BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

DOCKET NO. 150196-EI

PETITION FOR DETERMINATION OF NEED FOR OKEECHOBEE CLEAN ENERGY CENTER UNIT 1, BY FLORIDA POWER & LIGHT COMPANY.
_____/

VOLUME 1

(Pages 1 through 136)

PROCEEDINGS: HEARING

COMMISSIONERS PARTICIPATING: CHAIRMAN ART GRAHAM
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER RONALD A. BRISÉ
COMMISSIONER JULIE I. BROWN
COMMISSIONER JIMMY PATRONIS

DATE: Tuesday, December 1, 2015

TIME: Commenced at 9:35 a.m.
Concluded at 12:00 p.m.

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

REPORTED BY: LINDA BOLES, CRR, RPR
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JON C. MOYLE, JR., and KAREN PUTNAL, ESQUIRES, Moyle Law Firm, P.A., 118 North Gadsden Street, Tallahassee, Florida 32301, appearing on behalf of the Florida Industrial Power Users Group.

BRADLEY MARSHALL, ALISA COE, and DAVID GUEST, ESQUIRES, Earthjustice, 111 South Martin Luther King Boulevard, Tallahassee, Florida 32301, appearing on behalf of Environmental Confederation of Southwest Florida.

J.R. KELLY, PUBLIC COUNSEL, and PATRICIA CHRISTENSEN, ESQUIRES, Office of Public Counsel, c/o the Florida Legislature, 111 W. Madison Street, Room 812, Tallahassee, Florida 32399-1400, appearing on behalf of the Citizens of the State of Florida.

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I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
1	Comprehensive Exhibit List	16	16
2 - 72	(As identified on Comprehensive Exhibit List)	16	16
73	Excerpt of FPL's 2015 Status/ Update Report on Storm Hardening/Preparedness and Distribution Reliability	109	
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75	FPL Residential Load Control Program Rate Sheets 8.217, 8.218, and 8.219	112	
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P R O C E E D I N G S

CHAIRMAN GRAHAM: Good morning, everyone.

(Chorus of good mornings.)

One more time. Good morning.

(Chorus of good mornings.)

There we go. I apologize for the late start. Technical difficulties, but we have them fixed and I think we're ready to go.

I'm glad you're all here on this bright and sunny Tuesday morning. This is the hearing for Docket 150196-EI. Let the record show it is Tuesday, December the 1st, and we'll call the meeting to order. And, staff, if you can read the notice, please.

MS. CORBARI: Good morning. By notice issued October 23rd, 2015, this time and place was set for this hearing in Docket No. 150196-EI, petition for determination of need for Okeechobee Clean Energy Center Unit 1 by Florida Power & Light. The purpose of this hearing is set forth in that notice.

CHAIRMAN GRAHAM: Okay. Let's take appearances.

MR. COX: Good morning, Chairman Graham and Commissioners. Will Cox here on behalf of Florida Power & Light. And with me also on behalf of Florida Power & Light is Charles Guyton with the Gunster Law Firm.

MR. MOYLE: Good morning. Jon Moyle with the Moyle Law Firm appearing on behalf of the Florida Industrial Power Users Group. We refer to the group as FIPUG. And I'd also like to enter an appearance for Karen Putnal with our firm.

MR. WHITLOCK: Good morning, Mr. Chairman, Commissioners. Jamie Whitlock with the Davis & Whitlock Law Firm appearing on behalf of the Southern Alliance for Clean Energy, commonly referred to as SACE. Thank you.

MR. MARSHALL: Good morning. Bradley Marshall from the Earthjustice Law Firm appearing on behalf of the Environmental Confederation of Southwest Florida, also known as ECOSWF. I'd also like to enter an appearance for David Guest and Alisa Coe also from the Earthjustice Law Firm. Thank you.

MS. CHRISTENSEN: Good morning. Patty Christensen with the Office of Public Counsel. And I would also like to put in an appearance on behalf of J. R. Kelly, Public Counsel. Thank you.

MS. CORBARI: Kelley Corbari and Leslie Ames for Commission staff.

MS. HELTON: Mary Anne Helton, advisor to the Commission.

MR. BECK: Charlie Beck, General Counsel.

CHAIRMAN GRAHAM: Okay. I believe that's all the appearances. Preliminary matters.

MS. CORBARI: Commissioners, staff would like to note that SACE witness Natalie A. Mims has been excused from the hearing. SACE will seek to enter her testimony and exhibits into the record at the appropriate time.

There is one pending motion for the Commission to consider. On November 30th, ECOSWF filed for a motion for reconsideration or clarification of Order No. PSC-15-0540-PCO-EI issued on November 20th denying the additional issues proposed by SACE. FPL filed a response in opposition this morning. OPC has joined the reconsideration. SACE supports the motion. FIPUG does not object to the motion. Staff recommends that each side for and against collectively be allowed five minutes to present their arguments on the motion.

CHAIRMAN GRAHAM: All right. Let's handle that first. I guess ECOSWF and everybody else that's for the motion, you guys have five minutes.

MR. MARSHALL: Thank you, Mr. Chairman. I won't take that entire five minutes. Really we're moving for reconsideration because we believe that the 20 percent criteria, reserve margin criteria that FPL seeks to use in this proceeding should not be binding.

FPL cites the Hines decision from 2003. That decision was made with different parties, a different utility, and in the immediate aftermath of the 1999 stipulation. It is now 2015, sixteen years later. In the context of this need proceeding, it is time to examine the reliability needs of Florida Power & Light in this specific proceeding.

We seek clarification to the extent that the order could be read to imply that no questions regarding reliability are allowed beyond whether the -- FPL correctly projected that they are going to go below the 20 percent reserve margin. We believe such a reading of the ruling would be contrary to the statute, contrary to the rules, and thus we seek clarification to the extent that the ruling does preclude questions regarding the reliability of Florida Power & Light's system. Thank you.

CHAIRMAN GRAHAM: Is there anybody else that wants to speak in favor of the motion? We have four minutes left.

Ms. Christensen.

MS. CHRISTENSEN: Yes. I just would like to echo what the counsel for ECOSWF has stated today. I think, as the Commission has noted on numerous occasions, past Commissions can't bind present

Commissions. So while the Commission can use that as guidance and -- it should not be used as a matter of settled law because it doesn't have necessarily that effect.

And we would ask that the order be clarified because you still have an issue, Issue 1, which talks about whether or not the reliability needs of FPL have been met, and we want to be able to address those, not only addressing the 20 percent reserve margin, but the rules that the Commission has in place as well as what's required by the statute. And the way the order was originally drafted, and maybe not intentionally, it appears that we may not be able to address the applicability of the 20 percent reserve margin in this need determination in making the decision about whether the reliability criterion needs to be met. So for that reason, we would ask that you consider that order or make that clarification that Issue 1 allows for that type of argument and that type of questioning. Thank you.

CHAIRMAN GRAHAM: Thank you. Anybody else for the motion? You've got two and a half minutes left.

MR. WHITLOCK: Mr. Chairman, SACE would just adopt the arguments made by counsel for ECOSWF and OPC and note its support of the motion for reconsideration

for the record.

CHAIRMAN GRAHAM: Okay.

MR. WHITLOCK: Thank you, sir.

CHAIRMAN GRAHAM: Okay. Against.

MR. COX: Thank you, Chairman Graham. For Florida Power & Light Company, from our standpoint the Prehearing Officer has made a very clear ruling on the additional issues proposed by SACE. There are two issues that involve application of the 20 percent reserve margin in this proceeding, and then if it's not addressed or changed, I guess, as the Intervenors would have it in this case, that it be addressed in a generic proceeding and have those as specific issues for the Commission to address.

The clear precedent that the Commission has set since the approval of the 20 percent reserve margin since 1999 is to use that in the need determination proceedings for the impacted, affected peninsular IOUs, which includes FPL, Duke, and TECO. And, in fact, when it's been raised in the Hines 3 case, as the Prehearing Officer correctly cited in his order in terms of whether it could be changed in an individual utility's need determination proceeding, the Commission has decided in that Hines 3 case that it should not be changed, that it would only be changed in a generic proceeding.

We're not in a generic proceeding today. We're in FPL's need determination request. We don't think it's appropriate for this case. Now this is the third time in this case that this issue has been attempted to be raised by ECOSWF. ECOSWF raised it in its own issues, which the Prehearing Officer denied. They did not seek reconsideration of that ruling, which was in the prehearing order. They also have supported SACE's inclusion of their issues, which were, again, denied by the Prehearing Officer. And now they seek reconsideration now a third time essentially of the ruling on denial of the SACE issues.

We don't think that that's appropriate here, and it's certainly not a grounds for reconsideration. You're not supposed to reargue things to the full Commission when you seek reconsideration. It should be something that the Prehearing Officer overlooked or failed to consider. It's not the case here.

They raised a couple of additional points regarding the Commission's rule that addresses shared reserves. They didn't mention that today. But, again, that rule actually says that it's not intended to set a prudent level of reserves for long-term planning or reliability purposes. So we think that argument is misguided and clearly considered, I think, by the

Prehearing Officer and rejected.

And, lastly, the issue that they raise about a broad interpretation of the Prehearing Officer's order, if you look at the clear languages, there's no need for any such broad interpretation. We think the order is quite clear. You know, the order precludes any evidence -- the argument, I guess, that they're making is that the order precludes any evidence from the parties on reliability or says that the Commission would automatically grant FPL's need determination request if FPL, in fact, properly projects its reserve margin would drop below 20 percent. That is nowhere in the order, so there's no need to clarify that point.

