BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

DOCKET NO. UNDOCKETED

REVIEW OF TEN-YEAR SITE
PLANS OF ELECTRIC UTILITIES.
_____________________________/

PROCEEDINGS: COMMISSION WORKSHOP

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

DATE: Thursday, September 4, 2025

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Room 148
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Tallahassee, Florida

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I N D E X

P R O C E E D I N G S

CHAIRMAN LA ROSA: Good afternoon, everybody. Today is September 4th, 2025 still, and this workshop is officially called to order.

Staff, will you go ahead and start us off by reading the notice?

MR. MARQUEZ: Good afternoon, Commission. Pursuant to notice, this time and place was set for a workshop regarding the review of the 2025 Ten-Year Site Plans for electric utilities. The purpose of the workshop is set out more fully in the notice.

CHAIRMAN LA ROSA: Great. Thank you, Mr. Marquez. We have got presenters with us here today?

MR. MARQUEZ: We do, Mr. Chairman. We have two presenters. One is the Electric Power Research Institute, and the other is the Florida Reliability Coordinating Council, and staff recommends hearing in them in that order.

CHAIRMAN LA ROSA: Excellent. Great.

Let's hear from EPRI first, and I am going to appreciate you guys joining us. I know we have got Ms. Morgan Scott who is on the line. Ms. Scott, I know that you have got a hard deadline and a flight to catch, so I want to be certainly respectful of your time. We are extremely pleased for you to have joined us and to partake and to contribute to today's workshop. I will go ahead and turn it over to you and, again, very grateful for you being here with us today.

MS. SCOTT: Well, thank you so much. It's really my pleasure to be able to join you and to open up your session for this workshop with a little perspective on emerging technologies, and I think this is a particularly interesting time to be having this conversation because we do see extreme load growth in terms of what is happening on the grid. That is really the result of emerging technologies. And then there are really great advancements that are being made across the board to help address that load growth. So I would love to give this brief overview of sort of each of these pieces.

So on my next slide, I will open us up thinking about the big picture, right. So I mentioned this load growth, and this is probably unsurprising to everyone in this room, right. We see for year after year increasing that five-year forecast in terms of growth. And a lot of the conversation around that is around computation, right. And we are certainly going to talk about data centers, about what that compensation increase is about.

An important aspect here is that it's not just data centers, right. We also are seeing load growth industrial load that is increasing. That really started back with COVID, right. This isn't new. It started with COVID. It continued to increase with some of the incentives with IRA. And certainly right now, as we see some of the policies that are coming out from this administration, we see continued industrial growth as a result. So that is one contributing factor, as is electrification. Electrification, for a variety of technological reasons, is going to continue. And so it is all of these three things in tandem that are really pushing this load growth, and really underscoring the need for emerging technologies to help make that.

On my next slide, I do want to put the growth associated with AI in a little bit of context, because I think it's really important to remember that data centers are not new. What is new, and what is really driving the moment, is the way we are using data centers and the increased capacity associated with AI.

So we really saw load growth start with data centers in the early 2000s, and that's when we all figured out that we could post pictures of our children and share cat videos, right. That was the first bump in the early 2000s associated with load growth.

On my next slide, we look through the next 10 years, where we continued to increase our use of data centers, but there was enough efficiency that was being found because of the technology advancement itself, that the associated load growth with that use growth wasn't there. So things stayed pretty flat until 2020.

And then we finish off this graph in 2020, and that is when we saw COVID hit. So we were now streaming almost 24 hours a day. During the day, we were streaming our videos and our meetings; and at night, we were streaming Netflix and all the other hundred things you have to download in order to watch TV anymore. And now, in 2023 and beyond, we have AI. And what is giving us this growth.

Now, there are aspects of this growth which some will say, hey, you know, this -- what's real, right? Maybe there isn't realness here. I wanted to share some results from a survey that we did in 2024, so just last year, on my next slide, that I really do help to ground some of this.

So we will talk a little bit about an initiative we launched called DCFlex, but we had 25 utilities that we surveyed, and I think it's really, really interesting to look at these results and recognize, at the end of the day, the type of growth that we see, right.

So at that point in 2024, none of our responding companies had any request for anything more than 500 megawatts, right. That -- or I should say anything in service for more than 500 megawatts. That being said, the request themselves, 60 percent had requested 500 megawatts or more, and almost 50 percent had single requests for a thousand megawatts or more, right. So this demonstrates some of the reality of that growth as we think about this.

Now, from an emerging technology perspective, and then I will talk about how do we answer this from the grid perspective, there are two things that I want to flag about AI that I think are important to helping us understand the uncertainties around this growth related to the technologies themselves.

So the first is around how you use AI. And on my next slide, I lay out kind of the way that this is going to transition. And I apologize, I will reformat for what we send to you. But the way that we use AI greatly impacts the energy that it pulls, right.

So in early days, we are really focused on training, right. So we are really feeding these large datasets. We are playing the parameters. We are refining answer precision, right. So we are trying to get the models in order. And so that is where that initial growth came from, but the reality is that's a much smaller pool than more mature uses of AI.

So when we talk about inference, this is where you actually move those models to production, internet environment, where they are generating real output based on new datasets, right. And that -- right, so that's literally when you go into ChatGPT and ask it a pretty simple question, right.

That is going to lead up to -- what happens, though, is with reasoning, when you actually ask AI to solve problems and to make decisions, that increases energy use to 12-watt hours per query. And so this is important because not only does that help us understand energy use associated with these different aspects and maturity, but we are going to continue to use AI in a more mature way over time. So that means, as we move to the 80/20 rule, right now we are probably at 80 percent framing inference, 20 percent reasoning. That, over time, is going to swap to where we are 80 percent reasoning and 20 percent training inference, right, as we become more mature in the way that we use AI. And so that will take more energy and use of AI, and so that something that we really want to be thinking about.

The other thing that is important to talk about is on my next slide, and that's one of life cycle. And this is really changing for a couple of reasons. And this, I will tell you, comes from our colleagues at Infrapartners. We had one of their leaders in their C suite come and speak a couple weeks ago at our summer seminar. They are doing some really interesting work and thinking around how do you actually design data centers? Because the lifespan of a data center used to be about 10 to 15 years. That is shrinking to about three to six years. And that is really because of the -- hardware that is being used on those racks, right.

So we currently have GPUs that are running at 60 to 70 percent, and so that means you actually start seeing degrading of the chips themselves at one to three years. So this is much faster than it used to be.

There is also an aspect of this around the technology evolving quickly. NVIDIA is evolving their chips at least -- year to year. So even the chip jump in the Blackwell chip that they had from 2024 to 2025, that doubled the kilowatt hours per rack. And there is forecasted by 2028 that your rack is going to be 1.2 megawatts.

So what this means is that the actual energy pool per rack is growing very quickly. So the size of the data centers that are being sited today, there is a question here about what are the racks that are going in, and then are the data centers that are in existence today, right, if they actually swap out racks in the future to actually extend the lifespan of that data center, is the service from an electricity perspective that is currently there still going to be adequate for the new requirements of these racks?

These are really interesting questions. And these are the unknowns around AI that we are going to continue to explore and so over time.

So what does this mean, right? So how do we look at emerging technologies, and how do we actually meet this growth? And so on my next slide, we really think about this from three different perspectives at EPRI.

The first is really around how do you extend the life of today's assets? My CEO now says we do no longer do end-of-life research. Everything is about extension of life. And let's just even look at nuclear, right. We are bringing nuclear plants back to life. So it's not just extension, in some respects it's bringing things back to that life.

It's also about increasing realization of today's assets. So we will talk a little bit more about that. And at the end of the day, we have the build, right. And so the real question is how do we build with emerging technologies? And then how do we leverage and flex the assets that we have today to help meet the need in the shorter term as we advance technology, shrink that white space and get the new builds on the system? It's complicated.

Again, I am sure I don't need to tell any of you this. You guys are really thinking about it. You are sitting in there to do a ten-year plan, and so this is, I am sure, top of mind.

I am going to run through three quick examples, one generation, one transmission and then one more on the customer side, and then I will end up with AI again before opening it up to questions.

So let's start with generation. On my next slide, this is something we have been giving a lot of thought here at the institute around how do we help, from a research standpoint, shrink the time from first-of-a-kind to end-of-a-kind, right? We want to get -- into the catalog in many respects -- I just did this yesterday. I am here at the EEI meeting. You know, it's second mouse gets the cheese. In some respects, it's sixth through eighth mouse gets the cheese, but how do we help to shrink that white space? How do we learn from each other? And how do we move these technologies forward?

And you can here, at EPRI, we are focused on a few different areas. The one that I specifically called out for the purposes of today's conversation on my next slide is hydrogen blending. We launched our load carbon resources initiative actually back in 2020. It's been five years. And the load carbon resources was really, at the time, focused on, you know, pursuant to the name low carbon, but how do you decarbonize the power system, and what are the various advancements from a fuel perspective that could be done to achieve that?

