not be able to help with events that occurred before they are on-line.

Q You are not aware of any changes FPL has made to their generation resource plan as a result of E3's stochastic loss of load probability analysis for FPL?

A No, I am not aware of any.

Q On page 13, line four, of your rebuttal, you discuss mean-time-to-failure variables.

A I am sorry, which page?

Q 13, line four.

A Oh, yes. I see it now.

Q And those are based on forced outage rates and mean-time-to-repair?

A Yes. That's correct. So we would have received from FPL the forced outage rates for each of their individual resources along with a value called mean-time-to-repair, which is, in fact, how long, on average, you would expect, if a resource does go down, it would take them to repair that resource and then bring it back on-line.

And with those two variables, we can then also calculate the third one that we need, which is mean-time-to-failure, which is how long you would expect a resource to run to before it then is forced off-line

again.

Q And I think I heard it in your answer, but I just want to make sure I heard it correctly. Those rates were provided by FPL to you?

A The forced outage rates --

Q Forced outage rates, yes.

A -- and the mean-time-to-repair pretrial were provided by FPL, and then E3 calculated the mean-time-to-failure.

Q If I could direct your attention to page 28, lines 22 through 23 of your rebuttal testimony?

A Yes.

Q And you discuss, you know, may experience loss or power during extreme hot or cold weather event with the attendant health and safety risks?

A Yes.

Q What kind of health and safety risks are you referring to?

A Well, when customers are without power during extreme weather events, whether that's an extreme hot weather event or an extreme cold weather event, then they are at risk for weather related injuries -- morbidity and mortality, I think, are the technical words for that -- injury and/or death from lack of power, lack of heat, and/or lack of air conditioning.

Q If we could go to master page E61725. That's part of CEL Exhibit 382.

Part of your work for FPL in this case, E3 did a temperature detrending analysis, is that right?

A Yes. That's correct.

Q And is says it says here on this response to an interrogatory that E3 observed warming trends, is that right?

A Yes. That's correct.

Q And how does that impact your analysis?

A So, as I mentioned. E3 has simulated 44 different weather years. You can see those there on the X axis of the chart, the weather years 1980 through 2023. We do that to establish the interannual variability in temperature trends. Those are either hot weather trends in the summertime, cold weather trends in the wintertime. And we use that to establish a range of temperatures, and from that, a range of electric load conditions around the one and two median peak forecasts provided by FPL.

So in a way, it's our way of trying to project -- not forecast the weather, but project what the weather might be in the future with as high a degree of statistical accuracy as we can, looking at all of the weather that's occurred over those last 44 years.

Now, it's often the case, in fact, it's, I think, almost always the case that when we look that far back, when we run the numbers, we find that there has been a warming trend over time. And if we were to evaluate the performance of a fleet with -- today, it would be important for us to incorporate into our estimate of load variability our best estimate of what today's weather might look like, what today's climate might look like.

And so because we observed a trend over the recent 40 years, we do something called detrending, which is that we fit a line to that temperature trend over those 44 years, and then we change -- we scale the historical weather based on where it sits relative to that line. So in effect, it's a bit like an inflation adjustment. In effect, we are inflating loads from previous years up to current year dollars, so to speak.

Q If we could next go to master E88989? Will would be Exhibit No. 389 on the CEL, or a demonstrative from that exhibit.

Mr. Olson, is this that temperature detrending analysis, at least as it relates to Miami?

A Yes, it appears to be.

Q And you would agree that Miami's climate is different than that in north Florida, for example?

A Can you -- I am sorry, can you say that again?

Q Yeah. Miami's climate is different than that in north Florida, for example?

A Yes, I am sorry, just to clarify something. The -- it's the other tab called ERA5 that has the data that was used for the temperature detrending.

Q And those are the -- are those the same graphs that we were looking at as part of the interrogatory answer from before?

A Yes.

Q If we could next go to master E88991, which is exhibit -- demonstrative as part of Exhibit 390 on the CEL? I am sorry, it's actually not a demonstrative.

Can you see this page?

A My screen hasn't refreshed yet. Okay, I am there now.

Q E3 also ran that same analysis, or a similar detrending analysis at three other sites in Florida in addition to Miami?

A Yes.

Q And did you find the same trend in the other sites as you found in Miami?

A The numbers aren't the same. The line doesn't have exactly the same slope for each of the other sites, but, yes, we found the same general trend for each of

the sites.

Q If we could next go to master E92937, as part of Exhibit 445? I think this is a part C of that answer.

I just want to clarify that as a result of the detrending analysis, for the RECAP model's simulation of FPL's system in 2026 would result in higher summertime loads relative to using the actual temperatures experienced in the -- those historical weather years, is that right?

A Yes, that's correct. Because we scaled the historical weather years based on the detrending analysis to 2023, that would result in higher loads in 2026, both in the summertime and in the wintertime, than if we had just used the actual original historical data.

Q And am I correct that because it's a trend, and I think it's a linear detrending analysis, that the impact would be greater, for example, on the actual temperatures from 1980 than they would be from 2020?

A Yes, that's correct. As you can see in the graphic.

Q If we could next go to master E82537, part of CEL 388. And this is going to be a demonstrative.

A I am there.

Q First, a couple of basic questions.

This is -- this is the 2026 -- well, let me -- I will ask -- I will step back. Maybe I will have you -- instead of me trying to explain it. Do you recognize this document?

A Yes, I do.

Q And what is it?

A This is the outputs of a RECAP run for 2026, and showing just a whole variety of different outputs. I can go through them maybe at a high level.

The numbers on the left are just indexes that relate to the computer processing. Then you can see the time stamp. Then you can see in column D -- maybe it's hard to -- if you can widen out the column a little bit so that you can see the label. That's actual amount of unserved energy that was observed in our model run for that -- during that hour.

Column E is the gross load. So that would be the metered load projected for that day, that hour, grossed up for any behind-the-meter solar PV that would have otherwise been reducing the amount of sales during that hour.

Column F are the amount of -- let's see. Can you widen that a little bit? Column F, those are the amount of reserves that we would have been -- let's see. I believe that's, yeah, the amount of reserves that were

being required to be held during that hour.

And then -- yeah, from column H, to the right is the output of each of the generators on the FPL system during that hour during that simulation.