The parties can address reliability and integrity and the need for this unit that FPL is requesting in this need determination in the context of Issue 1. The Prehearing Officer has made it very clear what can be addressed and what cannot be addressed. Commission precedent indicates and backs up that ruling. So we would ask that you would reject this motion, deny this motion for reconsideration, and we don't think that any further clarification is needed. Thank you.

CHAIRMAN GRAHAM: Thank you.

Okay. Commissioners, I assume that we've -- everybody has gotten a copy of the motion and a copy of

the reply. Any discussion? Commissioner Brown.

COMMISSIONER BROWN: Thank you, Mr. Chairman. And I'm -- I think I know where I'd like to go on this, but I wanted to hear from staff first before I asked -- made any comments.

MS. CORBARI: Commissioners, this -- actually this issue, these issues also came up during the Issue ID meeting. Staff would just like to note that in addition to the Hines order, the -- approving this stipulation -- that said the stipulation is approved, the peninsular utilities have also used the 20 percent reserve margin annually in their Ten-Year Site Plans. So that's further precedent for their -- for the use, for the use of the 20 percent reserve margin.

Staff's opinion is that it's not that the Intervenors cannot speak to the need of the 20 percent in terms of under Issue 1 that any -- that less than 20 percent there's no harm to the reliability or integrity of the system. It's attacking the nature of the stipulation and the Commission's approval of the 20 percent reserve margin that is not appropriate for this proceeding.

COMMISSIONER BROWN: Thank you for that clarification, and that's exactly what I was going to. And, again, the parties are not precluded from

discussing the reserve margin as long as it's within the framework of Issue 1. I think the Prehearing Officer's order is clear on its face, and I would respectfully deny the motion.

CHAIRMAN GRAHAM: Was that a motion?

COMMISSIONER BROWN: Yes.

COMMISSIONER EDGAR: Second.

CHAIRMAN GRAHAM: It's been moved and seconded to deny the motion. Is there any further discussion? Seeing none, all in favor, say aye.

(Vote taken.)

Any opposed? By your action, you have approved the Brown motion.

Any other preliminary matters? Okay. Let's go to exhibits. Staff.

MS. CORBARI: Staff has compiled a stipulated Comprehensive Exhibit List which includes the prefiled exhibits attached to the witnesses' testimony in this case. The list has been provided to the parties, the Commissioners, and the court reporter. The list is marked as first hearing exhibit, and the other exhibits should be marked as set forth in the chart. The parties have stipulated to staff's exhibits. Staff requests that the Comprehensive Exhibit List marked as Exhibit 1 be moved into the record at this time. Staff would move

the items marked as Exhibits 2 through 72 into the record as set forth in the Comprehensive Exhibit List. Staff would request that any other exhibits proffered during the hearing be numbered sequentially following those listed in staff's Comprehensive Exhibit List.

CHAIRMAN GRAHAM: So seeing no objections, we will enter --

MR. MOYLE: I just want to be clear, we don't have an objection to that coming in. I'm not sure we've affirmatively agreed to stipulate to it, but it's a minor point. I just wanted the record to be clear.

CHAIRMAN GRAHAM: Is there any objections to Exhibits 1 through 72 going into the record?

MR. COX: Chairman Graham, no objections from FPL, but just to note that 71 was withdrawn just so it's clear.

CHAIRMAN GRAHAM: Okay.

MR. COX: I think it's noted on the list.

CHAIRMAN GRAHAM: Okay. I have no objection, so we'll enter Exhibits 1 through 72 in the list, understanding that 71 has been stricken or struck.

(Exhibits 1 through 72 marked for identification and admitted into the record.)

Staff, is there anything else under exhibits?

MS. CORBARI: No, sir.

CHAIRMAN GRAHAM: All right. Public testimony. Is there anyone present that would like to give a public testimony on this -- what's coming before us in this hearing? I see no hands or nobody flailing, so there's no public testimony. Staff, are you aware of anybody that wishes to speak?

MS. CORBARI: Staff is not aware of anyone.

CHAIRMAN GRAHAM: Okay. Next is going to be opening statements. But before we get into that, I'd like to give everybody a feel for the way the hearing is going to go.

I must be getting soft in my older age. We're probably going to end today, I'm guessing sometime around 4:30, 5:00. We'll probably stop for lunch. I'd like to stop about 12:30 or so, because I know if I let you guys out of here at quarter 'til or 12:00, then you're fighting all the other rush of people trying to get food and get back here. So we'll stop for lunch at about 12:30 or so. Tomorrow we'll start as normal, at 9:30. We will try to break once again around 12:30. And I'd like to say we'll be done by 5:00, but the reality is we're done when we're done because we have to be done tomorrow. So hopefully we'll be done long before 5:00, but we'll see how things go. And then agenda is again on Thursday morning. If for some reason

we're not done by midnight tomorrow, then we'll probably have to continue this after agenda tomorrow -- Thursday. Is there any questions on the time frame that we're looking at?

Okay. Opening statements. Each party will be allowed seven minutes for the opening statements. And, FP&L, let's get started.

MR. COX: Thank you, Chairman Graham.

Good morning, Commissioners. Again, Florida Power & Light Company is requesting an affirmative determination of need for the Okeechobee Clean Energy Center Unit 1. As proposed in FPL's petition and its testimony, the Okeechobee unit is a state-of-the-art combined cycle unit scheduled for commercial operation June of 2019. The Okeechobee unit is projected to be the most efficient combined cycle unit in the state of Florida with a heat rate of 6,304 Btu per kilowatt hours at 75 degrees Fahrenheit.

The Okeechobee unit would meet FPL's customers' projected resource needs in 2019 and beyond at the cost of $1.196 billion. Consistent with FPL's commitments in its petition and its testimony, FPL has continued to look at improved performance for the proposed unit. Now as a result of this review and also taking into account more recent load and fuel forecast

information, FPL has enhanced the design of the Okeechobee unit and updated its reliability need and economic analyses.

Our updated analyses continue to show a significant need for capacity in 2019 at 904 megawatts which increases in subsequent years. The refreshed analysis also shows that enhanced and more efficient unit design will increase summer capacity from 1,622 megawatts to 1,633 megawatts. Now this 11-megawatt increase in output will mean real savings for our customers. Specifically while the costs of Okeechobee have increased by $36 million to a total of $1.232 billion, the unit's heat rate actually has declined from 6,304 Btu per kilowatt hours to 6,249 Btu kilowatt hours, which is significant because what it results in is increased CPVRR savings to our customers by $35 million. FPL has provided all of this updated information to the Commission and all parties to the proceeding and it's shown in staff's stipulated exhibits. FPL witnesses are available to answer any questions on these exhibits.

So, Commissioners, while some of the estimates in the analyses have modestly changed through this process, the ultimate conclusion has not. Okeechobee is needed and it will produce significant reliability

benefits and CPVRR cost savings for our customers.

The Okeechobee unit will achieve three important things for our customers at FPL as well as the state of Florida: Reliable service, cost savings, and a more efficient system. Without the Okeechobee unit, FPL will not meet two of its reliability criteria starting in 2019, but with it FPL will meet all of its reliability criteria through 2023. FPL will meet its reliability criteria at a remarkably low cost compared to recent combined cycle additions in Florida at a cost of $754 per kilowatt. And, finally, the Okeechobee unit will enhance the efficiency of FPL's generating system, generating fuel savings for our customers from its initial date of operation.

Put simply, the Okeechobee unit is the best and the most cost-effective option with which to meet the needs of our customers, and it satisfies the criteria for a need determination under Section 403.519 of the ***Florida Statutes***. It helps to maintain FPL's system reliability and integrity, it provides adequate electricity at a reasonable cost, and it is needed after accounting for all reasonably achievable and cost-effective renewable and conservation available to FPL, and that includes the 223 megawatts of utility scale solar that FPL will bring online in 2016 and the

conservation that the Commission has previously found to be reasonably achievable. It will result in the lowest system cost and the lowest electric rates for FPL's customers of any alternative proposed or considered, and that includes both FPL's own self-build proposals as well as third-party options, saving FPL's customers tens of millions of dollars over the next best alternative.

The Okeechobee unit will also provide other strong benefits, and that includes an excellent environmental performance level and significant economic benefits, which include a projected $238.8 million in projected local tax revenues, 650 temporary jobs, and 30 permanent jobs.

Commissioners, the Intervenors have not disputed two of the most important foundations for approval of FPL's need determination request. First, the Intervenors do not dispute that when utilizing FPL's existing reliability criteria, FPL projects a significant resource need beginning in 2019 and increasing in subsequent years. And, second, Intervenors do not take issue with the fact that the results of FPL's extensive analyses demonstrate that the proposed Okeechobee unit is the most cost-effective, best self-build generating option to meet its need. Instead, the Intervenors would seek to overturn prior

Commission decisions and upend basic principles of resource planning.

The Intervenors have effectively sought to have the Commission reconsider its December 2014 DSM goals decision now less than a year after that decision, and the Prehearing Officer has found that to be improper in this proceeding and has stricken relevant portions of the Intervenor testimony.