I bring up hydrogen blending because I think there has been so much conversation around new gas as we think about increased load, and so from that perspective, I think hydrogen blending is something to kind of think about.

We have been doing a number of demonstration projects with a variety of members that participate in our low carbon resources initiatives with us. You can see those captured here. And I think, at the end of the day, what you see here is a variety of different actual machine, so to speak, right, that we are looking at testing this with, different blends. So we have gotten up, as you can see, for the New York Power authority example, we have gotten up to 44 percent blend. At the end of the day, we are seeing actual in carbon we are being very thoughtful about measuring the other associated emissions.

And as I said, right, this is really about how do you shrink the white space? How do we learn from each other? And so you will see here, I linked in the various executive summaries or related press releases to give you more information.

I really encourage you to pull these down, to read through them, to learn from them, because we want everyone to be able to learn from the experiences. This is a topic, of course, of interest. We are always happy to set up conversations with the right subject matter experts. You are going to move pretty quickly through my understanding and knowledge of hydrogen blending, but I am always happy to get conversations connected with the right folks, but I thought this would be an interesting challenge and perspective to bring to the table.

I will move to transmission. I started my career at Con Edison, so I am a grid gal at heart. And I think, from an emerging technology perspective, as we really think about how do you unlock capacity on the transmission system? What are our opportunities here that we have to take advantage of? Grid enhancing technologies are something what we are spending a lot of effort on here at the institute, and we launched last year our Get Set initiative, really focused on how do we advance these various technologies, right.

So we are focused in a couple of different areas that you can see captured here. So, of course there is advanced conductors, right. Those are designed to operate at higher temperatures. You can get up to 300 degrees Celsius in some of these because of the new materials like carbon fiber or ceramic composite that are in the core, and they operate generally at lower sag, right. So we've seen some pretty significant opportunity coming from some of this reconductering of existing lines, increasing power flow capacity anywhere from 50 to 110 percent. So that's worthwhile thinking about as we think about various bottlenecks and opportunities to unlock that.

Of course, when we think about these as well, we have dynamic line rating. So that supports the method for how you kind of think about calculating the capacity on realtime local weather conditions. We have seen several examples of getting that to 30 percent additional capacity through that.

Advanced power flow controllers. So these are actually devices that allow you to dynamically change that power flow that you have on the system. So this is really without really altering generator dispatch, or topology, right, so -- and again, we have seen opportunity here in some of the different case studies that we have done, we have seen increased transmission capability from 50 to 100 percent. So there is variation there. But we see good opportunity.

And then topology optimization is another one, right, so software technology. And that really gives you different beneficial, like, configurations that you can think about and move from that perspective. So we do that. That's kind of more in the planning and operations space.

On the next slide, I just want to underscore these are all things that we are driving. We have our various labs. We have three labs at EPRI, and so we are doing various testing on these technologies through the labs. Chair La Rosa, I know you have had the chance to visit one of the EPRI labs. And if anyone is in the room and would love to visit a lab, please let me know. We are always happy to take someone for a tour, and share some of what we are doing and seeing.

And of course, I spoke to some of those pilot projects as well, but we have got several pilot projects going on with a wide variety of companies that are really helping us to advance our understanding of how these technologies work, what their challenges are, right. We certainly recognize there are challenges. They are not silver bullets, per se. But, again, those lessons learned that can help everyone.

So that's the transmission side. And the thing is the customer side, so I am going to come back to data centers on the next slide.

Data centers are discussed so much in terms of the power for AI, right. How much do we need to power these data centers? And one of the questions we have been asking in EPRI through our DCFlex initiative is actually can data centers become a grid process? What is the flexibility from a wide variety of different perspectives, right? Whether that's battery storage, whether that's utilization of backup generation. There are different perspectives that we can take and potentially flex these resources that enable us to both manage the grid in a better way, but also perhaps enable the interconnection of these data centers more quickly.

On the next slide, you will see actually who we have got participating. I underscore this because I think it's so very interesting. This is one of the first initiatives where we have had such active engagement from the tech sector. You can see that we've got the hyperscalers. We have got data center developers. We have different technology providers, right. So we have all the right voices at the table to inform us.

And while there are several various work streams in this effort, I really want to underscore, again, the pilot projects, because these are where we are really testing out what are the potential capabilities for flexing these data centers, and how do we really look at data centers as an emerging technology for the grid? So through DCFlex, we plan on doing at least 10 different pilot projects, or I should say demonstration projects.

On the next slide, you see our first cohort. So we have already got the first three out there. We have some preliminary results coming in from Arizona, which is pretty exciting.

So in Arizona, we test a data center, we mapped out with the support of Emerald AI. They mapped out all of the tasks in the data center. And through that mapping, we identified what are the tasks that can be paused, stopped or moved to a different data center in a time of grid stress, and what does that actually result in in terms of load reduction?

And so through that mapping, and through an initial first test, and there is more underway, but we were able to demonstrate over three hours of reduction of 25 percent of load because of either, again, the pausing, the complete stop or the moving of those tasks.

So this is a good first step. This is the -- this is a good demonstration of flexibility, and it gets us excited about what else is to come.

So I am going to end here on the AI note on the next slide, because a lot -- like I said, a lot of the focus is how do we power AI? But the other point I want to make from an emerging technology standpoint is what about AI for power? How do we use AI to better plan and better operate the power system of the future?

And on the next slide -- and you can advance me through the build-out of this graph so that we don't -- yeah, there we go. Two more.

This talks a little bit about how we can be thinking about the use of AI. And a very important aspect of AI to keep in mind is that 95 percent of the data on the web is behind the pay wall. So what that means is when you go in to your favorite LLM, is it ChatGPT? Is it Claude? Is it Grok? Whoever you are using, Copilot, I am a regular Copiloter. That's what's approved at EPRI. But when you go into that, you are only accessing five percent of the data that is available to you.

And so what we are thinking about at EPRI is what does that mean and how do we better enable access to data behind the pay wall?

So you start building this out. One of the things at that we are doing through our open AI consortium is we are building a domain specific LLM for the energy sector that is really is founded on our 11,000 public freely available reports. And so that is the foundation LLM that we are building that starts getting you in that space. And then we are in the early stages of the beta of this model. We are trying to get it out this year. We are working very hard with our collaborators.

And the idea is, well, how do you improve that? How do you bring that behind the EPRI pay wall to all of the EPRI research that we have been doing for over the past 50 years to improve the answers from that perspective to any power system related question you might have?

And then the real feel value starts getting unlocked when you take it behind the utility's pay wall, right. When you can actually take the model that's being built behind the utility to use utility specific data, because this is where you really enhance the relevance of the answers, the accuracy, and there is a lot more comfort in terms of the data security as well.

So I think in the sort of emerging technology, we can talk about all of the hardware and all of the infrastructure related to the grid that we want, and those are very important valid questions and discussions that should be had, no doubt, for topics that you are delving into today, but I think it's interesting to start thinking about the application of AI to enhance -- to enhance the infrastructure, and to help us to have a grid that is performing and optimizing at the best of its capabilities.

So I will leave it there, and I left got about five minutes for questions. And really, again, I appreciate the opportunity to share a little bit about what we are doing at EPRI. I hope it helps kind of remind us of all the different things, all the toolbox -- tools in the toolbox, so to speak, and I didn't even speak to all of them, of course, but give this little sampling. And hopefully it sets a strong foundation for the rest of your conversation today.

So I will pause there and turn it back to the room.

CHAIRMAN LA ROSA: Excellent. Ms. Scott, thank you very much for your presentation, and certainly overview, very easily demonstrates how much EPRI does in its wide kind of broad spectrum.

I know you mentioned lab visits. I had the great fortune last year of visiting the lab in Charlotte. And I will tell my colleagues some of the things I saw there, and were able to kind of get my hands on them and see them firsthand were amazing. So certainly encourage any lab visits that you might have.

In fact, one of the pictures that you show here, I think it's slide 12, where I showed the sag in the line, and then you also show the heat and insulation that newer lines have, and some of the tests that you guys had done, and some of the other kind of, you know, models that worked or didn't work, is really kind of one of the biggest takeaways I had to show, wow, you know, there is -- you look at lines and think all the lines are just lines, but they have advanced in themselves. It's not necessarily just the commuter chips and the technology, but the actual product. So I was very impressed by that and, again, great work that EPRI has.

I will just throw in a quick question, and then I certainly want to let my colleagues have an opportunity too. I know we are short on time.

What do you see as one of the biggest emerging technologies? You know, obviously I wanted to highlight some of the things that you are doing, because we have asked in our ten-year site plan last career to talk about emerging trends. What do you believe, or what are one of the things that you see as just kind of an emerging trend or technology that's being incorporated either around the U.S. or you just kind of see as a low hanging fruit that you expect to see more implemented into the grid?