Q And if we take -- some of these -- some of the data on here is a -- simulates loss of load events that last more than an hour, right?

A Yeah. So the model does a chronological operational simulation. So it starts January 1st of each year, simulates resource availability every hour through December 31st of that year. So if it finds an hour in July, let's say, where there are a number of resources that are off-line due to forced outages, it's a hot day and it experiences a loss of load event during that hour, it's quiet likely that it might have -- the next hour might still be high. It might still have a loss of load event until a resource is brought back on-line, or until it cools off and the temperature goes back down.

So, yes, we tend to see these events occur in sequences of several hours. Not all of them do. Some of them are just one hour, but many of them are multiple hours in a row.

Maybe just to clarify one more thing. So the way that we count them is one day in 10 years. So if

you have a day that has one-sixth hour outage, that counts as one. That's just the way that the counting is done in the industry.

If you have a day that has a one hour event, that also counts as one. So it's how many times people have to think about it and worry about not having -- you know, the lights might go out, and you are allowed to have that once in 10 years is the standard.

Q And so -- thank you. That was a helpful explanation, and helps get to my next question.

If we take all of those loss of load events that are presented on this Excel sheet, whether one hour or six hours, and add them up and divide by 440, that's how we get to that 0.72 number?

A Well, you have -- so you have to count the number of days in this file on which you have loss of load events.

Q Right. Right. I am sorry, I meant 0.76, I misspoke, of the 2026 loss of load probability?

A Yes. Yes. So, for example, there are 670 something events, well, hours on this chart, many of those are repeated, you know, it's more than one hour in a day. So 0.76 divided by 440 would be, let's say, 350, give or take. So there would have been 350 days in this file that -- where a loss of load event was observed in

our simulation.

Q On your corrected Exhibit AO-3, page two of two for 2026, it shows a median peak demand of 29,463 megawatts?

A Yes.

Q And this is, in part, based on the -- this is based on FPL's 2025 Ten-Year Site Plan for 2026, plus grossed up for behind-the-meter solar?

A Yes.

Q If we could go to next this is master page F10-20716, which will be Exhibit 1223 on the CEL. And this is FPL's 2025 Ten-Year Site Plan?

A Yes, I believe so.

Q We can scroll to the front page if that's helpful.

And this shows a total peak in 2026 of 28,664 megawatts?

A Yes.

Q If you could next go to master E58846. And if we could go to the first tab, FPL plus Gulf forecast. This was the -- was this the document provided to E3 to look at the behind-the-meter solar that FPL expects?

A Yes.

Q And for 2026, on the FPL and Gulf forecast, does it show the firm peak capacity for August at 5:00

p.m. at being 701 megawatts of behind-the-meter solar? And this is going to be in column AT, row 23. You have to go to the left on the screen just a little bit. There. It should be there. Yes.

A I am sorry, could you repeat the question?

Q And this shows a firm peak capacity for August at 5:00 p.m. as a forecast for 2026 for behind-the-meter solar of 701 megawatts for FPL?

A Yes.

Q And that added to 28,664 megawatts, that number from the ten-year site plan, equals 29,365 megawatts, is that right?

A Yes, subject to doing math on the fly.

Q Fair enough.

And so my question is: Why the difference between that number and the 29,463 megawatts used in the E3 analysis?

A Well, this is subject to me going off and doing more math, but what I think has probably happened is that when you add the behind-the-meter solar back on top of the load, you might end up with a different hour that's the peak hour. So this is saying that the peak hour is 5:00 p.m., that wouldn't normally be a peak hour on a system like FPL. It might be a peaking metered hour because you have that 701 megawatts of

behind-the-meter of solar. But normally you would expect the peak to be a little bit earlier than that hour ending 16, let's say. And so I would imagine -- and we've seen this elsewhere, that the 29,463, you know, would have been a reconstruction of the median peak in the absence of the rooftop solar, and so that would have shifted it earlier in the day, when the load was higher.

Q So is that an internal calculation? I'm just -- is there just -- my question -- I guess what I am getting at, is there a way to get from this sheet with these numbers here from the behind-the-meter solar for FPL and for me to calculate that 29,463 megawatts?

A Yeah. I think it's the same math that we just went through, except for you would have to then go and look and see what the median peak hour was, and it might be different.

Q Okay. And so -- this might take a little more math then, but I am going to try to follow this down a little bit.

So if we go to the tab FPL Resi Gen -- I apologize. There is actually a much better tab for this than trying to add up all the tabs. There is a tab that already adds these numbers up.

If you go to the tab FPL plus Gulf Total Gen.

And if you go down to 2026, you see that for August, and if you go to the tab to the right, do you see a capacities for behind-the-meter solar for hours ending each day?

A Yes.

Q And so there is that 701 megawatts for the hour ending 5:00 p.m.?

A Yes.

Q And by my math, the difference between the two numbers that we talked about was 98 megawatts, and I just -- I don't see a number that's, you know, plus or minus 98 megawatts from that 701-megawatt number on this chart for August 2026, is that right?

A Yeah, the -- I mean, I guess -- to try to do this on the fly, the next thing I might do is look at -- so the hour ending 16, there was 863 megawatts, so another 160 megawatts of solar production during that hour. And then go back to the load during that hour, and add this 863 back on top of the load ending in hour ending 16.

Q Okay. I think I am following where you might be coming from.

And so do you know what document you used from FPL to get those hourly loads, not at the -- we are not -- we are no longer talking about that peak load

that was in the ten-year site plan. We are talking about an hourly load from before that time possibly, is that right?

A Can you say that again?

Q So if I understood your answer correctly, we are not necessarily taking that number as the peak peak load that is in FPL's Ten-Year Site Plan, but perhaps an hourly load from before that time to match the new peak with behind-the-meter solar, is that right?

A Well, I am not sure, but let me say it this way. We would have, for this number, been reconstructing the one and two peak based on load only. So removing the effects of the behind-the-meter generation so that we can focus on what's the one and two peak just looking at the load. And the reason that we do that is that we then take the rooftop solar PV and model it as a resource on the supply side of the equation. And it's important to do that because there are correlations between the rooftop solar and the utility-scale solar, and the interactions between the rooftop solar and the battery storage that FPL might be adding to their system.