The Intervenors have also attempted to contest FPL's use of a 20 percent reserve margin as a reliability criterion, and the Prehearing Officer has correctly ruled that that 20 percent reserve margin cannot and should not be changed in an individual utility's determination of need case, and you have affirmed that ruling today.

Finally, the Intervenors seek to eliminate FPL's generation-only reserve margin criteria. Now this reliability criterion is particularly important for FPL's customers because it helps to ensure a sufficient level of generation resources to respond to unexpected events such as significant weather events, which are a regular part of the state's climate.

The Intervenors' flawed arguments have been thoroughly rebutted and should be rejected. So, accordingly, Commissioners, FPL would request that the

Commission grant FPL an affirmative determination of need for the Okeechobee Unit 1 in 2019. As proposed, this unit will provide firm capacity to reliably serve our customers. It's projected to deliver solid cost savings to benefit our customers --

CHAIRMAN GRAHAM: You have one minute left.

MR. COX: -- and will improve the efficiency of our system. Respectfully, therefore, it's in the best interest of FPL's customers that the Commission grant an affirmative determination of need for the Okeechobee Clean Energy Center Unit 1. Thank you for this opportunity to provide an opening statement on behalf of FPL.

CHAIRMAN GRAHAM: Thank you.

OPC, I take it you're first?

MS. CHRISTENSEN: Good morning, Commissioners. Patty Christensen with the Office of Public Counsel.

First, we would like to note that FPL has the burden of proof for requesting and justifying its request to build the Okeechobee Unit 1. The Commission has used loss of load probability and margin reserve as part of its criteria to determine the need for a new unit. And there's no issue with the use of those two criteria, the loss of load and margin reserve. In fact, OPC has no issue with FPL's use of the .1 loss of load

probability, which translates to a loss of load one day for every ten years. We do have an issue with FPL's application of the 20 percent minimum reliability criterion in the context of this need determination proceeding in addressing the need for power in 2019.

The Commission, under Section 403.19(3), *Florida Statutes*, has an obligation to make its determination taking into account the need for electrical system reliability and integrity. The Commission has established by Rule 25-6.035, *Florida Administrative Code*, its criteria for determining the adequacy of resources. This adequacy of resources criteria established by Commission rule should be applied in this need determination.

Under Rule 25-6.035, the utilities are required to maintain at a minimum a 15 percent planned reserve margin. To quote the rule, it says, "To achieve an equitable sharing of a reserve margin, peninsular Florida utilities shall be required to maintain at a minimum a 15 percent planned reserve margin." Applying the Commission's rule of a 15 percent reserve margin, the Okeechobee Unit 1 is not needed as proposed June 1st, 2019, date since the reserve margin would be 15.7 percent.

The stipulation which OPC did not sign and

which the IOUs agreed to plan to a 20 percent reserve margin is over 15 years old and things have changed. Reliability of the generating units added to FPL's system have improved over the last 15 years, solar has been added to FPL's system. The makeup of the system has become more robust, and the system doesn't need the same level of reserves it did back in 1999. Moreover, the stipulation specifically states that electrical Power Plant Siting Act need determinations are unaffected by the stipulation and its approval.

The Commission used the 20 percent reserve margin in the Hines docket, which involved Progress Energy, less than four years after the stipulation was approved and before the 2004 reserve -- 20 percent reserve margin had been reached. In other words, it had set a goal for 2004 and that had yet to be reached. We note that Hines is a single utility docket and not a generic docket and cannot modify the generic order approving the express language of the stipulation. But as I said before, over 15 years have passed and FPL continued to add more reliable and efficient units, so the need for the 20 percent reserve margin has diminished over time.

As to the 10 percent generation-only margin reserve, we note the Commission has not approved the use

of the 10 percent generation-only margin reserve and should not do so here. Commission rule 25-6.035 establishes the required spinning load needed for peninsular Florida. First, the rule requires that the operating reserves shall be maintained by the combined peninsular Florida system, then the rule outlines how the values should be determined, then the rule states that at least 25 percent of the operating reserves shall be in the form of spinning reserves, which are automatically responsible to frequency derivations from normal. Spinning reserves are met with generation.

By rule, the Commission -- FPL has been allocated its portion of operating reserves. OPC submits that the additional proposed 10 percent generation-only margin reserve criteria is unnecessary. As noted above, OPC does not dispute the use of the loss of load probability or reserve margin and believe these criteria sufficient for the Commission to determine whether or not there's a need for the new unit. Applying FPL's .1 loss of load probability and the Commission rule's 15 percent reserve margin not only helps to avoid contributing to uneconomic overbuilding of generation but, when applied, shows that the Okeechobee Unit 1 is not needed in 2019. Thank you.

CHAIRMAN GRAHAM: Thank you.

ECOSWF.

MR. MARSHALL: Thank you. Today we intend to show that FPL has a fantastically reliable system and that, therefore, you should deny their petition for a need determination.

Today you're guided by Section 403.519(3), *Florida Statutes*, which sets out clear requirements in this proceeding. The Commission must take into account the need for electric system reliability and integrity, the need for adequate electricity at a reasonable cost, the need for fuel diversity and supply reliability, whether the proposed plant is the most cost-effective alternative available, and whether renewable energy sources and technologies as well as conservation measures are utilized to the extent reasonably available.

Today I would like to first focus on reliability. This is currently measured, typically measured with two criteria, and these criteria are used as indicators to determine whether there might be an issue. Just because both criteria are being met does not mean that there's absolutely no chance of a blackout ever happening, and just because one criteria is not met doesn't mean that there are going to be rolling

blackouts all the time.

The reserve margin -- the first criteria I'd like to talk about is the reserve margin, and that's 20 percent from the 1999 stipulation, there's a 15 percent by rule. It's a simple calculation. It's max generation capacity compared to the max projected peak power demand. It doesn't take into account the age of a generation fleet, it doesn't take into account the reliability of that fleet, it doesn't take into account the maintenance schedule of that fleet. Not all reserve margins are created equal. You could have a generation fleet made up of nuclear and combined cycle gas units with a 10 percent reserve margin that could be substantially more reliable than an older fleet of coal plants with a 25 percent reserve margin that has a high forced outage rate.

There is a direct measure of the probability that there might be a blackout, a loss of load, and this is called the loss of load probability criterion. This is the blackout risk from lack of available generation, and it's calculated directly and does take into account the reliability of the generation fleet.

FP&L, quite sensibly, uses a 0.1 days per year standard. This is equivalent to one day in ten years, meaning that over a ten-year period you would expect

there would be one peak where not all firm load would be able to be met. In 2014, FPL calculated this probability for this year, 2015, and found it to be one day in 3,000 years approximately for their system.

Why is FPL's fleet so reliable? They have a new generation fleet with many plants. If you have more plants and one goes offline, it is less likely that there will be a blackout than if you have two plants and one goes offline. With low forced outage rates and many plants, FPL also has a high equivalent availability factor, which makes blackouts even less likely. With high reserves and a new fleet they've achieved this incredible reliability. This can be demonstrated with the winter event of 2010, January 11th, 2010, where FPL faced its highest peak ever due to the extreme cold. Even with that event, FPL's generation system was so reliable that they were able to sell over 500 megawatts of power to a sister utility in Florida and still have over 1,000 megawatts of demand response reserves available.

If you look at the loss of load probability criterion into the future and under even their new projections without any additions in 2019 or 2020, if there's just no power added and no power purchase agreements, they're still not even close to violating

this criterion in 2020, let alone 2019.

FPL in this proceeding also wants this Commission to approve the 10 percent generation-only reserve margin criterion, but based on the direct blackout risk indicator that they have, the loss of load probability criterion, this isn't needed. They have an incredibly reliable system and they want to add a $1.2 billion power plant. This power plant, if approved, will put upward pressure on rates and customer bills will almost certainly go up as a result.

We intend to show that their system will continue to be reliable without this power plant; therefore, we'll ask that the Commission deny the petition for need determination. And to the extent the Commission does find that FPL does have any need, we will urge the Commission to use -- that FPL can use incremental demand-side measures to meet that need. Thank you.

CHAIRMAN GRAHAM: Thank you.

SACE.

MR. WHITLOCK: Once again, good morning, Mr. Chairman, Commissioners.

The evidence in this matter will show that FPL's proposed Okeechobee Clean Energy Center Unit 1 project is not needed as it will result in the

uneconomic overbuilding of generation capacity at an unreasonable cost to FPL ratepayers under the guise of reliability. Furthermore, the evidence will show that FPL has failed to utilize reasonably available renewable energy sources, solar in particular, as well as reasonably available conservation measures, namely energy efficiency, which might mitigate the need for this proposed project as it is required to do by Section 403.519 of the ***Florida Statutes***. In fact, FPL's testimony shows it has done nothing more than pay lip service to its obligations under Florida law to utilize reasonably available solar energy resources and energy efficiency in an attempt to simply placate the Commission and do what it has intended to do from the beginning of this process, build the Okeechobee Clean Energy Center Unit 1 natural gas plant.

Now in order to create the appearance of need for this project, FPL relies on two unsubstantiated reliability criteria: First, a 20 percent total reserve margin criterion and, second, a 10 percent generation-only reserve margin criterion which was only recently created by FPL.