MS. SCOTT: Yeah. Gosh, that's such a good question. And one of the things that we say all the time at EPRI is -- and actually our Senior Vice-President of Energy Supply says this -- optionality is not optional. So at the end of the day, it's not just about picking one that's right for everyone. It's about we really have to look at the full suite, because the reality is it totally depends on where you are geographically, the structure of your market, really about where you are, and in terms of your assets. So it's a little bit tricky to answer that question.

I will maybe skirt it a little bit and talk a little bit personally, because some of my background is on the customer side. I think I am particularly intrigued by some of the customer side advancements.

Smart panels is something that is a real opportunity, especially as we think about introduction of different electrification technologies at sort of the customer residential level, be that battery, electric vehicles, you can go on and name them; but smart panels as an opportunity to enable electrification, and then unable better control of those assets is something that I find particularly interesting and think is a great opportunity as we think about how we enhance affordability, frankly, for the residential customer.

CHAIRMAN CLARK: Certainly great data that a customer could have.

I will throw it over to my colleagues. Commissioners, questions?

Commissioner Fay, I see him reaching for his microphone. I am sure he has a question on the LLM that she was creating, go ahead, Commissioner Fay.

COMMISSIONER FAY: Yes, Mr. Chairman, you used AI to predict what my question would probably be.

So just real quick, on your last slide that you were discussing with us, you have these various model -- LLM models that were used for different purposes, and as you go along the horizontal down at the bottom there, you get into more proprietary specific information in how the models would be used.

Can you just talk a little bit about if you guys are looking at the implementation of locally used models as to compared to, like, a cloud-based model for what the industry might be considering or not considering, and how that might be either, you know, more effective from an energy usage standpoint, or maybe even just from a proprietary protection standpoint?

MS. SCOTT: Yeah, so on prem models, right, is something that certainly is part of the conversation. That's all the way on the right-hand side as you think about that utility specific model that you can take behind the pay wall, have on premise, as opposed to in the cloud.

I think depending on who you talk to, frankly, there are different perspectives and thoughts in this space. Some of that related to risk tolerance, which is absolutely understandable. And one things that we are really looking to foster with the open power AI consortium, which is now over 130 members -- actually note there is no cost to participate, so, you know, we very much welcome anyone that is interested here. And it's, again, bringing together the utilities with the tech factor to have these types of conversations and explore these different use cases.

And I mean that from the perspective correctly in terms of, like, what are the use cases and the questions that you are looking to answer and the analysis that you are looking to enable, but also the way that that's done, to your point, in the cloud, on prem. So there is, again, not one right answer here, but certainly evaluating all approaches.

CHAIRMAN LA ROSA: Follow-up?

COMMISSIONER FAY: Just one more quick question, Mr. Chairman. Thank you.

And then I noticed that you guys, I guess through that open RAI consortium you mentioned, there is some relationship with NVIDIA, and then I guess maybe -- it sounds like you have a broad spectrum of members. Just maybe from a regulatory body perspective, give us an idea of what that scope looks like, and maybe how, I guess, that would be educational or helpful for us on the regulation side.

MS. SCOTT: Sure. Yeah. And I will also say, since you mentioned NVIDIA, we also just named a representative from NVIDIA to our board. So that engagement goes beyond the DCFlex and open up power AI kind of research engagement to that bigger picture as well. So just to be forthright there.

And so the Open Power AI Consortium is something that is evolving very quickly as the space changes very quickly, but really, at the end of the day, what we are looking to do, as I mentioned, was build that domain specific LLM, and then foster this echo chamber, so to speak -- that sounds more negative than I mean it to.

But to have this consortium and this body to bring everyone together to identify the right use cases that are going to bring value to the industry, we have, right now, a library of 225 use cases. And ultimately, what we would like to see happen is that different organizations that are participating say, hey, that's a use case that's super valuable to us, and we are able to spin out the projects with the people that are in the Open Power AI Consortium, the utilities that are interested, the tech providers that are capable, the hardware providers that need to be involved, those that have, you know, national labs that might have compute capacity, et cetera, to pull in the right folks in order to get the project done, and then have that solution available.

So we are really about accelerating the development of the use cases in order to solve the problems that are plaguing the power system today, whether that means, you know, bottlenecks and interconnection, whether that be permitting, et cetera, there are lots of opportunities to evolve.

CHAIRMAN LA ROSA: Thank you.

Commissioners, any further questions?

Awesome, Ms. Scott, I know you are short on time. Thank you very much for your presentation today. Again, very much appreciate everything that you guys have put forth before us.

I am going to look at my staff real quick, because I have a note, any questions from staff before I let Ms. Scott know?

MR. MARQUEZ: We do have one.

Briefly, Ms. Scott, the survey on slide six, where you are referencing using 25 utilities, were any of those utilities Florida utilities, if you know?

MS. SCOTT: My -- I am 90 percent sure that they are not Florida utilities, but I will confirm and get that back to you.

MR. MARQUEZ: Thank you.

CHAIRMAN LA ROSA: Awesome. Great. Thank you.

Again, Ms. Scott, thank you again for your time.

MS. SCOTT: Thank you. I appreciate it. Enjoy the rest of your meeting, and thank you for having me.

CHAIRMAN LA ROSA: Of course. No problem.

Thank you.

All right. Let's move forward. We got our friends here from the FRCC. Gentlemen, I will allow you guys to introduce yourselves, and welcome.

MR. CASTO: All right. Thank you for having us, Chairman La Rosa, Commissioners. I am Aaron Casto. I am the President and CEO of FRCC. I am relatively new. I joined in November of last year, so we will be doing a joint presentation today, myself and Vince Ordax.

MR. ORDAX: Vince Ordax, Senior Director of Planning, and we will be tag-teaming the presentation.

CHAIRMAN LA ROSA: Excellent. It looks like you were just passed the control, so it looks like you guys are in control of the meeting.

MR. CASTO: Yeah, I am going to start off and provide an intro, and then Vince will provide some more of the details of the presentation, so.

Today what we wanted for talk about is provide a quick overview of FRCC and executive summary, and then we get into kind of the process that we use to analyze the individual utilities IRPs.

Vince will go into some more of the details of load forecast capacity additions, reserve margins and the generation mix.

We also have a section that will talk about how do we ensure reliability. Looking at the natural gas infrastructure, given the criticality and dependency we have here in Florida on that, and some of the transmission adequacy and reliability analysis that's performed to ensure that everything works together across the state.

And then there is a section -- there was some specific items requested of us for outage coordination, small modular reactors and large loads, and Vince will cover those as well.

Lastly, we did want to have a couple of slides on some of the lessons learned. We have been proactively going in the field and learning from some of our peers in the industry at ERCOT and California ISO. And then some recent events in the Iberian Peninsula, we also have some new data points for us to assess. So we will speak a little bit about that, and how that plays into our path forward and what we are coordinating with our members.

So just a quick high level overview. The Florida Reliability Coordinating Council, FRCC, was really started back in the 1970s. We weren't incorporated until 19, I think, 96, but we have been around for a while. And really, the idea is how do you coordinate all the electric utilities in the state?

Our mission is to coordinate a safe, reliable and secure bulk power system in Florida, and we really have four major areas that we focus on. The long-term planning, so we are the regional planning. Today we will talk about how the individual utilities plan for their own selves. But when we bring it all together, we need to understand how it fits together like a joint puzzle. So we do that in the planning process. We look at both long-term resource and transmission planning.

We also oversee the realtime reliability coordination function, the bulk power system for Florida, how is it working together, and making sure that we are addressing any reliability needs.

We also do have some activities around reliability and compliance assurance. There is a heavy regulatory requirement primarily with NERC that we help our members with. And we also run some additional studies around strategic insights and assuring that we can maintain reliability, things like the outage coordination topic that you all requested.

And then lastly, from a member support perspective, there is a lot of coordination that we facilitate, that includes training and outreach, like today, where we work with regulatory bodies.

So just kind of a fact sheet for FRCC. This is for today. It looks like we lost some things in translation here, but we do have about 19,000 miles that we -- currently of transmission. This is the high voltage transmission in the state of Florida. And that's where our planning activities and our operational processes are really looking to coordinate across.

We have 23 plus million customers in the Florida footprint. 19 members currently at FRCC. Today, we have about 63 gigawatts of firm capacity resources. And then if you look historically at some of our loads, we have just above 54 gigawatts in 2023, the summer. We did not break a new peak this summer, but all the way back to 2010 for the winter peak, just above 52 gigawatts there.

I would note on the left here, this is the net energy production on an annualized basis. You can see there where currently we have a high dependency, and most of our energy needs are served from our natural gas resources.