It's important to characterize the variability of the rooftop solar in the same way that we do the utility-scale solar to get a true pictures of what FPL

is dealing with in terms of resource adequacy.

Q This is going to go to the questions regarding the accuracy of some of the numbers in this Excel sheet. You see here on August 2026 that it has one megawatt for hour ending 7:00 a.m.?

A Yeah, I see that.

Q And it's -- if you click on that, it has a formula for taking it from both FPL residential generation and Gulf residential generation, plus FPL/Gulf commercial and Gulf commercial behind the meter?

A I am sorry, where are you again?

Q The formula on the top for that cell for where the data is being pulled from.

A Oh, yes. So it's the sum of the residential and the commercial generation for both the FPL eastern system and the Gulf system.

Q And if you go to the FPL residential and commercial generation tabs at that time, you can take this subject to check or go and confirm, there is no solar production at that hour, but there is, if you go to the Gulf residential generation?

A Okay. Yes, I see that.

Q And this might be a recurring question as it comes for solar, but the sun does go from -- rise from

the -- rise in the east and sets in the west?

A It does.

Q And the Gulf territory of FPL is on the western side of the state?

A Yes.

Q Looking at this, would you expect that this is -- that these are Central Time Zones as it relates to Gulf?

A I would expect it to be in Eastern Time Zone, which is what the standard that we use.

I will say a little word with respect to the solar profiles. So we received the solar profiles from FPL. As I understand it, they were developed for this project by NextEra Energy Resources.

We use -- you know, where you get the solar profiles from is always a bit of a question in each of the projects that we do. Sometimes we generate them ourselves using publicly available tools. Sometimes the utility provides them for us. We always want to get solar profiles for a variety of different locations around the utility's service area, including locations where you don't have any existing solar, so you don't actually have any metered data.

So these are always done using a computer program, and, you know, some -- the National Energy

Laboratory has one that they use, for example, that's public and then we can -- and we use that one.

Now, in this case, we received them from FPL -- or from NextEra via FPL. And we looked at them at a high level sort of fleet wide level to evaluate for ourselves whether the resulting profile -- and this includes both the rooftop solar and the utility-scale solar -- whether the solar fleet, as a whole, had a reasonable output shape. So does it generally come up when the sun -- start when the sun comes up, does it generally, and when the sun goes down, does it generally have the types of intraday behavior that you would expect in terms of when it goes to its maximum, does it have, you know, variation on the right kinds of days? And generally we thought the profiles looked reasonable.

And NextEra is the world's largest developer of solar that I know of, certainly North America's largest developer of solar resources. And so from our perspective as independent analysts, there couldn't be a more credible source as far as we could tell for those solar profiles, and so that was what -- that was what we did with respect to our benchmarking.

And I want to maybe emphasize that we are looking at a lot of data on an hour-by-hour basis, and, you know, this is probably a painful but necessary step,

but it's the performance -- it's not what happens in a given hour that determines whether FPL has a resource adequacy problem or not. It's what happens over the course of the 3.8 million hours that we simulated, so we can get more precise on this hour or this thing happened.

And in any simulation where you are looking at 3.8 million hours, you are going to find some things that look funny. You are going to find some outliers. And outliers happen. You know, plants go off-line, sometimes more plants go off-line more than others. Sometimes you get into a very unusual situation where you have high loads, you have a lot of plants off-line, you have lower solar than you expect, and that's when you might have a loss of load event, and that's really what the models are trying to find.

So the story really is in how the fleet performs across the range of conditions that you might expect to see in the future, and not so much on how one particular resource performs in one particular hour.

Now, as a result of, you know, some of the interrogatories, we did go back and look at the solar profiles, and what we found was that, and you know, what we estimated -- we don't know what the right solar profiles are for each of these sites because that would

require us going back and doing all of our own, you know, modeling with all of the lat/longs and everything and recreating that work, and that was -- we didn't have the time and resources to do that.

We did look to see did it look like there were some that were shifted backward, and we identified a number of them, I forget the number, 30 or something, that looked like they were shifted back by an hour.

We also identified a number that were -- looked like they were shifted forward by an hour, which, you know, maybe gives you an indication when you are looking at the solar profile as a whole why we didn't see any red flags from that type of an analysis.

It does look like, from having done that, that, you know, there was -- there may be as much as 100 megawatts of solar effective load carrying capability that might have been -- that might have been -- well, have been missed, that if it looks like -- and again, we don't know what the right profiles are, but it looks like you might get 100 or so megawatts of additional capability out of the solar fleet if you didn't have these solar hours shifted in one direction or the other.

Q We will definitely get to the solar profiles and spend some time with them --

A Okay.

Q -- that's a separate set of Excel sheets.

CHAIRMAN LA ROSA: Mr. Marshall, I want to take a quick break. Is now a good transition?

MR. MARSHALL: Yeah. Absolutely.

CHAIRMAN LA ROSA: Yeah, let's do that. Let's take a break and let's reconvene here five minutes to 5:00. Let's take a 10-minute break.

(Brief recess.)

CHAIRMAN LA ROSA: All right. Let's go ahead and grab our seats and we will jump back into questioning.

All right. Mr. Marshall, it was -- the ball is in your court and you were questioning. You may begin.

BY MR. MARSHALL:

Q And you would expect for, just to go back to the behind-the-meter solar, that, you know, correcting for time zones, that it should be FPL behind-the-meter solar sites that would -- legacy FPL, as in, you know, peninsular Florida, more eastern sites, that would first have solar production and that the Gulf sites on the western side should have slightly later production and would end later as well?

CHAIRMAN LA ROSA: Your microphone may be off.

THE WITNESS: Yeah, generally, yes, I would expect that to be the case. I mean, I will just note here, it's a megawatt before 8:00 a.m., and it's a pretty small number even at 9:00 a.m. So we are not talking about anything that's going to swing the analysis at all.

BY MR. MARSHALL:

Q If we could go back to, do you still have the Excel sheet for the stochastic loss of load probability loss of load events for 2026.

MR. SCHULTZ: I think I closed those, which one was that?

MR. MARSHALL: That was master E58848. Actually this -- yeah, this is the document I'm going to be comparing it to. So actually -- so we have this one -- I am sorry, I read out the wrong master number, but we do need this document.