Regarding the 20 percent reserve margin criterion, FPL's reliance on this criterion is erroneous for several reasons. First and foremost, FPL's sole

basis for using this 20 percent criterion as an alleged need for this project is a 1999 stipulation whereby FPL agreed to adopt a 20 percent reserve margin planning criterion. Now I want to be clear, SACE is cognizant that the Commission approved that stipulation and is not challenging that approval in this docket. However, FPL cannot, as a matter of law, rely on that stipulation as a basis of need in this docket because the plain language of the stipulation provides that it does not apply to need determinations.

Second, even if we are to ignore the express language of the stipulation, FPL's reliance on the 20 percent reserve margin is significantly outdated. FPL adopted the stipulation in 1999, 16 years ago, and the stipulation was based on historical conditions at that time which no longer reflect reality, including, but not limited to, the improved reliability of FPL power plants.

The outdated nature of FPL's reliance on a 20 percent reserve margin criterion leads me to my third point, that the 20 percent reserve margin is unsupported and excessive. The evidence will show that FPL has not in many years conducted a proper and comprehensive reserve margin study which would demonstrate what the company's appropriate reserve margin is -- 20 percent,

more than 20 percent, less than 20 percent. And I want to be clear here, the Commission is going to hear a lot over the next couple of days from FPL about anecdotal, self-serving, in-house analyses that it claims support the ongoing viability of a 20 percent reserve margin, and that's not the type of comprehensive reserve margin study that I'm talking about. In fact, the only recent study of any type performed by FPL concluded that its appropriate reserve margin was less than 20 percent. The completion of such a study would allow the Commission to properly evaluate a petition of this magnitude, an importance to FPL's ratepayers, and, moreover, it would allow the Commission to balance some of the core competing interests at play in Section 403.519 of the ***Florida Statutes***. In particular, the need for electrical system reliability versus the need for adequate electricity at a reasonable cost. And I really believe that's what is at the heart of the issue in this docket.

Now regarding the FPL-created generation-only reserve margin criterion, the Commission should reject FPL's use of this criterion in its resource planning because it's simply unnecessary, and FPL has failed to present any evidence of a problem that this criterion is needed to solve. It was created by FPL in response to

two events: The Commission's 2009 DSM goals order, which goals FPL never had to implement and which have now, of course, been replaced through the goals set in 2014 by the Commission; and an isolated extreme weather event and corresponding high load situation in January of 2010, which has not been repeated as we sit here almost six years later. Neither of these events justify Commission approval of a new reliability criterion that is not generally accepted throughout the utility industry.

Furthermore, the evidence will show that FPL's analyses submitted in support of this criterion do not demonstrate that it's needed to ensure reliability for FPL's customers. In fact, FPL's own analyses show that its loss of load probability, or LLOP, criterion, which we've heard ECOSWF and OPC talk about this morning, which is an established industry reliability criterion --

CHAIRMAN GRAHAM: Just to let you know, you have one minute left.

MR. WHITLOCK: Thank you, Mr. Chairman. Will not even be slightly at risk without this FPL-created criterion. Ultimately, this generation-only reserve margin is nothing more than an inherently skewed criterion that, if approved, will serve to minimize the

potential positive impacts of conservation and FPL resource planning and instead conveniently guide FPL's resource decisions towards building new power plants; thereby, resulting in the uneconomic overbuilding of generation, again under the guise of reliability.

Given the foregoing, the Commission should review FPL's petition in this docket using a 15 percent reserve margin, which has been subjected to updated scrutiny and review by the Florida Reliability Coordinating Council, and reject FPL's proposed generating reserve margin.

In conclusion, SACE respectfully requests the Commission deny FPL's petition for a determination of need for this project and, furthermore, direct FPL, in a generic proceeding or otherwise, to conduct a comprehensive reserve margin study. And if the results of that study support the need for a generation -- for additional generation, FPL can certainly come back and submit a new petition at that time. Thank you.

CHAIRMAN GRAHAM: Thank you.

FIPUG.

MR. MOYLE: Thank you, Mr. Chairman.

Like the Office of Public Counsel, FIPUG is requiring FPL to prove its case, so we've put at issue FPL's petition to have you approve the Okeechobee power

plant, the new power plant that they want to build. I want to just start with a couple of observations about FIPUG and its objectives, which are to assure that adequate electric supply is available at reasonable cost, and the reasonable cost is a key component. There are a lot of statutes and rules that govern this proceeding today. You have your own set of rules, you have statutes, and you'll hear testimony about those today.

FIPUG is going to spend some time focusing on one aspect, unlike my colleagues with respect to where they're going to focus. I just want to preview that with you to give you the proverbial heads up as to why these questions will be asked. But you all have in place a Bid Rule, and the Bid Rule has been in place for 21 years, and it's required that utilities go through a process to ask others, to say give us your best shot at what it would cost you to propose to build a power plant. And I think the reason the Bid Rule is there is because under FPL's business model, and I don't mean any aspersions on this, but the way their business model works is that they earn a return on their invested capital. So the economics are such that, you know, the more you spend, the more would you would earn a return on. The Bid Rule acts to test, in effect, the market

with respect to who potentially could come in and compete and provide a proposal that would be more cost-effective.

In this case, you'll hear FPL say that they had 40 something people show interest in this power plant in the Bid Rule. They put out an RFP, 44, 46, I'll ask Mr. Sim the exact number, of proposers said, yeah, we're interested. At the end of the day, only one submitted a proposal, and that proposal wasn't even reviewed by FPL.

Now there will probably be a little bit of discussion and debate about, well, why is that? FPL will say, well, because ours is the best and the cheapest and the most efficient. But I think it's also telling, and I think Mr. Sim will acknowledge this, that the Bid Rule in its over 20 years of existence has never been used to select someone other than the utility that's been proposing the plant, never. And so it leads to a question, you know, are consumers really getting a rigorous scrub of the numbers, and I think in part because the judge of the proposals is the utility. There's no Commission person that sits in there and looks at the proposals and goes through it. It's an FPL judgment.

Some people have analogized it to kids that

are on a basketball team that you have one of the dads being a referee in a basketball contest and somehow the son or daughter of the father never fouls out of the gain.

So, anyway, I wanted just to set the stage a little bit to suggest -- there's been talk about other criterion, but the Bid Rule criterion is an important one. And as you all hear testimony, it may be time to take a look at that rule and make it a little more rigorous, make it a little more robust, probably have some Commission oversight on it because it's an important factor to make sure that customers are getting the best deal. We're talking a lot of numbers and a lot of money flows through this Commission. You know, this is than ends with a B, 1.2 billion, I think. So having something that's effective like the Bid Rule where it has worked and it's rigorous is important because I think it serves as a governor to make sure that the ratepayers are getting a square deal, a fair deal, and it should be looked at closely.

So that gives you a little bit of sense of that. Also, we'll be asking some questions about solar. A lot is changing in the world as we speak. Solar is something that is -- more utilities are proposing solar. FPL, I think, is saying, well, look, for reliability

purposes, we're going to count half of the nameplate rating of solar, so you're going to hear a little bit about that. But I also think it's interesting in that FPL, if I'm reading their testimony right, has said that we think solar is more cost-effective than this Okeechobee project, and I'm going to explore that a little bit in the questions I ask.

And the larger point is to fuel diversity. You all, I think, understand that, you know, you're here hearing another need determination for a combined cycle gas plant. We continue to have gas plants be the primary source of fuel in the state, but the proverbial you don't want to put all your eggs in one basket comes to mind. So there will be some questions about solar and fuel diversity when FIPUG is questioning witnesses. So I just wanted to preview that with you all. Thank you for your attention, and we look forward to presenting our case.

CHAIRMAN GRAHAM: Thank you.

I think that's all the opening statements. So is it witness time, staff?

All right. If you're going to be a witness in the hearing today or if you're in the audience, please stand and raise your right hand.

Do you hereby swear or affirm that your

testimony in this hearing is true? Yes?

(Chorus of yesses.)

(Witnesses sworn.)

Thank you.

Okay. Each witness will be allowed five minutes to summarize his testimony. Feel free not to use the entire five minutes. There is no friendly cross, so we'll be moving pretty quickly. If you have something that you want to ask that is not considered friendly cross, feel free to raise your hand or wave your hand because I will be moving along. And that all being said, I guess we'll start with the first witness, Florida Power & Light.

MR. COX: Thank you, Chairman Graham.

FPL calls its first witness, Dr. Steven Sim.

Whereupon,

STEVEN R. SIM

was called as a witness on behalf of Florida Power & Light Company and, having first been duly sworn, testified as follows:

EXAMINATION

BY MR. COX:

Q Good morning, Dr. Sim.

A Good morning.

Q Have you been sworn this morning, Dr. Sim?

A Yes, I have.

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

A My name is Steven Sim. Business address is 9250 West Flagler Street, Miami, Florida.

Q Who is your employer?

A My employer is Florida Power & Light.

Q What is your position with Florida Power & Light?

A I'm a Senior Manager of Integrated Resource Planning in the Resource Assessment and Planning Department.

Q Did FPL have prefiled in this case your direct testimony consisting of 40 pages?

A Yes.

Q Did FPL also prefile with your testimony Exhibits SRS-1 through SRS-5?

A Yes.

MR. COX: Commissioners, Witness Sim's exhibits attached to his testimony have been identified, I believe, as Exhibits 2 through 6 on the staff exhibit list.

CHAIRMAN GRAHAM: Duly noted.

BY MR. COX:

Q Dr. Sim, did FPL file errata to your prefiled

testimony exhibits dated November 13th, 2013?