We have seen a growing trend with solar. Solar is now about 10 percent of our energy resources, which is on par with nuclear.

As we look forward, the Ten-Year Site Plan is changing quite a bit, and you can see that, from a loads perspective, we are expecting from about 11 percent increase from now to 2034. Some the big changes we are seeing there is really dominated by the solar and the battery. You can see we are expected to add about 24 gigawatts of nameplate solar capacity, and we are moving from about 10 percent of energy coming from solar to 28 percent. That's pretty substantial if you think about, obviously, at night we are not getting any energy from solar. So that's a substantial shift for us.

Additionally, on the battery side, I would say this is a primary mitigation that a lot of our members and across the country are starting to see, is adoption of more batteries to deal with some of those new reliability needs associated with adding solar. Last year we saw a four-gigawatt battery nameplate capacity addition. This year, we have seen that jump up to nine gigawatts. So you are starting to see more and more of those resources added.

We are seeing the load go from about 54 gigawatts current year projection up to close to 60 gigawatts out there in 2024. And then we are seeing the -- an expansion of the capacity resources as we add the solar and battery. We are seeing an increase in our firm capacity resources.

I would note that there are 2.8 gigawatts of retirements, primarily coal, and a little bit of natural gas as we look over the 10 years.

All right. So as we get into kind of what we are going to cover today, the analysis as a whole. Really what we are seeing is, you know, Florida has done a really good job historically, and has a long record of position -- being well-positioned on the electric grid to accommodate change. We are starting to see rapid change primarily led by batteries and solar additions.

And even with the loads, we are seeing some changes there. We are starting -- this year, we did see a little bit of a slowdown on the distributed solar and the EV adoption, so we are not seeing as much of that in our Ten-Year Site Plan as relative to previous years.

When it comes to data centers, there is a lot of uncertainty there that our members are dealing with. Right now, in our plan, we see about 700 megawatts in there. We do expect for this, in future years, out years as there is more -- greater certainty and contracts become more clear, that we do expect that to be a primary growth beyond the 11 percent that we see today.

Even with all that change, I would say Florida is still in a great position. The reserve margin remains strong. We are consistently exceeding the 20-percent that we kind of target and watch for, so that's a positive note there.

We are kind of tracking some new reliability considerations. As we add these new resources and technologies, managing the different characteristics of the solar and the batteries is a change for us.

Additionally, the large loads, there is a lot of coordination that needs to occur there because if they drop off or lose their on-site generation, it, again, creates some new reliability challenges for us.

The load -- the peak load is changing, the traditional peak is shifting out a couple of years, and that changes how we have to plan and operate the system so that's another area that we are looking at.

And then the evening ramping needs, as solar comes off and it's still hot here in Florida and air conditioners are running, we still have a lot of load. We have to move a tremendous amount of generation in a short period of time to address that new net load on the system. And as we get more and more solar, that will actually increase in need over time.

I would note we will cover some of these kind of what we do as part of our ongoing process, is we do a lot of joint assessments. We also do a lot of coordination. And then from my perspective, being here for a relatively short time, very strong commitment to reliability from the membership. They understand, you know, Florida is a little different than other parts of the country, being a peninsula, so it's kind of you are on your own. And that strong commitment really drives to staying well positioned.

Some of our ongoing studies that we do when it comes to outage coordination, everybody plans for themselves, but then we do a statewide check, and that's an ongoing check just to make sure we are all good together. And to the extent there is something, the coordination is great and we work through those issues together.

We also do joint fuel risk assessments, and that really is looking at both the natural gas infrastructure and the utilization of that, along with some of our dual fuel capabilities. If those pipelines were to go away, or couldn't deliver some of that natural gas, what's our backup plan?

And then lastly, we run a battery of studies really to test, you know, from the individual basic to the whole of Florida, how strong, how resilient is that transmission system, and can we sustain different types of events?

Okay. Real quickly as a reminder. I won't spend a lot of time here, just a reminder that the individual electric utilities in the state of Florida go through some comprehensive analysis in their own Ten-Year Site Plans. They study their customers needs. They provide their own forecast, and they look at some of those tough decisions around what supply-side options do I have, what demand-side options, and some of the costs and operating data to meet the needs of their customers and their system. Every system is a little different, and the customer needs different.

I don't envy some of the decisions they have to make around some of the cost implications, et cetera, but they do that on their own.

When it comes to FRCC, what we do is we take those individual Ten-Year Site Plans, and after those decisions are made, we aggregate them, and that's what we are going to talk about in detail today. What is the load and resource plan, is what we call it, how do we aggregate all of that information together? We run it through a series of tests with the members.

We are starting to move to some more probabilistic studies now, just because it is getting much more dynamic. The system that we are planning and operating to, it's much more complex. And we are seeing a shift of energy use within -- throughout the day because of things like the net load affect. And some of what we will talk about today is the results of those analyses and some of the studies.

I would note that some of these studies do also go to NERC and SERC, which have some of those regulatory requirements for us as well.

All right. I am going to turn it over to Vince, and he is going to talk about more about the specifics of the plan. Thank you.

MR. ORDAX: Okay. So a little bit more details now. You have seen some of these slides before in previous years. This is the firm peak demand forecast. Orange is the -- this year's forecast looking out 10 years, and the blue is last year. So you can see the slopes are very close. There is a step change starting this year, and that's kind of driven because recently there has been -- near-term actual loads have been higher than forecasted, so then the forecasters will recalibrate their models, and that's what's driving that.

The average annual growth rate is at 1.2 percent. Very similar to last year.

Distributed energy resources, you can see we have about 4.4 gigawatts by 2024, and so that -- it's impacting that peak demand there, as well as the EV growth, it's still strong, but it's moderating, as Aaron had just pointed out. We are expecting about 3.2 by 2034.

And the load forecast, the whole aggregated one, does have one load center in that load forecast about 700 megawatts. That's the only one that we have currently.

This next slide is the net energy for load forecast. Again, orange is this latest forecast for this year, and blue is last year's. So you can see it sort of starts off pretty close, you know, as before, but it's diverging a little bit, and it's mostly because there is less contribution in the load forecast from the distributed energy resources and the EV expansion. So that's -- since that's slowed down, that kind of -- it got -- it increased the energy in the forecast. It's growing at 1.2 percent. Last year, I believe we had it 1.1 percent.

And this one is just a quick reminder of the different, like, summer peak demands that we sort of calculate or look at. So the gray line on top is what the load forecast would be if we didn't have demand response or energy efficiency programs.

The orange line shows the reduction in forecast due to the utility energy efficiency programs. And we expect that impact to be about 846 megawatts by 2034.

The blue line is the load forecast after energy efficiency programs and assuming activation of demand response. And so by 2034, we expect that to be about 3,400. So all the -- from now going forward, all our calculations are based on that blue line, which is what we call the firm peak demand.

This next slide looks at the reserve margins, right. This is for each of the individual years. Summer is in orange. Winter is in blue. This would be the peak day, winter peak day and what the reserve margins would be. And you can see that, as Aaron stated earlier, we are well above the 20-percent the entire horizon.

Now, I would like to say, so this is one measure of resource adequacy, and I think, like, and Aaron had mentioned, we do do loss of load probability analysis, but there is also -- we also do a little bit more detailed, and I have a couple of slides on that, and I will point those out as soon we get there.

This next slide is showing the incremental additions kind of by fuel type as far as firm capacity at the time of summer peak. Starting from the top, you can see that's changing. That's the battery capacity, is changing. So it's going about 4,800, and that's firm capacity.

So these numbers all contribute to the reserve margin calculations. So that's a little bit different than the nameplate values, and we will explain those a little bit later.

Solar is increasing by about 2,000 megawatts. And again, that's firm capability. We have the coal decreasing. There are some retirements, like Aaron mentioned. Nuclear is pretty steady. Natural gas is increase about 2,000 megawatts by 2034.

Now, here's the new slide you haven't seen before, and I know it looks really busy. But this is a -- representing, say, for example, the summer '25, this summer peak day, and looking at pairing that with what we -- what it would look like 2033 peak day with the expansions in the Ten-Year Site Plans, right.

So we are -- the dark line is the net firm demand. The dashed line is where the reserve margin would be, and then we have the stacking of the different resources. So we have the nuclear at the bottom in yellow, and then in the orange is the solar. And you can see, obviously, the solar is contributing during the sunlight hours, and then by 2033 it's contributing significantly during the sunlight hours.

And then, of course, blue is the natural gas. The gray is the coal, and then the darker blue that looks like purple is battery. And so you can see there is a lot of more battery in the 2033 timeframe.

You know, here is the -- I think the note is, you know, you can see on the dark -- the dark lines, you know, normally we would peak as between 5:00 and 6:00 in the afternoon. But when you do, like as Aaron was saying, when you account for the solar coming down the net peaks, our reserves are tighter in the later hours, right, more like in the 8:00 p.m. timeframe, is much tighter. And we would expect by 2033, that batteries would be contributing to serving some of that demand if needed.