And then the other one we also need is master E82537, which is the 2026 stochastic loss of load probability loss of load events.

MR. SCHULTZ: Say the number one more time again.

MR. MARSHALL: Yeah, that's master E82537.

BY MR. MARSHALL:

Q Starting first with the -- I am sorry,

starting first with the other Excel document, just to get a little foundation. Back. Okay. Yes, that one. Historic hourly load.

How was the historic -- do you see the document historic hourly load in front of you?

A Yes.

Q How was this document used in E3's analysis?

A So these are -- these numbers are used as an input to our artificial neural network model, which creates simulated load shapes for the 44 years that we modeled for the FPL system.

So artificial neural network is another way to say machine learning. So we have a machine learning tool that will take historical loads from a given period, train it based on temperature, season, day of the week and such type of variables. And then you can use that to make synthesized load shapes for a wider number of years. We typically will use a relatively small number, let's say 10, maybe 15 years of recent load shapes to capture sort of present-day plug loads, and then we will extend that, it's kind of a bootstrapping technique, to a larger number of years so that we can incorporate more weather conditions in our simulations and make them more robust.

So these actual loads were used to train an

artificial neural network model to create simulated load shapes for each year between 1980 and 2023.

Q And if you go to the other Excel sheet, this is the simulated loss of load events for 2026. Go to the April 9th, 2020, loads. Do you see the -- and they are going to be -- for the same hour at the same weather date, the load is going to be the same across the various Monte Carlo simulations?

A I am sorry, what row was that?

Q I was looking for April 9th, 2020, yes. There is one there at 6:00 p.m., which works.

A What's the row number? 56, thank you. Okay. Yes, I see it there.

Q And there is going to be -- how it's presented in here is not chronological weather date order, correct, by -- I believe it's by Monte Carlo run?

A Yeah, the way it's presented in here is sequentially based on the order of the simulations.

Q But the same load for that weather date, so April 9th, 2020, at 6:00 p.m., the load that is presented on here will be the same for every Monte Carlo draw for that April 9th, 2020, 6:00 p.m. timeframe?

A Yes, that's correct. Yeah, so for each -- well, yeah, for -- so for April 9th, 2020, hour 18, it will be the same load number for each of the 440 years.

Q And that load number presented on this analysis is 27,794 megawatts?

A Yes. I see that.

Q And with the math, is that over 94.3 percent of the median peak demand of 29,463 megawatts?

A Subject to check.

Q And if you could go to draw 42 for April 9th, 2020. That also has the 17 hour as part of that draw?

A Yes.

Q And that 17 hour is actually just a tiny bit less load than the 18 hour for that day?

A Yes.

Q All right. If we could go to the historic hourly load sheet that we were looking at, and go down to April 9th, 2020. And let me know if you want me to start giving you numbers, you know, subject to check.

All right. And so for hour 18, which would be, yeah, right there, that's 20,572 megawatts for FPL East?

A Yes.

Q Now we have to go to Gulf Northwest to get that number for that same time, but accounting for the fact that it's in Central Time.

MR. BAKER: Mr. Marshall, I suggest that -- I mean, if we wanted to take answers subject to

check, that might be a more efficient way of moving through and perhaps making the best use of the Commission's time. I would make that offer assuming that the witness agrees and is comfortable taking that sort of response.

MR. MARSHALL: We are happy to do that.

CHAIRMAN LA ROSA: Yeah, that would be great.

MR. MARSHALL: Obviously, if there is anything that -- yeah.

BY MR. MARSHALL:

Q All right. And so for 5:00 p.m. Central, for 6:00 p.m. Eastern, that would be 1,807 megawatts, which we actually made it to on the screen there. And that is a total of 22,379 megawatts?

A Yes.

Q And so you could take this subject to check, for 2020, it we go through these loads and find the highest combined load for FPL and Gulf together, subject to check, that would be 26,707 megawatts on September 3rd, 2020 at hour 16 Eastern?

A I am sorry, what did you say the number was?

Q 26,707 megawatts?

A Okay.

Q And so if that's true, then the actual -- how that April 9th load at hour 18 compared to the system

peak in 2020, that was 83.8 percent of the system peak? You can take that subject to check.

A Okay.

Q And so if we are using the historical loads to train the system, why, if the actual peak on that day was 83.8 percent of the system peak is it 94.34 percent of the median peak in the stochastic loss of load analysis?

A Well, again, Mr. Marshall, we are not trying -- the point of the model isn't to simulate exactly how April 9th of 2020 would look. The point of the model is to simulate a reasonable range of temperature and load conditions that FPL might be expected to face in the future given what we know about weather variability.

So the first thing to understand is that the neuro network, all of these -- all of the loads that we model are scaled to FPL's one and two peak load for that year, so we train the model to develop the weather variability around what that one and two peak would be.

The second thing to understand is that we are training the model not based on the actual historical temperatures for FPL on that specific day, but we are actually using a modeled dataset to do the training with. It's called the ERA5 data set. It's a dataset

that's produced by a group of academic climate scientists.

And the reason why we do that is because it allows us to gather time synchronous temperature and solar insulation and wind speed data from a wide area. So anywhere in the world you can go and find the simulated data for that specific day, and that's based on atmospheric simulations. If the temperature is hot in one area and it's low in another area, you would expect air movement from the area where it's hot to the -- the area where it's low to the area where it's hot, et cetera.

So it gives us a dataset that -- it's a rich dataset that allows us to capture the atmostpheric conditions that would tend to create high temperatures and solar insulation of a certain type and wind movement, wind speeds. So it's commonly used for this type of analysis throughout the industry.

You know, it's modeled data. So that modeled doesn't exactly accurately capture in any specific spot on the globe what the specific temperature might have been in that hour. It's meant to be just a consistent set, you know, again across -- across a wide area.

So it's not trying to capture April 9th at 1,800 hours. What we are trying to do is develop a

reasonable range of conditions that FPL might be expected to face, and this is where our benchmarking comes in. So we are not trying to benchmark is this hour, right? What we trying to benchmark is when we get done with this process, do we have a range of loads that's reasonable?