A Yes, they did.

Q So if I were to ask you today the questions in your direct testimony as corrected with that errata, would your answers be the same?

A Yes.

MR. COX: Chairman Graham, we'd ask that Dr. Sim's testimony and errata be inserted into the record as though read.

CHAIRMAN GRAHAM: We will insert Dr. Sim's testimony into -- and errata into the record as though read.

BY MR. COX:

Q Dr. Sim, is the information contained in your prefiled exhibits as corrected by the errata true and correct to the best of your knowledge and belief.

A Yes.

Q Thank you.

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for determination of need for Okeechobee Clean Energy Center Unit 1, by Florida Power & Light Company	DOCKET NO. 150196-EI FILED: November 13, 2015

ERRATA SHEET OF DR. STEVEN R. SIM

September 3, 2015 Direct Testimony

PAGE #	LINE #	CORRECTION
26	8	Change "$42" to "$48"
26	22	Change "$6" to "$10"
27	2	Change "$157" to "$167"
27	3	Change "$42" to "$48", "$6" to "$10", and "$157" to "$167"
38	9	Change "$157" to "$167"
38	10	Change "$281" to "$291"

September 3, 2015 Exhibits

EXHIBIT #	PAGE #	Table #	CORRECTION
SRS-5	2 of 2	(2) Second Step:	Last column, change "$42" to "$48" and "$83" to "$90"
SRS-5	2 of 2	(3) Third Step:	Last column, change "$6" to "$10"

October 26, 2015 Rebuttal Testimony

PAGE #	LINE #	CORRECTION
24	1	Change "began" to "continued"

I. INTRODUCTION AND CREDENTIALS

Q. Please state your name and business address.

A. My name is Steven R. Sim. My business address is 9250 West Flagler Street, Miami, Florida 33174.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company (FPL) as Senior Manager of Integrated Resource Planning in the Resource Assessment and Planning (RAP) department.

Q. Please describe your duties and responsibilities in that position.

A. I supervise and coordinate analyses that are designed to determine the magnitude and timing of FPL's resource needs and then develop the integrated resource plan with which FPL will meet those resource needs.

Q. Please describe your educational background and business experience.

A. I graduated from the University of Miami (Florida) with a Bachelor's degree in Mathematics in 1973. I subsequently earned a Master's Degree in Mathematics from the University of Miami (Florida) in 1975 and a Doctorate in Environmental Science and Engineering from the University of California at Los Angeles (UCLA) in 1979. While completing my degree program at UCLA, I was also employed full-time as a Research Associate at the Florida Solar Energy Center (FSEC) during 1977-1979 where I analyzed potential renewable resources in the Southeastern United States.

In 1979, I joined FPL. From 1979 until 1991, I worked in various departments including Marketing, Energy Management Research, and Load Management, where my responsibilities concerned the development, monitoring, and cost-effectiveness analyses of demand side management (DSM) programs. In 1991, I joined my current department, then named the System Planning Department, where I held different supervisory positions dealing with integrated resource planning. In late 2007, I assumed my current position.

Q. Have you previously testified on resource planning issues before the Florida Public Service Commission?

A. Yes. I have testified before the Florida Public Service Commission (FPSC) in numerous dockets. These dockets have dealt with various resource planning issues such as system reliability and economic analyses of resource options. The specific subjects of these dockets have included: (i) need determination filings for combined cycle (CC) units, advanced coal units, and nuclear units, (ii) nuclear feasibility analyses, and (iii) demand side management (DSM) goal-setting.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibit SRS-1, which is presented as a separate document, and Exhibits SRS-2 through SRS-5, which are attached to my direct testimony:

Exhibit SRS-1 FPL's 2015 Capacity Request for Proposals (RFP);

Exhibit SRS-2	Projection of FPL's Resource Needs: 2015 through 2020;
Exhibit SRS-3	Evaluation of FPL Self-Build Options: A Representative List of CC and CT Generating Options at Two Sites Evaluated in the First Stage of the Analyses;
Exhibit SRS-4	Evaluation of FPL Self-Build Options: Results of Analyses of CC and CT Generating Options at Two Sites Evaluated in the First Stage of the Analyses; and,
Exhibit SRS-5	Evaluation of FPL Self-Build Options: List of Generating Option Technologies Evaluated in the Second Stage of the Analyses and the Results of These Analyses.

II. PURPOSE AND SCOPE

Q. What is the purpose and scope of your testimony?

A. The primary purpose of my testimony is to support FPL's request that the FPSC grant an affirmative determination of need for the construction of the Okeechobee Clean Energy Center (OCEC) Unit 1, a new CC unit sited in Okeechobee County.

My testimony addresses seven main points. First, I summarize what FPL is requesting from the FPSC. Second, I introduce the FPL witnesses who are providing direct testimony in this docket and briefly describe what information each FPL witness is providing in his/her direct testimony. Third, I discuss FPL's projection of its resource needs which begin in 2019 and increase thereafter and how this projection was derived. Fourth, I discuss FPL's analyses of its self-build generation options and the results of those analyses which led to the designation of a new CC unit in Okeechobee County, OCEC Unit 1, as FPL's best self-build option. As such, the Okeechobee CC unit was presented as FPL's Next Planned Generating Unit (NPGU) in the subsequent capacity Request for Proposals (RFP) issued by FPL in March 2015. This unit was also presented as a placeholder resource addition in FPL's 2015 Ten Year Site Plan pending the final result of the RFP process. Fifth, I discuss FPL's RFP schedule and the submittal FPL received in response to the RFP. Sixth, I discuss the significant adverse consequences FPL and its customers would face if the FPSC does not grant an affirmative determination of need for OCEC Unit 1. Seventh, I offer my conclusions regarding OCEC Unit 1 and its ability to cost-effectively meet FPL's 2019 capacity needs.

Q. Please summarize your testimony.

A. Based on FPL's current load forecast, and after accounting for all FPL- and FPSC-identified cost-effective DSM, FPL projects that it has a significant generation resource need that begins in June 2019. FPL conducted an

extensive evaluation process in order to determine what its best self-build generation option was for meeting this need, including examination of various generation technologies from different vendors as well as different sites.

Through this extensive evaluation process, FPL first identified a type of technology (CC) and a site (a greenfield site in Okeechobee County) that were the best choices for a self-build generating unit. FPL then conducted additional analyses that further refined the CC technology choice. The result of all of these analyses, OCEC Unit 1, is the best self-build generation option for meeting the 2019 capacity need. In accordance with Florida's Bid Rule, FPL then issued a capacity RFP in March 2015 to identify non-FPL proposals that would be evaluated versus FPL's NPGU. No proposals were submitted which conformed to the Minimum Requirements of the RFP. Thus, OCEC Unit 1 has been identified as the most cost-effective/economic generation option available to meet FPL's 2019 reliability need, and it is the best choice for FPL's customers. Consequently, FPL is respectfully requesting that the FPSC grant a determination of need for OCEC Unit 1.

III. FPL'S REQUEST FOR FPSC APPROVAL

Q. Please explain the FPSC decision that FPL seeks in this proceeding.

A. FPL seeks from the FPSC an affirmative determination of need for OCEC Unit 1 with an in-service date of June 1, 2019.

Q. What is the basis for FPL's requested need determination?

A. FPL's request for an affirmative determination of need for this unit is based on an extensive evaluation designed to identify the best, most cost-effective generation alternative available to meet FPL's resource needs that begin in 2019. FPL's evaluation began with FPL's assessment of its customers' future generation capacity needs after accounting for all identified cost-effective DSM. FPL then examined feasible self-build generation options, including CC units, combustion turbine (CT) units, and solar photovoltaic (PV) facilities which potentially might have been able to meet the 2019 resource need. FPL also evaluated three specific FPL-owned sites at which new generation facilities could be built. One of these sites is in Okeechobee County, one is in Hendry County, and the third is the site in Putnam County of the recently retired FPL Putnam 1 & 2 units. The result of all of these analyses was that a new CC unit at the Okeechobee site, OCEC Unit 1, was determined to be FPL's best, most economic self-build option.

FPL then issued in March 2015 an RFP in accordance with Florida's Bid Rule to solicit non-FPL generation options that could be evaluated as an alternative to OCEC Unit 1. One submittal was received. However, this submittal did not offer enough capacity to meet the 2019 need. In addition, the submittal failed to meet numerous Minimum Requirements of the RFP and was, therefore, a non-conforming bid. Thus, no viable alternatives were presented in response to the RFP. Therefore, based on the extensive evaluation discussed above and

the results of the RFP process, OCEC Unit 1 is the best, most cost-effective option with which to meet FPL's resource needs beginning in 2019. Once this new CC unit goes into operation, it is projected to be the most fuel-efficient CC unit on FPL's generation system, further enhancing the efficiency of an already highly efficient FPL generating system. It is also projected to be the most fuel-efficient CC unit in the state of Florida.

Q. In your opinion, please address how, if at all, the OCEC Unit 1 meets the need determination criteria set forth in Section 403.519, Florida Statutes.

A. Under Section 403.519(3), Florida Statutes, there are a number of criteria that the FPSC is to consider in a determination of need proceeding. Most of those criteria involve principles of resource planning. So my comments will now address each of those resource planning principles.