On the next slide, here we have the same, but now looking at winter. And, you know, the winter load profile typically has it peaks. The morning peak, which is higher, and then it has another second peak in the afternoon, which is not as -- usually not as pronounced. You know, the colors and all things match what we just talked about in the previous slide.

So on this one, you can see really the -- for solar contributions, there is very little contribution to the peak in the winter, so there is very -- when we calculate the reserve margins for winter, there is very little contribution from solar, because you can see, obviously, it's just -- it really is not there. But the batteries will be the ones that will be complementing the solar during those peaks you can see by 2032-33 winter, in the morning, you will -- some battery contribution there with the dark blue, and then in the afternoon, significant contribution there as well.

So this slide here is really to compare so, you know, you -- nameplate solar, that's the entire bar, the lighter color, and then what part of that is firm at the time of summer peak. So the darker brown-orange is the part that's counted towards the reserve margin calculation.

And you can see, basically by the end of it, about 46 percent, so in 2025, about 46 percent of the nameplate is counted towards the reserve margin, whereas, by 2034, it's about 21 percent of the total nameplate is counted towards the reserve margin.

On the next slides here, this kind of illustrates a little bit about what Aaron was saying about the net load. So the orange line on top is the load for this particular day here in May. The purple line is the, basically the net load, so basically reducing the demand by the solar generation. And the blue line would be what we would estimate would be the new net demand by 2033.

And so you can see, you know, a considerable shift. And there is three items here to kind of note. The daily peak, if you look in the top right there, is shifted by two hours, maybe two hours and 20 minutes, it shifted to the right, where basically the sun begins to set. So that's going to become our new -- the new net peak.

And the second item here is, like Aaron was saying, the more solar that's added, the ramping needs increase significantly, right. And so the balancing authorities will need to have on-line spending resources that they can dispatch and to keep up with that ramp. And so that's, I think, what I have got, yeah, on this slide.

The next slide, here, now batteries, since this is a new thing with batteries. So firm capacity and battery is slightly different since battery is a storage device. We store -- we are storing energy. So, like, a 400 -- in this example here, the load is that blue line here on the left. If we have a 400-megawatt-hour battery and we want to reduce the peak, or serve 100 megawatts of it for four hours, then that's the entire capacity, but the value attributed to the firm capacity would be 100 megawatts. It will produce 100 megawatts for four hours, so its capacity would be 100 for that, even though the nameplate, maybe it can actually put out 200, but since we need it for four hours, it's shown as 100.

Similarly, for the next hundred, you wouldn't be able to -- you know, you can see the curve gets wider and wider, so it takes a lot more energy, in this example, twice as much energy to serve, you know, for the next battery -- sets of battery. So the same battery now can only reduce that peak by 50 megawatts because it would need to run for eight hours, right. So it's an energy, and it's based on duration and nameplate value.

So each member will determine on their system how much of that battery, if it's going to be used, counted towards reserve margins, how much of that will, of the total nameplate, will be counted towards the reserve margin calculation.

So this table, this one is another chart similar to the solar one. This shows the total battery nameplate with the lighter blue. And then the darker blue is the total firm capacity of that nameplate.

So you can see that by 2034, it's about half, about 56 percent of the nameplate is being counted towards firm capacity. And so the total additions is about 9,000 megawatts of nameplate battery by 2034.

And so the battery is really, in operations, the batteries and solar are kind of -- help each other out. They are synergistic. You know, they make -- each one makes the other one kind of more firm, so we have seen a lot of co-locations coming up with solar and battery in the same locations.

Okay. So moving on to the gas infrastructure. So, you know, for many years, we have got -- we hire a consultant to help us maintain a comprehensive gas infrastructure model. We get that model updated every year, and this allows the members to identify these periodic studies to examine different infrastructure contingencies and perform studies to see if the expected infrastructure capacity is projected to be adequate based on those forecasts.

So, you know, we do have three major pipelines coming into the state of Florida. We have them, you know, kind of in that little map that you see there. But based on these studies, the natural gas infrastructure is on pace to support the generation additions that are in the Ten-Year Site Plan, which is good, and then there is not as many as there was in the past. And, you know, we do have a high dependency on natural gas, like Aaron was saying.

One of the things that helps mitigate that is Florida's dual fuel capability for its gas generation -- generating units, right. We are about 54 to 56 percent of that fleet have fuel switching capabilities.

Now, we have noted that there is a slight decrease this year, about one percent decrease over last year. So we will be keeping an eye on that, because we -- you know, that is an important metric for us to keep an eye on.

The other mitigating thing is that maybe different than a lot of other parts of the country, natural gas in Florida is almost entirely dedicated to the electric industry in Florida, so there is really no competing use, especially in the winter.

On the transmission adequacy front, you know, there is reliability standards that are developed by the North American Electric Reliability Coordination that we refer to as NERC, and then they will approve those. And then the Federal Energy Regulatory Commission has final approval for those standards.

Those standards really require us to use computer models and software to simulate and test the performance of the electric grid, and we do that every year. And so these are really to kind of give you an idea of the type of scenarios that we study sensitivities. We look at most of the years in the first five years, and then we do representative years in the last five, and we look at peak loads, summer and winter, off-peak loads for summer conditions, and then all those battery of sensitivity scenarios.

And then for each of those sensitivity scenarios, we hit them with a battery of contingencies that we call them outage elements, one or two elements at a time and see how the system performs.

And so the results of that is really the existing and plant facilities of the transmission system meet the performance criteria that's contained in these NERC reliability standards.

In addition to that, and I think Aaron had mentioned it, we do probabilistic assessments that actually look at all 8,760 hours, the entire -- all hours of the year from a resource adequacy perspective.

For planned outage coordination, we have pretty extensive coordination with the members. The way this works is that all the members develop their planned generation and transmission outages, you know, they plan it out the timeframes. Then that information gets entered into an FRCC application tool that is shared for all the members. So they all have access to this tool, and they are all entering the data in here.

We use the information in this tool, these outages in all our studies. So we look at the -- before we actually run any studies, we prepare the models by incorporating any of these planned generation transmission outages, and including the load forecasts. If there is any outages, for example, when we go through this process, I will describe it in a moment here, any conflicts of outages that, they are coordinated ahead of time with the members, and that will involve shifting schedules for maintenance.

And so we start off usually with the seasonal studies that have a four- to six-month look ahead. Any, like I said, any conflicts that are showing up in those studies, they will -- the members will resolve. Then we move into -- each week we look 28 days ahead, again, including the most recent updated outages, because these -- that's a living database. You know, things come and go and they get updated.

We then -- twice a week, we run an eight-day look ahead. And then on the day before, which we call next day, the same thing, outages, the latest are updated into the models, and this one -- actually the day ahead is actually into the EMS model and a whole study is run.

At any one time, if there is any conflicts, outages before we get to realtime, will not take place if there is a conflict that hasn't been resolved. They just will not take place.

Once we get to realtime, we expect, you know, smooth operation when it comes to that. Of course, there will be unplanned outages that may happen from time to time, but then those we would be able to deal with at that time, and not have to worry about a planned outage conflicting.

The next slide here is on small modular reactors. So in this Ten-Year Site Plan, there are none. None of the members have included any of those in this Ten-Year Site Plan. We do note that there are several executive orders that came out in May, and they are all targeted to speeding up the nuclear reactor licensing. They have a goal to add 300 gigawatts of new U.S. nuclear capacity by 2050. And then within that goal, even more aggressive, they are expecting to have 10 large reactors with complete designs and under construction by 2030.

We do know that TVA is one of the first utilities to submit a small modular reactor application. And they expect to go live with 300 megawatts by 2032, which is not really that far away, if you think about it.

And, you know, as EPRI had just kind of discussed, some of this data center load may drive future SMRs. But currently, in our plan, we only have 700, 720 megawatts of data center load.

That's the only one we have right now.

So going into the large loads, and this will be my last slide before I turn it over. We do have the 700 one. Obviously, this drives -- you know, the resource mix and large loads, you know, are driving us to do more detailed energy assessments, and we are tooled up to do that, and we have been doing that for a while, and we have the expertise to do that, and we have worked with SERC and NERC on those assessments.

One of the key items that's really kind of a risk is the supply chain, permitting delays, and things like that, are impacting, you know, the new generation additions and the transmission construction.

And we know SERC has put -- published their risk report, and in there, the engineering committee has identified, you know, significant supply chain risks that are delaying projects, and basically lead times for transformers, breakers, and even some chemicals to run the thermal plants. So there are, you know, a little bit of delays there.

We have seen some delays that have been reported being up to two years in getting some generation from when they originally had thought they would be able to build it, it's been delayed about two years.