So throughout the course of a year, is our, you know, maximum peak load that we arrive from similar to the maximum peak load in our known sample set? Is our 99.9th percentile load similar? Is our 99th percentile load similar? Is our 95th percent load -- so all of the hours in which you might expect to have loss of load, do we have the right count of those hours in our dataset?

That's what we really are trying to capture. And it's most important to do that on an annual basis. It's tricky to do it both annually and get it right precisely, like, month-by-month, but we also look at our month-by-month counts of those high load and high weather events as well.

And in this case, we did do that benchmarking. And the result of this process was that we had approximately the right number, the number of days that you would expect at various different load levels, 25,000, 26,000, 27,000, 28,000, 29,000 megawatts.

So I know this hour doesn't look like it would if we had used that historical weather directly, but again, we have done the work to ensure that it's a reasonable set of data to use for this purpose, which is understanding how the FPL fleet would perform under a range of plausible and expected future weather conditions.

Q And so I think what my question is getting at is, you know, there are a variety of simulated loss of load events in 2026 in the month of April. And if a lot of those are based on loads that are 95 to 96, you know, even 96 percent of the median peak for FPL, is there any historical April loads you can point me to that come anywhere close to that kind of high load as compared to FPL's peak load?

A Yes, there are, and we would be happy to point you to them.

Q Can you do so?

A I mean, yeah, I don't have the data here at my fingertips, but we have done that type of benchmarking to ensure that the April load levels that we are modeling, again, are close to what you would expect given the historical load samples that we use to train the model.

Q I mean, we do have the, you know, historic

hourly load going back to, I think, the early 2000s in front of you here. Is there -- do you know what years or what those high April loads compared to FPL's peak might have occurred?

A Yeah, I mean, I don't have an example at high my fingertips. You would have to take this and then divide by the one and two peak for the year, or maybe the one and two peak for April. And there is a variety of statistics that you could come up with to evaluate the reasonableness of, again, the historical -- the simulated synthesized load shapes relative to the historical.

So, you know, again I will say it, we have done that, and the results of that benchmarking showed that, again, we have the right shape of loads with respect to temperatures for the FPL system.

Q Do you know if that benchmarking was provided in discovery?

A I don't believe it was.

Q All right. So if I was to ask you about some of the other April load dates and their relation to the actual peaks, I take it from your answer I wouldn't be surprised if it had somewhat similar results of those actual peaks from those days were significantly lower compared to FPL's actual peaks those years than as in

the -- than the loads in the stochastic loss of load probability modeling as compared to the FPL median?

A I wasn't quite following all of that, but maybe I can just cut it short to say that I wouldn't be surprised to see in April loads that were either below or above the historical load for that specific hour relative to the one and two median peak for the year.

Again, we are looking at is April, as a whole, reasonable, not is this specific day reasonable. And it's April as a whole across all of the weather years, not just 2020, across all of 1980 through 2023 weather years that we are simulating.

Q Yeah, I know -- I understand that what we have here is sort of a very small portion of those runs which resulted in loss of load events?

A Yes. And very much a cherrypicked set of runs, you know, because the events -- the runs that you zero here are exactly the ones that are resulted in loss of load. So, of course, you know, you would expect to see in this table, loads that are much higher than the average load for the month of April, and the resource availability that would be much lower during -- than the average during the month of April or any other month. So those are the conditions in which loss of load would occur, higher loads than expected, lower resource

availability than expected.

Q And so if we can go to master E88988. And this Excel document has a title combined load going all the way back to January 1st, 1980?

A Yes.

Q I believe this is -- well, do you recognize this document?

A Yes.

Q And what is it?

A Well, as you said, I believe it's the load for the FPL system combined for the Gulf Coast and the eastern systems.

Q Okay. Well, my question is because this is an E3 output as to the weather days going back to 1980 regarding the load profiles, isn't it?

A Yes, I believe so.

Q And so, for example, if you go to April -- and you can take this subject to check -- April 26th, 2015, at hour 16, it has a load of 26,686 megawatts, and that's going to be 96 percent of the top load of the year at 27,989.8 megawatts on July 28th, 2015, at hour 16?

A I am sorry, which day did you say it was?

Q April 26th, 2015, as compared to July 28th, 2015.

A Okay. Yeah. I can see from here that April 26th was simulated to be a high load day.

Q And the same would be true, for example, for April 20th, 2020, at hour 17, having a peak of 25,789 megawatts, which would be 95.4 percent of the peak load of 2020 on July 9th at hour 16?

A Yeah, so I will accept that subject to check. And again, you will note that it can get hot in Florida in April. There can be high load days in Florida in April, and you are picking out the highest load days. There is, of course, a distribution of temperatures and electric loads in Florida during April, as in any other month. And again, we've -- the benchmarking that we have done has indicated that the collection of days in April are a reasonable representation of the distribution of loads that FPL would expect to face in the month of April.

Q Well, maybe we can come -- maybe during a break you can hopefully help me look through the historical load to try to find some comparable April days that actually have that high load characteristics in FPL's historical record, I think that could be helpful to this conversation to understanding the April loads that are appearing in the E3 model.

A I may have to ask my counsel about that.

Q Of course.

So the loads in this document here for the combined load that E3 has done, are -- and you can check the results in the, you know, the loss of load event outputs with the loads that are present there, but tend to be a couple thousand megawatts less than in the E3 analysis?

A Than in which E3 analysis?

Q Than in the -- if you look at the gross load of the, like, for example, those April days we were looking at with the loss of load events. For example, in the stochastic loss of load probability loss of load event sheet, we have gross loads on April 20th, 2020, of -- for hour 17 27,537.9 megawatts, and in here, we have it as 25,789.35 megawatts, which is a, you know, roughly a couple thousand megawatt difference, and I am just --

A Which -- I am sorry, which day are we looking at again?

Q This was April 20th, 2020.

A Well, I would guess, subject to check, that these would have been benchmarked to 2023, and then scaled up to represent future years.

Q And so, for example, June 22nd, 2009, in the E3 analysis of the loss of load events, that big

spreadsheet with all the numbers, has a gross load at hour 18 of 31,434.8 megawatts, but if you go to this combined load document, you know, that it's going to be about 3,000 megawatts less?

A Yeah. What else I don't know, I guess, off the top of my head, is whether the behind-the-meter solar would have been subtracted from this, or this might have just been on a metered load.