OCEC Unit 1 is the best resource available to meet FPL's need for system reliability and integrity to serve its customers. A new supply-side generating unit is needed in 2019 to meet FPL's system reliability criteria, and OCEC Unit 1 will meet all of FPL's reliability criteria. In addition, OCEC Unit 1 is the best resource available to FPL and its customers to meet the need for adequate electricity at a reasonable cost. The unit is projected to result in the lowest system cost of all the various alternatives considered by and available to FPL, and the unit is also projected to result in the lowest electric rates for FPL's customers. OCEC Unit 1 is a highly fuel-efficient unit which will generate fuel savings even on a system as efficient as FPL's, and its projected

installed cost per kW is projected to be the lowest in the industry for a modern CC unit.

OCEC Unit 1 will not improve FPL's fuel diversity, but given other capacity additions and retirements, plus the high level of fuel efficiency of this new unit, it will not significantly increase FPL's reliance on natural gas. FPL is pursuing other approaches that would improve its fuel diversity in terms of gas supply, the volatility of the cost of gas, and the use of other energy sources. With the FPSC's approval of a third major natural gas pipeline serving FPL's service area from onshore shale gas production areas, and FPL having contracted for such pipeline capacity, FPL has improved the supply availability of natural gas to its system. Recent FPSC approval of FPL's Woodford project, and FPSC guidelines to govern approval of future similar projects, will assist in lowering the volatility of the cost of gas with which FPL serves its customers. In terms of utilizing other energy sources, FPL is actively pursuing additional solar and nuclear energy.

The OCEC Unit 1 is the most economic alternative that has been identified to meet the reliability needs of FPL's customers. It is the most economic self-build option available to FPL and its customers. A market assessment was done in accordance with the FPSC's Bid Rule, and the results of that solicitation presented no market alternative available to FPL.

In determining the need for the OCEC Unit 1, FPL took account of all identified cost-effective renewable energy and conservation measures. FPL projected that approximately half of the 223 MW nameplate rating from new PV facilities by the end of 2016 will contribute firm capacity at FPL's Summer peak, and this has been accounted for in FPL's projection of its resource needs. In addition, FPL accounted for all achievable, cost-effective DSM approved by the FPSC. Even after accounting for these contributions, FPL and its customers still have a significant need for generating capacity in 2019. The OCEC Unit 1 is the best alternative available to meet that need.

IV. INTRODUCTION OF FPL WITNESSES

Q. Who are FPL's other witnesses in this docket and what subject(s) will each witness address in his/her direct testimony?

A. There are three other FPL witnesses who are also providing testimony in this docket. A brief description of the witnesses, presented in alphabetical order, and the subject(s) each addresses in his/her direct testimony, is as follows:

- FPL witness Richard Feldman, also of FPL's Resource Assessment & Planning department, presents FPL's load forecasting process, discusses the methodologies and assumptions used in the forecasting process, and presents FPL's current load forecast which was used in determining FPL's 2019 capacity need.

- FPL witness Jacquelyn K. Kingston, of FPL's Project Development department, presents the engineering details of FPL's OCEC Unit 1 which involves the construction of a new state-of-the-art 3x1 combined cycle unit at a greenfield site in Okeechobee County. Included in witness Kingston's testimony are the capital and O&M costs, as well as the performance characteristics of the technology to be used in OCEC Unit 1 which were accounted for in FPL's economic analyses.
- FPL witness Heather C. Stubblefield, of FPL's Energy Marketing and Trading (EMT) department, describes the fuel transportation plan to deliver natural gas and light oil to OCEC Unit 1 and testifies to the ready availability of natural gas for OCEC Unit 1. Witness Stubblefield also supports FPL's current fuel price forecast.

V. PROJECTION OF FPL'S RESOURCE NEEDS

Q. How does FPL determine its next resource need?

A. FPL utilizes three reliability criteria to project the timing and magnitude of its future resource needs. The three reliability criteria are:

- A minimum total reserve margin (total RM) for Summer and Winter of 20%;
- A minimum generation-only reserve margin (GRM) for Summer and Winter of 10%; and
- A maximum loss-of-load-probability (LOLP) of 0.1 day per year.

If one (or more than one) of these criteria is projected to not be met in a given future year, then additional resources are needed in that year. The system reliability analyses using these three criteria identify both the timing (year) of FPL's next resource need and the magnitude (MW) of that need.

Q. What is the timing and magnitude of FPL's next projected resource need?

A. FPL's reliability analyses show that FPL's next projected significant resource need is in 2019. These projections show that neither the total RM criterion nor the GRM reliability criterion will be met beginning in 2019 based on projected Summer peak load. This information is presented in Exhibit SRS-2, which shows the projections for both the total RM and GRM reliability criteria. The magnitude of FPL's resource need in 2019 is 1,052 MW. This need increases by another 357 MW to a need of 1,409 MW in 2020.

Q. Is this projection of FPL's next resource need based on FPL's current load forecast?

A. Yes. This forecast was presented in FPL's 2015 Ten Year Site Plan. FPL witness Feldman discusses this load forecast in his direct testimony.

Q. Did FPL's reliability analysis account for FPL's new DSM Goals?

A. Yes. FPL's new DSM Goals for 2015 through 2024 were fully accounted for in the reliability analysis.

Q. Is FPL aware of any additional DSM that would be cost-effective that is not accounted for in FPL's DSM Goals?

A. No.

Q. However, if one were to assume that additional cost-effective DSM were available, how much cost-effective DSM in terms of Summer MW would be needed to meet FPL's 2019 resource needs and how does that value compare with FPL's DSM Goals?

A. Additional DSM would not assist in meeting the projected 2019 capacity need based on FPL's 10% GRM reliability criterion because that reliability criterion focuses solely on the need for new generation resources to ensure there is an appropriate balance between generation and DSM resources. However, if one were to ignore this FPL reliability criterion, and focus solely on FPL's 20% total RM criterion, then an additional 988 MW/1.20 = 823 MW (at the generator) of cost-effective DSM would be needed in less than 4 years to meet this particular reliability criterion.

If one were to assume that this amount of DSM was to be added evenly over a 4-year period, this would equate to approximately 206 MW per year of additional cost-effective DSM. By comparison, in the DSM Goals docket, the FPSC found that the total amount of achievable, cost-effective DSM for FPL over a 10-year period was 526 MW (Summer) or about 53 MW of DSM per year on average. Thus, for DSM to solely meet this one reliability criterion for 2019, FPL would have to find and implement approximately 53 MW + 206 MW = 259 MW of cost-effective DSM each year over the next 4 years. This is five times the amount of achievable, cost-effective DSM per year, 53 MW, identified in the DSM Goals docket.

It may also help to view such a large hypothetical amount of DSM from the perspective of an existing FPL DSM program. FPL's Residential Air Conditioning Program has generally signed up more annual participants than any other DSM program. The historical high water mark for signups for this program was slightly higher than 100,000 participants per year. Due to the impacts of energy efficiency codes and standards, and the diminished cost-effectiveness of this program due to lower fuel costs and increasing efficiency of FPL's system, current projections of annual signups for the program are considerably lower.

However, if one were to ignore both this fact and any cost-effectiveness concerns, and keeping in mind that the program has a 0.25 Summer kW reduction per participant value, FPL would need to sign up the equivalent of more than 800,000 participants in this program each year for four years, or a total of more than 3,200,000 customers, to achieve 800 MW more of new DSM based on the program's current Summer kW reduction per participant value of 0.25. This equates to enrolling more than 70% of FPL's total residential customer accounts in the program in just 4 years.

Therefore, I do not believe that cost-effective DSM can meet even this one reliability criterion regarding FPL's needs in 2019.

Q. The projected resource need in 2019 is 1,052 MW when viewed from the perspective of the GRM reliability criterion and 988 MW when viewed from the perspective of the total RM reliability criterion. Please discuss these two results.

A. From a reliability perspective, the GRM-driven need projection of 1,052 MW ensures that a generation addition of at least 1,052 MW will enable FPL to meet both the total RM and GRM criteria. Conversely, an addition of 988 MW would result in only one of these two reliability criteria, the total RM criterion, being met. Consequently, the result of FPL's reliability analyses was that a minimum of 1,052 MW of generation capacity needed to be added in 2019 to ensure that both of these reliability criteria were met.

Q. Did the additional MW need identified by the GRM reliability criterion have a significant impact on the analyses which FPL performed?

A. No. From a numerical perspective, the differential of 64 MW (1,052 MW – 988 MW = 64 MW) in projected need between the need identified by the GRM reliability criterion and the need identified by the total RM criterion represents a very small incremental need, approximately 0.002 (or 0.2%) of FPL's system of 26,498 MW of total generation capability in 2019 before any new generation is added. Moreover, the most economical self-build option, OCEC Unit 1, provides sufficient capacity (1,622 MW Summer) to allow FPL to meet both of these reliability criteria. The OCEC Unit 1 would have been selected as FPL's best self-build generation option regardless of whether the

GRM or the total RM reliability criterion were driving FPL's resource need in 2019.

VI. FPL'S EVALUATION OF SELF-BUILD GENERATION OPTIONS

Q. Please provide an overview of the process FPL used to determine its best self-build generation option for 2019.

A. In mid-2013, FPL's reliability analyses began to project a need for additional resources beginning in the Summer of 2019. Therefore, FPL began considering what types of generation facilities and what specific sites might be viable by mid-2019 for a self-build generation option.