So to that effect, NERC has established the Large Loads Task Force to collaborate with the industry to see if they can identify these risks and then have some mitigation strategies. Some things that they are going to consider as part of the mitigation strategies includes backup generation, demand response or long duration storage. And I think EPRI covered a little bit about that in their presentation. And then the emerging technology, really, it's the small modular reactors is really what's coming up now.

Then before -- the key here is also the interconnection requirements are key, right, for these large loads. And the key, the reason for that is because we need to know those characteristics of those loads. How is it going to behave so that we can model them before they are connected to the system, and know how they are going to behave so that we know that we can deal with them.

And then finally, the data center life cycle is somewhere between 15 to 20 years. It's kind of cool to keep that in mind.

I think, with that, I will go turn it back over to Aaron to finish us off.

MR. CASTO: All right. Thank you, Vince.

As you have heard in our Ten-Year Site Plan, Florida's grid is going through a relatively rapid transformation from the way we used to do business, it's much more complex. It's much, much more dynamic.

So a couple things that we have been doing at FRCC to get positioned for that change, as I mentioned earlier, we have gone to California ISO. They are about the same size of us, but they are way farther in their journey in transformation. So we wanted to get some of that education from those that had been through it and learn what were some of the mistakes, what are some of the things that they did well, and what are some of the key factors for success.

We did that at ERCOT as well. That grid is changing rapidly. They are expecting to double their load in five years. So a lot of change on their system as well. So we were able to really tap into their experiences. They spent a lot of time answering, fielding a lot of our questions, and really do appreciate the time that they gave us to really learn, so it was a great experience there.

Additionally, recently, on April 28th, Iberian Peninsula did experience a pretty significant system disturbance and outage, thus, created a lot of really data points, real world data points for us. They were at over 70 percent penetration of renewables at the time of that, and NERC, and even EPRI, has been doing a great job of kind of tracking that and looking at the differences here versus there so we can avoid some of those outcomes.

What we have got listed here are some of those key items that EPRI has kind of published, and I think they are great for us to reflect on.

Again, this is a dynamic system. It's going to require us to have reliable resources, and really the speed is -- that dynamic and speed is something that we have got to plan to a little bit better than we have previously. It's on voltage frequency and dynamic reactive support in general.

Additionally, what we are looking at is we have to do much more detailed reliability studies. The studies of picking one peak hour and studying it and making sure we are okay, that's of yesteryear. We have already moved to looking at every hour of the year, looking at some of the probabilistic studies, et cetera, and we still have identified a couple areas that we need to add some new capabilities to keep up with that, new tool sets and even, you know, training folks on some of these new items.

So we continue to coordinate that with our members to prepare for that coming grid, some of which is already here.

So in conclusion, Florida's grid reliability and future readiness requires us to remain vigilant. We do a good job of coordinating in the state. We have well positioned to support that grid evolution. Really, the backbone is that strong coordination, the joint assessments we do together, and the commitment, the ongoing commitment of our members to focus on those reliable outcomes.

The rapid growth we are seeing is really in the solar, batteries and large loads, and it's shifting how we have to plan and operate the system. So there is still -- when you get to those out years where Vince was showing the net load, it's getting closer and closer to zero. It has broad implications of how do you run traditional resources that, if they come off-line, they have to be off-line for 12 hours, et cetera, so a lot more complication there.

We do remain vigilant. A lot of the studies that we do, we are going to continue. And what really -- what we are focusing on are the new capability's tool sets needed to understand these new risks, because they are already and will continue to challenge our traditional reliability framework. So we've got to be much more agile and adapt in our planning and operational strategies.

I would note, with all that change, I think that the member utilities in the state have done a great job, again, staying focused on what is the outcome we are trying to drive to. And you can see that in our reserve margins that we still see very strong reserve margins, 20 plus percent.

Some of our peers in the industry, I think, are envious to that. You know, we go to California, I think they are at 17 percent as their requirement. They think they should go be closer to 22 to 23 percent given how much flexibility, or dynamic and uncertainty they have in their system.

So we have stayed well positioned here, and that's pretty much a summary of our presentation.

I would be happy to take any questions.

CHAIRMAN LA ROSA: Thank you. A lot to digest there, for sure.

Commissioners, I am going to start with staff.

Staff, any questions?

MR. MARQUEZ: Not from us, no.

CHAIRMAN LA ROSA: Commissioners?

Commissioner Fay, you are recognized.

COMMISSIONER FAY: Thank you, Mr. Chairman. I do have some questions.

I guess, let me just first start by welcome aboard to Aaron. I know we had Vince here last year, and I got to say, just in general, I think folks who worked on getting you in this seat are very excited about your abilities and what you will be able to do for our state. I know we have a good reputation when it comes to reliability, but I think just the complexity of what you guys have presented today shows that it's really important to have the right people in these seats, and so I appreciate you stepping up to take the role.

And I know you haven't been there that long, so I will be mindful of that. Maybe either you or

Vince could opine a little bit, I have two questions. The first is just learning more about SERC and kind of their role. How does FRCC kind of work within some coordination with SERC? I know there is some relationship there, I think, like maybe help me better understand kind of how that works.

MR. CASTO: Yeah, I think it's a relationship we are going to continue to grow. If you think about an umbrella, NERC covers pretty much the country, really North America, so it goes beyond the U.S. SERC is a region the entity within NERC, and it's mostly the southeast. And they actually are -- have some regulatory oversight on us as well.

So we do coordinate with them quite a bit. They help with some of the broader risk assessments that come from NERC to SERC. And then it's, obviously, a little bit different in Florida. If you looked at Illinois, which is in SERC, versus Florida, we have unique reliability concerns here. So we work with them to make sure that we are providing information so they can do their assessments. They are helping us with understanding some the risks, and we are tailoring the needs here in the state for Florida.

COMMISSIONER FAY: Okay. And they have some, to your point, some assessment components that work their way up potentially to enforcement, depending on what, I guess, FERC does. FRCC doesn't have any sort of overlapping role in that. Your -- it's much more a coordination role just within the state, is that --

MR. CASTO: We do work with them on that. We are assisting them with the data input. So our members provide the input to their assessments. We actually help facilitate some of that. If anybody has worked with that data, it's very nuanced, so we help make sure that they are getting good data for their assessments.

Additionally, when they do perform their assessments, we will do kind of a quality control review of that, just to say, hey, this information does or doesn't look correct.

And I would say one of the things that we will be working on is emulating more of those analyses. So there is kind of a strong correlation between NERC, SERC and FRCC. So we kind of have that same view all the way through. We understand the data sets, and we are working well with them to make sure we are working in concert.

COMMISSIONER FAY: Gotcha. And do they provide some datasets, or is mostly the data you get from the utilities directly?

MR. CASTO: It's -- we are kind of balancing that out, but most of it is the member utilities who own the data are providing it. We have started providing a little bit more information to kind of curate and make sure that it is high quality before it goes to them, so it's a kind of symbiotic relationship with them.

COMMISSIONER FAY: Okay. Yeah, that makes sense. On the data entry side, you don't want bad data. It's hard to pull that back out, so you are trying to filter --

MR. CASTO: And we have had some instances of that that we are working with NERC and SERC to make sure that, you know, we are doing our part to make sure that the analysis and the dataset is valid, you know, all the way up to the top.

COMMISSIONER FAY: Okay. Great.

And then I know a number of us are involved in both regional and national organizations, where, you know, we are able to discuss energy topics that are occurring in other states, and sometimes, you know, share stories from a regulatory perspective.

Do you guys communicate with the other, you know, the other coordinating councils, I guess, and sort of compare notes? And I don't mean this in a critical way to them, but I just -- I feel like we do a really good job as a state, and FRCC has done a good job, that they -- it seems though that some of the other states that have maybe different reserves, different energy generation makeups, either by rolling blackouts, and you hear about these other things that are really impactful to, like, to the customer that then kind of come back on to the regulatory side. So do you work collaborative with them, or do you compare kind of notes as to what you might be doing well, or they might be doing well?

MR. CASTO: Yeah. I think there is multiple efforts there. There is obviously some standing touch points. For example, SERC provides that for us. We go to SERC. We have those conversations. We are talking to peers that are, you know, a couple of states away, or we have dependencies on. So we are heavily engaged in that.

We are getting more involved in the NERC more national level as well, being a little more deliberative about being involved in that space.

And then, you know, from my perspective, nothing beats some of these peer review site visits. You know the person to pick up the phone and talk to, and they have been great. Everybody likes to share what they do and share some of these experiences, so those are invaluable.

So we have been trying to be much more deliberate about those engagements and making sure our outreach isn't just contained here within Florida, but we are kind of hitting some of the regional, national, and then some specific peer outreaches that make -- that help us, you know, get better.