Q If you go to the -- back to the actual -- if you go back to the historical hourly load, and I believe it's still up, yes, that document. And if you go to June 22nd, 2009 -- and you can take this subject to check -- it would be several thousand megawatts less as would be expected for load back in 2009?

A I am sorry, you are looking at the historical year?

Q Yes, June 22nd, 2009. It's got Gulf on the screen, but, you know, obviously the FPL load is going to be bigger. And this shows that the actual peak was at hour 17?

A Okay.

Q And in the document that we were just -- both in the -- both in the combined load document and in the stochastic loss of load probability loss of load events analysis, the peak was actually at hour 18, is that

right?

A Yes.

Q All right. If we could next go to -- put the Excel sheet aside for a little bit, but we will be coming back to them. If we could go to master page E59792. It's going to be part of Exhibit 366 on the CEL. This is a part of some of the PowerPoint presentations that E3 gave to FPL?

A Yes.

Q And as part of your process, you simulate load shapes and compare against historical?

A Yes.

Q Just looking at it from my perspective, you know, you can -- for June, July, August, September, would you agree that it looks like that the simulated peak is a little higher than the historical?

A It's a little bit hard to see, but it looks like there may be a couple of hours where the peak is a little bit higher. But there are also some hours where, particularly in the sort of shoulder hours, where the loads are a little bit lower.

So what our benchmarking actually revealed is that we were -- we were focused on trying to get the highest peak hours as close as we could, and we were fairly successful st that.

What we learned is that actually the sort of 95th through 99th percentile hours were, perhaps, a little bit low. So we were a little bit underestimating the load during some of the days it wasn't quite as hot.

And one thing to understand about the FPL system is that it's not just the high peak load that drives the potential for loss of load events, it's also supply availability. So it's sort of the combination of peak load, and an unusual number of outages is when you tend to see loss of load. So we have observed loss of load in our 2026 simulation at load levels anywhere from 25,000 up to 30,000. So, you know, whether we have one hour a few hundred megawatts higher at the high end, if we have several hours that are a few hundred megawatts lower at the low end, then, you know, those things are acre likely to cancel each other out.

So as whole again, you can't -- the model can never be perfect. It only has so many variables to train on. But in general, this is, in my professional view, a very reasonable approximation of the types of loads conditions that FPL, again, might be likely to face in the future.

Q And this graph here does show April to be a, definitely a lower month than some of the summer months?

A Yes. So this is -- well, April is a variable

month. So what you are seeing here is a 12-by-24 average across all the days in a month. So it doesn't show you sort of what the highest days would be for any of the month, or what the lowest days would be for any of the month. And the shorter months like April and September, October tend to have more variability in their load. They can have some very warm days. They can have a lot of days that are cool and not a problem at all.

Q And if we go to the next page. And am I reading this correctly, that the yellow ones are -- dots are simulated and the blue dots are historical?

A Yes.

Q You would agree that if you look at the upper right-hand corner, that there seem to be some yellow dots, well, especially the months April through September, there seem to be some yellow dots on their own on the upper right-hand side of that graph on the left?

A Well, what this is showing is that on the hottest days of our simulations, the load for those -- there is two dots in kind of that upper right-hand quadrant of the box that I think you are referring to. If you actually draw a line straight to the left to the load level, what you will see is that the loads that we

are simulating on those days are exactly the same as what has historically occurred at a temperature that's about three degrees lower. So about 90 degrees or 89 was that -- is a blue dot to the left of those. In fact, there is a cluster of blue dots kind of right there in that area.

So that's telling us -- so we wouldn't very concerned if those simulated shapes were above the highest blue dots, that would give us an indication that we were extrapolating kind of beyond what we might expect; but because we never exceed the actual historical loads, that gives us confidence that this is a reasonable -- again, it's a model, so it's never going to be perfect, but we don't expect it to be perfect. We expect it to be, you know, a reasonable representation of, again, a broad range of potential conditions that the company might face.

Q Well, if you look at the graph on the right, there are yellow dots that are higher than any blue dot load?

A Yeah, so the unit time is a little bit of an issue for FPL because the historical load we had on an hourly basis was from 2000 -- 19 -- I am sorry, 2003 to 2023, but there was an event in 1989 where it got very, very cold and there were very high loads in the FPL

system. So we looked at that actually, and, you know, we didn't have the data from that period to actually simulate what the -- to actually look at what the loads would be so, we expected the simulated loads to be higher than the actual loads in this case, and we were satisfied with the shape of that curve as you see it there.

Q Let's scroll down two more pages.

A And maybe just to clarify that a little bit. You know, because we are using more recent years to train the model to develop these load shapes over the 44 years. The farther back you go, the different -- the more different the end use loads were in households and buildings at the time. So you go back to the '80s, and there is just a whole bunch of different things that we have now, plug loads are different, heating systems are different. It's just very, very different, so we can't really go back to '89 and say, that's going to be a reasonable representation of what FPL would expect to face in the future.

So we usually use a more recent set of years with a more recent set of plug loads to train these models with, and then we extrapolate them using the artificial neural network to a wider range of temperature conditions. That's the kind of standard

model.

Because of this very unusual 1989 event, it was a challenge for FPL, and it required, you know, some judgment on our part as to whether this was a reasonable recommendation of what you might see if and when it does get down to, you know, 34 on average in south Florida.

Q If we could scroll down two pages. And here, the bottom two graphs, is that a comparison between historical actual summer load A shapes and predicted by the simulation?

A Yes.

Q And it notes that there is extended summer simulation introduced more challenging peak load days in high temperature periods?

A Yes.

Q Is that basically saying that the simulation found, you know, found more challenging high peaks than when there was higher temperatures in the simulation?

A Well, this -- the word extended is crucial here. So this is referring to -- the chart on the left only shows the 2003 to 2023 actual historical loads that we used for training. The chart on the right shows all 44 years, so the results of our trained model for all 44 years, including the 1980s and 1990s, which aren't on the graphic on the left.

And so when we did that, and went back farther, we did find more challenging, again, peak days. And, you know, I might go back to our detrending analysis.

Now, the summer trend, in terms of temperature over that time period, wasn't very significant, 0.2 degrees per decade, or something along those lines, but we did -- the 1980s and 1990s, now, did have more challenging summer days than the two decades since then. So, yeah, adding those two decades in gave us some more summer issues to deal with.