In regard to types of generating facilities, two types were quickly eliminated from further consideration. First, coal-fired technologies were removed from consideration due to current and prospective environmental concerns and regulations. Second, due to the 2019 need date, new nuclear capacity was removed from consideration because such capacity could not be added by that time.

The two types of self-build generation options that were initially viewed as most likely candidates for meeting the 2019 need were gas-fired CCs and simple cycle CTs. In addition, PV facilities were also considered and evaluated.

In regard to sites on which self-build gas-fired generation options could potentially be built in time to address the 2019 resource need, three sites were identified and evaluated. These sites are located in Okeechobee, Putnam, and Hendry counties. The Okeechobee and Hendry county sites are greenfield sites. The Putnam County site is a brownfield site where FPL's Putnam 1 & 2 units formerly operated.

Having identified certain types of generation options that were potentially viable by 2019, as well as potentially viable sites, analyses of combinations of generation types and sites began. In regard to CC and CT options, the analyses examined different technologies offered by three vendors: General Electric (GE), Siemens, and Mitsubishi Heavy Industries (MHI). More specifically, these analyses examined the technology for the CT component of the CC unit and the subsequent design of the CC unit.

For discussion purposes, I will describe the overall evaluation process as consisting of two analysis stages. In the first stage, the best combination of type of generation and site were identified. Also in this first stage, FPL reached a preliminary conclusion regarding the best CT component technology. The second stage consisted of analyses designed to refine the evaluation of the CT technologies available from all three vendors and to

reach a final conclusion regarding the best overall self-build choice for FPL's customers.

Q. What was the basic analysis approach that FPL utilized?

A. The analyses performed in both stages were based on a comparison of resource plans. Each resource plan consisted of a specific generation option added in 2019 such as a specific CC unit of sufficient size (MW) to meet the 2019 need. Additional filler unit capacity was then added in subsequent years for each resource plan to meet the projected future resource needs in all of these years. Then economic analysis of these resource plans was performed.

Q. You mentioned that resource plans were first developed and then analyzed. Were the economic analyses of these resource plans based on the projected cumulative present value of revenue requirements (CPVRR) for each resource plan?

A. Yes. Having already accounted for all known achievable and cost-effective DSM, and ensuring that this amount of DSM was included in all of the resource plans, a CPVRR analysis approach for generation-only options identifies the best generation option from both a cost perspective and an electric rate perspective. (This is because the number of total kWh of sales over which costs are recovered are unaffected when DSM levels remain unchanged, and only generation options are evaluated.)

Q. What costs were included in these economic evaluations of FPL's self-build generation options and what computer models were used?

A. For each resource plan, a number of costs were included in the analyses depending upon the computer model that was being used. A partial listing of these costs includes: generator capital, capital replacement, operation and maintenance (O&M), transmission interconnection, transmission integration, transmission losses, system emissions, firm gas transportation, self-build generator fuel, and system fuel. Because all of the self-build options were assumed to be constructed with the same equity/debt ratio as FPL's target adjusted capital structure, none of the self-build options would have an impact on FPL's cost of capital. Therefore, there was no need to address cost of capital impacts in these analyses of self-build options (as there would need to be when evaluating power purchase options).

Analyses of the resource plans utilized several computer models including the PMArea production costing model, FPL's Fixed Cost Spreadsheet, and the EGEAS optimization model.

Q. Please briefly discuss the first stage of FPL's analysis and the results of those analyses.

A. The first stage analyses were performed during 2014 and utilized all of FPL's then current forecasts (such as load forecasts and fuel cost forecasts) and assumptions that were being used in all of FPL's resource planning work. Early in the analyses, it was determined that it was unlikely that new capacity

could be brought in-service at the Hendry site in time to address the 2019 need. Consequently, the Hendry site was dropped from further consideration, and the subsequent analyses focused solely on the Okeechobee and Putnam sites. A representative listing of the types of CC and CT generation options at the remaining two sites, and the CT component technologies, examined by FPL in the first stage of the analysis is provided in Exhibit SRS-3.

Exhibit SRS-4 then presents the results of the first stage of FPL's analyses of these generating options. From these results, two conclusions were drawn. First, the best resource plan with a CC unit at the Okeechobee site was projected to be $65 million CPVRR more economic than the best resource plan with a CC unit sited at Putnam. Therefore, the Putnam site was then removed from further consideration. Second, the best resource plan containing only simple cycle CT units was projected to be $124 million CPVRR more expensive than the best CC resource plan. At that point, simple cycle CT-only generation options were removed from further consideration.

Therefore, at this point the results from the first stage of the analyses were that a CC unit at the Okeechobee site would be FPL's best fossil-fueled self-build option for 2019. In addition, the GE 7HA.02 technology CT component of a CC unit was preliminarily determined to be the most cost-effective CT component of the CC unit. The best CC unit to-date based on the GE 7HA.02 was projected to have a capacity of 1,523 MW (Summer).

Q. You mentioned that FPL also evaluated PV as a potential option with which to meet the 2019 resource need. Please discuss first the PV facilities that FPL is adding by the end of 2016.

A. As presented in the 2015 Ten Year Site Plan, new PV facilities of approximately 74.5 MW-AC will be added, one at each of the three specific sites in DeSoto, Manatee, and Charlotte counties by the end of 2016. These specific sites are especially favorable for PV facilities for a variety of reasons including: the land is either already owned by FPL (Manatee and DeSoto) or FPL is in the process of acquiring ownership of the land at a favorable cost (Charlotte), proximity to existing transmission lines, and proximity to staff at nearby existing FPL generation facilities. In addition, these three facilities could each be completed and in-service by the end of 2016 which would allow the PV facilities to take advantage of the currently available 30% federal investment tax credits that are set to decrease to 10% at the end of 2016.

The combination of these advantages for the three specific sites resulted in a projection that PV at those specific sites by the end of 2016 would be cost-effective, but only by a slight margin. Recognizing that additional PV facilities added after 2016 will likely not have all of these advantages, FPL nonetheless considered additional PV as a potential self-build option with which to address its 2019 resource need.

Q. Please discuss.

A. In its consideration of PV as a self-build option with which to potentially meet all or a portion of FPL's 2019 resource need, FPL largely focused on several specific concerns or areas of uncertainty regarding utilizing PV in this potential role.

The first of these concerns was in regard to land and its costs. A significant amount of land would be required to site the very large amount of PV that would be needed to supply all, or a substantial portion, of the needed 1,052 firm MW of Summer capacity. From a schedule perspective, if FPL were to decide to base its capacity RFP on a gas-fired self-build option, it would have to do so by the first quarter of 2015. With that in mind, the ability to purchase large tracts of land suitable for PV development in this time frame was not only highly uncertain, but would likely have ended up with higher land costs being borne by FPL's customers than if more time were available to make the purchases.

The second concern was in regard to costs of the PV equipment. There is uncertainty regarding what PV costs will be in the future. Although costs are projected to decline, what those costs will be several years in the future when an order would need to be placed for a PV facility with a mid-2019 PV in-service date cannot be known with great accuracy. Therefore, the cost-effectiveness of PV versus the 2019 self-build CC unit could not be assured.

Third, and perhaps the most important concern, is in regard to system reliability. FPL has now begun applying a methodology for determining what firm capacity values PV facilities are projected to deliver. FPL believes this methodology provides the best possible projection of firm capacity value for PV. However, FPL recognizes that, at this point in time, there is less certainty regarding the firm capacity that will be delivered by PV than there is for CC and CT generating units. With that in mind, FPL was understandably reluctant to attempt to meet such a large, near-term resource need either solely, or in large part, with PV.

FPL determined that these areas of uncertainty could not be resolved by the first quarter of 2015. Therefore, FPL's decision was to proceed with the much more certain and highly economic CC unit and to continue to pursue PV for future resource needs.

Q. The first stage analysis results can be summarized by stating that a CC unit at Okeechobee was the best choice for an FPL self-build option. With that conclusion in hand, what was the objective of the second stage of the analysis?

A. The objective of the second stage of the analysis was to further refine the CT technology component upon which a CC unit at Okeechobee would be based in order to identify potential improvements in the self-build option.

Q. Please describe how the second stage of the analysis was performed.

A. The second stage analyses were performed in the second half of 2014 and in early 2015. As FPL's assumptions and forecasts were updated, these updated inputs were incorporated into the ongoing analyses. The second stage analysis had three basic steps. In the first step, FPL went back to all three CT vendors, GE, Siemens, and MHI, and requested that they refresh their CT cost and performance values. Once this was done, FPL again constructed resource plans with a 2019 CC unit at Okeechobee based on each vendor's CT technology and analyzed each resource plan. The CC options examined, and the results of the resource plan analysis for this first step, are presented in Exhibit SRS-5, page 1 of 2. A variation of the GE 7HA.02 technology was again projected to be the clear economic choice. As shown by comparing the first and fourth rows of this page, a CC unit based on a GE 7HA.02 CT design with duct firing, in a configuration that offered 1,582 MW (Summer), was projected to be $191 million CPVRR more economic than any CC based on non-GE technology. In fact, the top three highest ranked CC options were each based on GE technology. Based on these results, FPL's continuing second stage analyses focused solely on the GE 7HA.02 technology. It is also worth noting that in this first step of the second stage of the analyses, an improved CC design from GE emerged that was $109 million CPVRR more economic than the 1,523 MW CC that had been identified as the best CC option in the first stage analyses. This is shown by comparing the first and third rows of this page.