And we share information back and forth. It's a two-way learning streak, for sure.

COMMISSIONER FAY: Yeah, it's been helpful for us. I mean, I have either the fortune or unfortune of being chair of a committee in NARUC. And to that point, I have states come to me all the time and ask, from storm a restoration perspective, like, how does Florida do what they do? They constantly want to know that. And honestly, from economic regulatory perspective, we obviously have an economic role, and there is parts that we intake. But it's, for the most part, the people on the ground who implement those things and the logistics that are beyond complex to get, you know, power back up and running.

And so I just think we do a lot of things well. And they are not easy. It's just they are -- I think, from Florida's perspective, customers have an expectation with things like restoration, where they will come back on fairly quick because of sort of what history has shown us. So it's a difficult standard to meet, but I do appreciate what our folks do, because on a national level, we are constantly being recognized for doing that well.

I want to talk a little bit about data centers. So on slide 12, you provided a diagram of the planned reserve margins, and showed just kind of the strength of those for both a summer and winter load.

There is obviously a ton of dialogue about data centers and states, and, you know, incentive components, where these folks are choosing to go, why they are choosing to go there.

Can you just talk a little bit about, from a reliability perspective, if they are -- you know, if there is an appetite to bring in some of these folks. Which I -- you know, I think initially Florida's thought about with these storms. And when you look at the reliability data comparably to other states, it's very good. And so I think that hurdle has been kind of overcome as far as is that where we want to go.

But on the reliability side, you know, it's probably a big question of, okay, if those folks come in there and have a certain level of draw on the data centers that they are putting in, how do you guys then adjust -- and you had a little bit in your last slide, kind of, this is going to be a dynamic process, but how do you adjust or advise, you know, big picture, as to if it's implemented in one part of Florida, how will that impact this load distribution?

MR. CASTO: I will hit at real high level and see if Vince has something additional to add.

In general, we don't make those decisions. The individual utility is making that decision, what makes sense. They have to live up to the contract terms and conditions.

What we do is, as it's added, we make sure that the resources that are brought forward and the existing transmission system is planned effectively to accommodate that. So we are kind of that backstop to those decisions.

Honestly, it's been relatively recent that we are starting to see this, and Florida has some challenges to check the boxes for those large loads, given that we do have some exposure on hurricanes. And some of it is based upon dependencies on the -- on, like, fiber, you know, so the data channel is there.

But primarily, the local utilities are dealing with that, and planning how are they going to handle that. And we will check to make sure, again, that we can maintain reliability once they are interconnected.

Vince, did you have anything else to add there?

MR. ORDAX: Yeah, so the details of any specific ones would be reflected in our models, right, in our transmission study models, so we will be able to tell if there is enough transmission capability.

And on the resource side, obviously, the same thing. The models will tell us if the plan to add these data centers and the plan to expand the generation are going to work together or not. And so it's very important, and I think part of that slide, that the interconnection requirements that are put in place, be a contract, are really specific enough to give us the modeling information that we need so we can study them before they are connected, and to ensure that if there is anything special that needs to be done with those interconnections, that it's done, right, and planned ahead.

COMMISSIONER FAY: There is, to your point, some coordination. I understand what Aaron is saying, like, the decision is made in the territory the utility provided, but as far as -- I think you have got a 700-megawatt sort of estimate in your numbers, right, as far as that, that's based on some information for what you were able to run in your models that potentially would come in -- or I guess the data you are given gives you that estimate, is that --

MR. ORDAX: Right, the information, and it was pointed out in one of the member's Ten-Year Site Plans, that they did include 720 megawatts, I believe it was. So in our models will be -- there will be a spot where the member will say, hey, this is where the 720-megawatt data center is going to be in our model, right.

COMMISSIONER FAY: I gotcha. Okay. So that's kind of the next step --

MR. ORDAX: Yes.

COMMISSIONER FAY: -- that level of specificity, and then you kind of run your model to say this is maybe viable or not -- if it is going to be viable, this is what you will need.

MR. ORDAX: Yeah. And they will do that ahead of time. Obviously, they are not going to put something in the Ten-Year Site Plan that they haven't studied. So they have already studied it. So for us, it will be studying it together as the whole FRCC, and make sure that it's still working are for everybody.

COMMISSIONER FAY: Okay. And then just one more question, Mr. Chairman, and then I won't want to take up all their time.

You mentioned on slide 24 that there is the life cycle components of a data center, which were 15 and 20. I think you were here for EPRI's stuff, and you saw they were kind of shifting some of their models to three to five, you know, structures. And maybe that's more of a replacement than it is full life of, you know, every hardware components. But I guess because of how quick we are seeing some of this movement in the load growth discussion, are you going to see in your model some things like that that might -- I don't want to call them inconsistencies, but maybe things where, like, you just are going to need more information as these things come on-line to understand better how that load will actually be impacted?

MR. ORDAX: Yeah. Yeah. And so in every year, we will get updates to our model. And so as the more information and more is known about how these data centers behave, and where they are actually coming in place, our models updated every year. We do these studies, like I mentioned, every year. We repeat them with updated load forecasts, updated generation expansion models. So all of that.

Yeah, the 10 to 15 years that I pointed out, it was just an average from the industry. Some of these load centers, depending the type of load centers that they are and what their function is, they may have shorter lifespans, or they may have longer lifespans. But the data center itself can house, right --

COMMISSIONER FAY: Right.

MR. ORDAX: -- newer equipment. I am not -- you know, one thing we think -- we have been thinking is that, you know, the technology improves all the time. So, yes, these chips get faster and faster, but they also can consume less power too. So there might be efficiencies that we don't know about yet going forward, so it may not be an exponential increase. It may just be a regular increase. We don't know that yet.

COMMISSIONER FAY: Yeah.

MR. ORDAX: We would have to see until we get more data.

COMMISSIONER FAY: Yeah, it seems really hard to model that, or predict that based -- I mean, you know, you have historically certain types of large industrial customers and their uses. You have common generation that you are familiar with. I mean, maybe batteries are somewhat new. But other than that, you have these variables that are pretty sound in their numbers and research, and then you throw this load growth in on the data center side. It seems to have a lot of uncertainty to it and, you know, maybe that's -- there is lots of good arguments to bring them to Florida, and I think every state is competing to have them housed there. And, as a country, we are going to be building them everywhere --

MR. ORDAX: Yeah.

COMMISSIONER FAY: -- but it does seem like maybe some of that data, as it comes forward, will give you a better opportunity to advise as to where that load should be carried and could be moved around to make sure everything works.

MR. ORDAX: Yeah, agree.

COMMISSIONER FAY: Great.

All right. Mr. Chairman, that's all I have. I really do appreciate both of you for taking the time to being here and giving us detailed answers to the questions and just being responsive it our agency, so thank you.

CHAIRMAN LA ROSA: Thank you.

Commissioners, any further questions?

Commissioner Passidomo Smith.

COMMISSIONER PASSIDOMO SMITH: Thank you, Mr. Chair. I will be brief.

Thank you guys so much for being here. I just kind of wanted to go -- I focus a lot at NARUC on the natural gas side and natural gas planning, and specifically from the perspective of Florida, you have alluded to, you know, that we have just a few pipelines that are coming in, and right now, our generation is highly dependent on the resource.

So on, like, page 20, I would just -- if there is other contingency plannings that are reflected in the utility site plans that you have looked at to address fuel supply disruptions, and then any natural gas constraints that could, you know, potential natural gas constraints, those things that you have looked at?

I know that you -- that there is one position with the dual fuel capabilities, but if you could just expand upon that, just for my own knowledge.

MR. ORDAX: Yeah. Sure. So, yeah, we don't do the same studies every year, and we do pick different, like, loss of entire pipeline, say, for example, Gulf Stream, you know, and how long can we survive, or, you know, how much liquid fuel needs to be replenished. The replenishing of the liquid fuel of anything that's maybe more than four days will be very challenging because it's just the enorm -- the amount of fuel trucks, you probably wouldn't be able to do that.

So we are probably, on those catastrophic things, they can probably mitigate quite a bit in the first few days with the liquid. I know some of the members also have out-of-state gas storage that they can bring through. But now that we have three pipelines, ever since they added the Sabal Trail pipeline, that's improved the flexibility, and there a central -- there is a hub where they can interchange gas between the three pipelines there in Central Florida. So I think that's also improved -- minimized our risk.

But obviously, I think the highest -- the largest one is the Gulf Stream. It's in the Gulf. If, for some reason, there is damage, the repair time for that would be significant, right. And we do look at compressor station outages. On land it's a little bit different, because you see one line, but it's probably five pipelines, or four pipelines, not all of them are going to go. So it's only -- it's been -- it's usually a reduction in gas, and that can be accommodated with the liquid fuel most of the time, and that can go for a long time.