Q If we could next go to master page E59818.

Does this indicate that at one point, E3 did include midyear additions for batteries in its modeling?

A Well, for 2027, we ran it both ways. We ran it with and without the -- I forget the number -- 2,391 megawatts of batteries that were going to be added in that year, so this is just referring to whether those batteries were included in the base case, or the so-called change case; but in either case, we modeled that year with and without the batteries.

Q Is E3 capable of adding, you know, of adding midyear additions into its model? So, for example, say you had a resource coming on-line on June 1st, is E3 capable of counting that resource as being available

after June 1st but not before June 1st?

A Yeah, so -- yes, the model is capable of doing that, and if you were doing, let's say, a summer assessment about, you know, how you might need to maintain your fleet, you know, do your maintenance, get your units ready. If you had information that some units, you know, were going to be off-line, or needed extended maintenance, that's the kind of decisions that type of analysis would inform.

These events -- these model runs aren't really intended to inform operational readiness. They are intended to inform long-term planning and investment decisions. And so, you know, given that purpose, we don't want to get overly precise on when exactly the resources are coming on-line. That's an issue that's a matter of a few months over, you know, a 30-year economic lifetime of a resource.

So, again, the practice is to freeze the model at a specific point in time, do the runs, gather the information about the shortfall, the total need and the effectiveness of various resources at meeting that need. With that, you have the information that you need to asses as resources come on-line, how helpful are they toward meeting the overall gap.

Q If we could next go to page master E59870.

These are all within this document.

Now, the data presented here, is this based on FPL's system, or is this a generic graph?

A Yes, this would have been based on the FPL system.

Q I guess my question is, is based on the hours that are presented here, and then we will get into more detail later, but it shows some solar production at if you really look closely, at, it looks like 5:00 a.m., is that right?

A One second. Maybe the graph doesn't specify. This would have just been an example day.

Q Okay. I am looking at the yellow bar as being solar, and if I zoom in closely enough, it looks like I see some -- a tiny bit of yellow at five a.m. in this -- on the graph on the left.

A So in the summertime, if the sun comes up at 6:00 a.m., it wouldn't be too surprising that there would be some, a little bit of solar production during the dawn hours pre sunrise. Again, this is just an example. It doesn't say whether this was a June or a July or an August day, but --

Q Well, what I am struggling with is it also seems to, if you look at the graph on the right, which also has a little bit of solar at that 5:00 a.m. hour,

it seems to be -- almost fall off to nothing at 6:00 p.m., which, you know, there is still should be a decent amount of sunlight out in Florida in the summer.

A Well, this is an average day. So I don't know that this is a summer day. This may be -- this may be an average of all the days throughout the year.

Q Okay. But it still shows, then, if you zoom in on that one on the right, at solar production at that 5:00 a.m. hour, which is the sun never rises that early in Florida is what I am trying to get at.

A I mean, in the summertime, Florida is going to have 13, 14 hours of sunshine, so you would expect there to be some solar production for 12, 13, 14 hours, leaving a little bit. And it wouldn't be too surprising that there would be a little bit of production even before dawn, as the first light starts to hit the panels.

But then, you know, again as I mentioned earlier, we did identify, we think, we don't know for sure, we think that we identified some profiles that were shifted an hour earlier, as well as some profiles that were shifted an hour later.

Q We will definitely be getting to the solar profiles. I want to leave that section as a -- there is a lot of solar profiles to go through, so we will -- I

want to leave that section as its own area to get when we get there.

A Okay. Well, I believe this question is related to the solar --

Q It probably is related. I am trying to keep it at a high level right now before we get too much into the weeds on that, since we have this PowerPoints right here.

And if I could next go to master page E59942. And these are part of the same document, but these are FPL graphs, correct?

A Yeah, so these look like, subject to check, the profiles that the FPL resource planning team would have used in the AURORA analysis.

Q Well, and that -- we actually have a line there that says, FPL East solar 2023 actuals, is that right?

A Yes.

Q And looking at that graph, I mean, there is nothing at 6:00 a.m.?

A Well, this would have been -- I don't know if this was -- this looks like it's in daylight time, because the solar starts at about 8:00 and goes until about a little before 8:00, and goes until past 8:00 at night. Whereas, all of ours would have been in standard

time.

Q And so even in the summer months, those -- the hour values that you are using are in standard time, is that correct?

A Yes.

Q Well, this goes back to my load questions, then, because if every -- all the hours that you have are in standard time, and we can go through the loads and do it subject to check for now, but why are they either matching or later than FPL's loads as reported in savings time?

A I am sorry, can you say that again?

Q Sure. I mean, we were looking at the loads before comparing them to the historical and actual, and then, you know, your, you know, combined load shapes, right. And if the historical actual is either -- has the peak load at the same time or earlier than the load shapes that E3 is using in the analysis, why is -- how -- why are those loads representative of FPL's load in standard time?

A Not having those in front of me, and not having the benefit of recalling the specifics of exactly how that was prepared, what I will say is that our practice is to produce everything in standard time, and so what I would have expected us to do is take all the

FPL historical loads and translate them into standard time, and that's done just to ensure that we don't have any slipups with respect to Daylights Savings Time and whether it exists in one dataset and doesn't exist in another.

Q Shouldn't the loads being used, then, either match or be an hour earlier than FPL's loads in savings time?

A Well, again, it depends on whether the FPL loads, actuals, were translated into standard time, which is what I would have expected.

Q Well -- okay. We can -- I am trying to think about the best way to do this. Okay.

All right. If we could go to master E58844. And, you know, you can -- we can scroll down to the summer months at some point. But if we take these loads and compare them to the historical loads document that we were looking at earlier for FPL's actual historical loads, but for 2023, and they, you know, roughly match by hour, and the solar in this document ceases production in the summer around sunset and starts production around sunrise in savings time, wouldn't that indicate that the loads in the historical loads document would also be in savings time?

A Yeah, I don't know. Probably.

Q And if that's true -- again, take this subject to check. There is a lot of Excel sheets to cross reference here -- shouldn't the load shapes in the combined load document that we were referring to earlier for E3, if anything, not be shifted an hour later but be shifted an hour earlier?