It's really -- the stuff that we have looked at before is the loss of the entire pipeline. And those, we have analyzed those, and depending on when it happens during the year, it can be a pretty significant event.

COMMISSIONER PASSIDOMO SMITH: Yeah. Yeah. No, I imagine.

And sort of incorporated in that, I know we are seeing a huge influx of residential generators, and then that impact on the natural gas, you know, for our LDCs and stuff, but that obviously takes up a resource. Does that have any impact generally for our reliability long-term?

MR. ORDAX: We don't have a lot of visibility into that. It's kind of on the customer side. The ones that I am aware of, they are mostly propane, so they are kind of independent from the gas pipeline. So from that perspective, I think there wouldn't be an impact, right. If there is an outage, their generator will start up. We don't have a way of tracking that in our models at all.

COMMISSIONER PASSIDOMO SMITH: Right. No, I know. I think that's been a challenge for both utilities as well, just to know customers that are -- that are, you know, have hooked up because they are using third parties and stuff to do it.

Mr. Chair, I just have one question. This is more of, like, a broad-based one about, you know, kind of -- we have sort of talked around it, but I am wondering, like, sort of what you guys think the key economic demographic assumptions that are driving these load forecasts, and, you know, how sensitive are these projections to migration patterns in Florida.

MR. ORDAX: So those are mostly -- I mean, we have a pretty strong migration to Florida, so we -- the -- all of the forecasts, the members have different database that they use, but they are all -- they are based on the demographics and population growth. That's the biggest driver, right. And if there is any new codes and standards that might provide efficiency in the appliances, and things like that, that's all taken into account.

But really, the biggest driver is residential load, and new load that's coming in. That's the biggest driver. We have a little bit of those impacts from EV and distributed energy resources that might shave it off a little bit, that actually reduces the forecast because that load is being served locally.

But, yeah, that's the biggest driver, and the economy. So if the economy is good, that's also an input into their load forecasts. But we don't --

at the FRCC, we don't do those forecasts. We just aggregate them.

COMMISSIONER PASSIDOMO SMITH: Okay. That's all I have. Thank you.

CHAIRMAN LA ROSA: Commissioners, any further questions? Excellent.

Gentlemen, thank you for your time. Very, obviously, intriguing, but important to what we do, and sometimes the background that's outside the regulatory framework of what we do day-to-day, but certainly important work. Thank you, guys, for coming in today. Always appreciate you guys being here with us.

MR. CASTO: Thank you for having us. Thank you.

MR. ORDAX: Yeah, appreciate it. Thank you. Have a good day.

CHAIRMAN LA ROSA: Thank you.

All right. So that concludes our presentation portion of today's meeting. I do know that I want to make some time for public comment. I see Mr. Rehwinkel, you wanted to share some comments. I will go ahead and recognize you, and you can sit in your assigned but not assigned seat, if that makes sense. I saw you on the other side today. Sir, you are recognized.

MR. REHWINKEL: Yeah, I mixed it up a little bit today. Thank you, Mr. Chairman.

Commissioners and participants, thank you. My name is Charles Rehwinkel, and I am the Deputy Public Counsel from the Office of Public Counsel, or OPC, and I want to do thank -- I do want to thank you for the opportunity to make brief comment on the Ten-Year Site Plan process.

Despite my normal role, I am not here to address the merits of any pending proceeding before you. On behalf of the Public Counsel and the OPC, I would like to offer some brief observations and a suggestion to the Commission.

We do not often get involved in this process. The Public Counsel is aware that this workshop is more for information sharing and discussion. It does not yield a decision or vote by the Commission to approve the resource plans as filed, as we understand it.

Certainly, we recognize that the plans carry some weight in the Commission's determinations about prudence and the agency's determination about future plans and ratemaking. It is because of this latter impact that we are here today to offer these comments.

The elephant in the room here, from our perspective, is the potential change before the agency in evaluating the resources needed by utilities to meet future load and the resulting costs to customers. Historically, and at least for the last several decades, the Commission has acknowledged a 20-percent planning reserve margin standard of sorts in evaluating the need for resources when challenged or when it has been required in need determination proceedings under the Power Plant Siting Act.

Traditionally, this has involved a comparison of the expected firm peak load compared to the available defined resources. As Tampa Electric explains at page 27 of their Ten-Year Site Plan, the calculation of the minimum 20 percent firm reserve margin employs an industry accepted method of using total available generating capacity and firm purchased power capacity, parentheses, capacity less planned maintenance and solar capacity unavailable at the time of peak demand, close parentheses, and subtracting the annual firm peak load, then dividing by the firm peak load and multiplying by 100. Capacity dedicated to any firm unit or the station power sales at the time of system peak is subtracted from the utility's available capacity.

This traditional expression of reserve margin has, since 1999, through a stipulation that applies to all generating electric utilities jurisdictional to this process, has been expressed as a percentage, and the minimum percentage has been accepted as 20 percent for most regulatory purposes.

The advent of renewable resources in Florida, primarily in the form of utility-owned solar generation on a typical utility-scale of about 74 megawatts, and increased resort to battery resources, has called this method into question here, and other parts of the country. In this undocketed proceeding, we are seeing, for the first time, a proposal to modify the way the concept of reserve margin and resource additions implicate the traditional probabilistic, no more than .1 loss of load event days per year loss of load probability resource adequacy criterion, with a proposed use of a stochastic LOLP method. The Public Counsel recognizes that it is not uncommon for this type of analysis to be used to evaluate the resource adequacy of electric utilities in other parts of the country.

It is possible that the SLOLP analysis that I referred to may contribute to certain resource addition choices that may impact the need for resources and increase costs to customers in future years.

The Public Counsel has retained a nationally known expert on resource planning who has stated that he conceptually agrees that it may be appropriate for Florida utilities to begin to utilize stochastic LOLP analyses in the future.

The proposition I want to offer here today in this ten-year site planning process, is that we urge that the analysis underlying any use of the SLOLP methodology should be correctly implemented, and to further suggest that if used, it should be subject to fully transparent analyses without resort to proprietary models and inputs.

We would like to advocate for a robust discussion surrounding whether the SLOLP process is ripe at this point in time for establishing the need for resource additions as expressed in the IOU Ten-Year Site Plans filed with the Commission.

In accord with our expert's position, the

Public Counsel urge -- opinion, the Public Counsel urges that the Commission refrain from giving any precedential endorsement at this time to the resources of any specific Ten-Year Site Plan, or the methodology offered in support of such resources as to both the level of those resources and the methodology, as they may also be at issue elsewhere. Other formal matters should be resolved as provided by law, and where they are governed by the formal hearing process provisions of Chapter 120.

In the meantime, the Public Counsel proposes to you that the Commission conduct a workshop and take testimony and input from stakeholders about the appropriate methodology and methodology verification process to be used, if at all, in the resource planning process in Florida as represented by the annual Ten-Year Site Plan process.

We believe that this workshop process should provide all generation utility stakeholders a reasonable opportunity prior and during the analysis to provide meaningful input with respect to the assumptions being utilized in any stochastic LOLP analysis process that may be adopted.

The workshop that we would propose should also involve coordination with all utilities jurisdictional to the Commission to -- or I should say all generation utilities jurisdictional to the Commission to help ensure that a consistent approach is used for stochastic LOLP analysis in Florida.

In this naissant part of a potential transition to a probabilistic determination of the appropriate resource addition threshold, the Public Counsel further recommends that the Commission and its staff consider undertaking to review any proposed new resource planning methodology by any juris -- that any jurisdictional IOU proposes through the use of an independent third-party not affiliated with either the utility or the contractor who performed -- might have performed the analysis on behalf of the utility.

That's a bit of a mouthful, Mr. Chairman and Commissioners, but I wanted to put it on the record that we are asking you to at least consider seriously a process where we can look at this more holistically, gather input from all stakeholders so that the planning that you have heard about here today is consistent and fair to all.

Thank you, and I am here to answer any

questions.

CHAIRMAN LA ROSA: Awesome. Understood the suggestions.

Commissioners, questions? Excellent.

Thank you. Very much appreciate it.

Is there anyone else here from the public that would like to speak? Seeing none, staff, any further business before us?

MR. MARQUEZ: Mr. Chairman, staff would like to note that, as detailed in the notice, interested persons may file written comments until October 7th, 2025, with the Commission Clerk by 5:00 p.m.

CHAIRMAN LA ROSA: Excellent. Thank you.

Commissioners, any further business? I know it's been a long day. Seeing no further business before us, gentlemen, again, thank you. Thank you all that have participated, and no -- nothing before us, this meeting is adjourned.

Thank you.

(Proceedings concluded.)

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 26th day of September, 2025.

DEBRA R. KRICK
NOTARY PUBLIC
COMMISSION #HH575054
EXPIRES AUGUST 13, 2028