A I am sorry, Mr. Marshall, my mental map isn't probably as good as yours about which documents.

Q I understand. So let me just try to break it down, and you can take what I am saying subject to check.

In the stochastic loss of load loss of load events document, there are some peaks that match the historical peaks as being at either 5:00 p.m. or even shifted back an hour to 6:00 p.m. when the historical peak was actually at 5:00 p.m. And if the historical peak was at 5:00 p.m. in Daylights Savings Time, shouldn't, if anything, the peak in the E3 model, therefore, be shifted an hour earlier to 4:00 p.m. to be in standard time, not an hour later, to 6:00 p.m.?

A I think it just depends on the day. I mean, there may be some days that have that shape, but there may be other days that have a shape where the load peaks in a different hour.

You know, again, there is huge amounts of data

that go into this. Most of those are produced by computer, not by humans looking at every number and understanding, you know, looking -- judging as they enter them how reasonable they are.

The question isn't, you know, is this hour at this particular time on this particular day the right number. The question is, when you take a step back and look at the whole big picture, are the load shapes generally the kind of load shapes that you would expect FPL to face? Do they generally have the right relationship with respect to temperatures? As the temperatures go up, do the loads go up in a way that you might generally expect? Do they generally have the right shape throughout the day? Are they generally correlated with solar in the right way that you would expect?

And you can't find that answer in looking at any specific day. Any specific day is going to be wrong, because it's only going to be one day. The power of the method is to look at, you know, 44 years times 365 days with all the messiness that exists in -- even in synthesized data there is a lot of messiness, much less what happens when you get into real life, and clouds come over at a time that you didn't expect, and loads spike at a time that you didn't expect, and

resources go off-line at a time that you didn't expect.

It's hard to of simulate the messiness that exists in real life, so all of these models are actually better behaved than what you really see in real life just on the virtue of them being a simulation that's based on synthesized data.

So it could be the case that, you know, this hour in real life would have been somewhat higher than the next hour in real life, but none of it has nothing to do actual the model is from a big picture perspective.

Q All right. So, is there a document that you have to show that, generally, the peaks that are occurring in the loss of load events in the summer -- not during loss of load events, but the peaks that are being simulated in the model are happening in the 3:00 to 4:00 p.m. timeframe and not the 5:00 to 6:00 p.m. timeframe that seems to be occurring repeatedly in the loss of load events?

A Yeah, I mean, certainly that data exists somewhere. I don't know whether it's been produced in a form that you could find easily or not. You know, I don't know if 3:00 to 4:00 p.m. would be the right time, or 4:00 to 5:00 p.m., but, yes, we have looked at the load shapes on a daily basis that have come out of this

process to assure ourselves that they have a reasonable daily shape.

We have looked at the load shapes that come out of this on a monthly and on an annual basis to assure ourselves that we have the appropriate number of very high load days, 99 percentile, 95th percentile load days that our load distribution is reasonable across the year and across all of the months within the year.

Q And so do you have data showing that FPL will have system peaks, so, for example -- okay, so for example, on that June 22nd, 2009 day in the loss of load event document, the --

A Which row was that?

Q I think it's for all -- almost all draws have that, the all unserved energy and hours document?

A I am sorry, June which day?

Q June 22nd, 2009?

A Okay. I see one, yes.

Q And that is a -- has a gross load at hour -- first of all, it peaks at hour 18, correct?

A The one I found only has 18 and 19.

Q If you go to draw 91, it should have additional ones.

A It looks like it's slightly higher in hour ending 18 than hour 18 and 17.

Q And so in savings time, that would be, that would equate to 7:00 p.m.?

A Yes.

Q And that load of -- is 31,434.82 megawatts?

A Yes.

Q And that's 106.69 percent of the median peak demand, peak load for that year?

A Subject to check.

Q And so my question is what data do you have to show that FPL can have an all-time peak load for the year occurring at the 7:00 p.m. savings time hour?

A Yeah, again, I can't speak to this specific hour on this specific day. I will just state again that we have benchmarked those -- the daily load shapes, they look reasonable. We benchmarked the monthly and the annual load shapes, and they look like they have a reasonable representation of the types of conditions FPL would face.

Q I mean, FPL has never experienced a peak that looks like that, is that an issue?

A I mean, I can't sit here and say that they haven't faced a peak that looks like that.

Q Well, what I am trying to get at is I -- you know, if you do have information as to that FPL has experienced a peak like that at that hour, do you have

that somewhere?

A I would have to go and look at a break.

Q Do you think that's something that you can look at tonight overnight?

MR. BAKER: Mr. Marshall, we will take a look. I can't commit to anything, and I can't commit him to anything right now.

CHAIRMAN LA ROSA: And, Mr. Marshall, they can confer this evening. It's a little after six o'clock. It sounds like you still have a series of questions for the witness. I don't know if now -- I don't know if you were going to pivot and start going in a different direction --

MR. MARSHALL: I was. This would be a good stopping point.

CHAIRMAN LA ROSA: Yeah, that's what I am thinking.

So let's go ahead and call that today, and we will break for -- until tomorrow. Tomorrow is a little bit unique because we do have an Agenda in the morning. We have an Internal Affairs after that. I don't know if that's two hours or three hours. My intentions are to start our hearing after our Internal Affairs assuming that's at a reasonable time between lunch, meaning that I would

still like to give a 12 o'clock-ish lunch break to one o'clock.

So my intentions are, if Internal Affairs and Agenda are only an hour-and-a-half or two hours tomorrow -- well, if they are an hour-and-a-half, then maybe we will start for about an hour, get started, break at 12 o'clock, even though I know it's only a short window, but I think we need every minute we can get, and then will reconvene after lunch at one o'clock, similar to what we did today.

So let's go ahead and call it a day. We will see many of you here at Agenda tomorrow, if not, for the hearing shortly thereafter.

All right. Thank you all. Have a good evening.

(Transcript continues in sequence in Volume 3.)

CERTIFICATE OF REPORTER

STATE OF FLORIDA)
COUNTY OF LEON)

I, DEBRA KRICK, Court Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 17th day of October, 2025.

DEBRA R. KRICK
NOTARY PUBLIC
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EXPIRES AUGUST 13, 2028