In the second step, FPL examined additional refinements to the GE 7HA.02 that included updated assumptions for heat rate, costs, and capacity (MW). One of these updates was an examination of peak firing and wet compression added to the previously analyzed technology configurations. FPL witness Kingston discusses these characteristics of the CC unit in her testimony. The result of these analyses is presented at the top of Exhibit SRS-5, page 2 of 2. A slightly larger, 1,586 MW CC based on the GE 7HA.02 CT without duct firing, but with peak firing and wet compression, emerged as a $42 million CPVRR more economic choice compared to the former leading candidate: the 1,582 MW CC based on the GE 7HA.02 with duct firing only.

The third and final step analyzed still more refinements to the technology. These refinements examined potential changes in the capacity (MW) of the units, the heat rates, and fixed costs including capital, fixed O&M, and capital replacement costs. The analyses carried out during this third step allowed FPL to finalize its choice of the best FPL self-build generating option.

Q. What was the final outcome of FPL's evaluation of its self-build generation options?

A. The final result is presented at the bottom of Exhibit SRS-5, page 2 of 2. As shown in the exhibit, a 1,622 MW (Summer) CC based on the GE 7HA.02 without duct firing, and with peak firing and wet compression, was projected to be $6 million CPVRR more economic than the 1,586 MW CC without duct firing and with peak firing and wet compression. Thus, the refinements in the

second stage of the analyses resulted in improving the economics of the FPL CC at Okeechobee by approximately $157 million CPVRR ($109 million + $42 million + $6 million = $157 million) compared to the 1,523 MW CC that had been identified in the first stage of the analyses.

Therefore, this 1,622 MW (Summer) CC unit at the Okeechobee site emerged from FPL's extensive evaluation as the most economic self-build option for FPL's customers. Consequently, it was presented in FPL's 2015 Capacity RFP (Exhibit SRS-1) as FPL's NPGU.

VII. THE CAPACITY RFP PROCESS AND RESULTS

Q. Did FPL issue a capacity Request for Proposals (RFP) for its 2019 capacity need?

A. Yes. The RFP was issued on March 16, 2015. In compliance with Florida's Bid Rule (Rule 25-22.082, F.A.C.), the RFP contained a detailed breakout of the cost and performance information for the NPGU. FPL witness Kingston's testimony further discusses the cost and performance information for the NPGU.

Q. Please list these key steps carried out, including the schedule for these steps, in the RFP process through the date that proposals to the RFP were due.

A. The RFP's key steps through the Due Date for Proposals were as follows:

- Pre-Issuance Discussion Meeting (March 9, 2015);
- Issuance of the RFP (March 16, 2015);
- Pre-Bid Workshop (March 24, 2015);
- Cutoff Date for RFP Questions (April 17, 2015); and,
- Due Date for Proposals (May 15, 2015).

Q. Was there interest in FPL's RFP?

A. Yes. A total of 46 separate parties registered for the RFP and were provided access to the RFP and all RFP-related information through FPL's RFP website. There was also participation, either in person or by telephone, in the Pre-Issuance Discussion Meeting and in the Pre-Bid Workshop.

Q. Florida's Bid Rule allows a party to object to the FPSC regarding aspects of a utility's RFP. Were there any objections filed with the FPSC regarding FPL's RFP?

A. Yes. Of these 46 registered parties, only one objected to aspects of the RFP in a filing to the FPSC. That party's filing was made on March 26, 2015. FPL filed its reply to the objections on March 31, 2015. On April 16, 2015, the FPSC heard oral arguments from both sides and reached a decision that FPL's RFP complied with the Bid Rule, and no changes to the RFP were needed.

Q. How many submittals did FPL receive in response to its RFP?

A. FPL received one submittal in response to the RFP. This submittal was a power purchase agreement based on an existing CC unit located in Alabama. However, immediately upon opening this submittal, the Independent Evaluator for the RFP, Alan Taylor of Sedway Consulting, and FPL

determined that it did not conform to at least one of the RFP's Minimum Requirements: submission of a Bid Evaluation Fee.

Q. Were there any other problems with this submittal in regard to complying with the RFP's Minimum Requirements?

A. Yes. The submittal was reviewed to determine if it complied with the rest of the RFP's Minimum Requirements. The result of this review was that the submittal failed to comply not only with the Minimum Requirement for provision of a Bid Evaluation Fee, but also failed to comply with a number of additional RFP Minimum Requirements, including, but not necessarily limited to, the following:

- The submittal was not a firm, binding bid. (The party described their submittal as an "*…indicative, non-binding proposal…*"
- The submittal did not agree to meet the original equipment manufacturer (OEM) Parts for Critical Components Minimum Requirement.
- The submittal did not agree to guarantee the availability and reliability values contained in the submittal.
- The submittal did not comply with the portion of the "Proposal Transmission Requirements" Minimum Requirement that states that, for proposals with generation located outside of the FPL system, it is the responsibility of the Proposer to secure firm transmission service. The submittal stated that it did not have firm

transmission service for its full capacity on the Southern transmission system and offered no plans or schedule for securing the needed transmission capacity.

- The Proposal Submission Minimum Requirement states that: "All forms specified in the RFP must be submitted by the Proposer, and the information requested therein must be complete and accurate." However, the submittal did not provide information required on the forms in a number of places. One example is that required actual and projected Forced Outage Hours and Planned Outage Hours values were not provided as required on the RFP forms.

Q. Was this bidder afforded an opportunity to submit the required Bid Evaluation Fee?

A. Yes, but the bidder refused to do so.

Q. Did FPL or the Independent Evaluator perform economic analyses of this non-complying submittal?

A. No. There were several reasons for this. First, the submittal was clearly an ineligible proposal that failed to meet many of the RFP's Minimum Requirements. Second, because the bid contained missing or incomplete information (as mentioned above), the results of any such analysis would have been highly questionable. Third, had FPL analyzed this ineligible proposal, it would have been unfair to other potential participants who chose not to bid rather than submit a non-conforming proposal.

Fourth, if FPL or the Independent Evaluator had performed economic analyses of such a blatantly ineligible proposal, the precedent this would set would likely result in some parties to future FPL (and perhaps other utilities') RFPs submitting proposals that attempted to ignore as many of that RFP's Minimum Requirements as they thought they could get away with. In other words, such parties would conduct a "race to the bottom" that would make any analyses of such ineligible proposals not only problematic in regard to how meaningful the analyses would be, but also would be unfair to proposals that did comply with the RFP's Minimum Requirements. FPL did not want to set such a precedent and encourage this behavior.

Q. Why do you believe FPL received only one submittal in response to its RFP?

A. I believe that there are two reasons for this: (i) the requirement in Florida's Bid Rule that a utility must provide detailed cost and performance data regarding its best self-build option, and (ii) the strength of FPL's NPGU.

Q. Please discuss.

A. Florida's Bid Rule requires utilities to publish in detail the cost and performance characteristics of their best self-build generation option (the NPGU) at the start of the RFP process. By doing so, potential bidders can readily judge whether their contemplated proposal would likely be competitive against the NPGU. If they do not believe it will be competitive, they will likely not go through the time and expense of preparing and submitting a bid.

I believe that it is likely that some potential bidders examined the NPGU's cost and performance data, concluded that the NPGU was a very strong generating option that their contemplated proposal was unlikely to beat, and decided not to submit a bid to this RFP.

Q. How would have a prospective bidder have judged the strength of FPL's NPGU?

A. There are two ways a prospective bidder could have quickly made this judgment. One way would have been to look at certain characteristics of the NPGU versus those same characteristics for the unit(s) upon which their contemplated proposal would be based to see how the two generation options compared. Those characteristics would likely have included installed cost (or capacity payments) and the efficiency (heat rate) of the two generation options.

Q. What is the second way a prospective bidder could have judged the strength of FPL's NPGU?

A. Another approach would have been to examine the outcome of FPL's last capacity RFP, in which FPL's NPGU at that time was judged to be the best, most economic choice for FPL's customers, then to compare cost and performance characteristics of FPL's previous NPGU with those for FPL's current NPGU.

In FPL's last RFP, FPL's NPGU was also a large (1,219 MW Summer) CC unit. In that RFP, three eligible bids were received. Each of the three bids

individually met FPL's resource needs, and the three bids were evaluated both in resource plans based solely on the individual bid and in resource plans that combined the individual bids. These resource plans were then evaluated by both the Independent Evaluator and FPL. The outcome in the Independent Evaluator's economic analyses was that the most economic resource plan that did not include the NPGU as part of the resource plan was determined to be $538 million CPVRR more expensive than a resource plan based solely on FPL's NPGU. The outcome of FPL's economic analyses was similar: the most economic resource plan that did not include the NPGU was $607 million CVPRR more expensive than the resource plan based solely on FPL's NPGU. (Note that neither of these projected economic advantages of FPL's NPGU account for the projected impacts of the Net Equity Adjustment on the proposals received.)

In short, in FPL's last RFP, the resource plan based solely on the large CC unit designated as FPL's NPGU had a very significant economic advantage over all resource plans that included one or more eligible bids and which did not include the NPGU.

Q. How does FPL's current NPGU (OCEC Unit 1), compare to the FPL NPGU in its previous RFP?

A. In FPL's last RFP, the NPGU was the West County Energy Center Unit 3 (WCEC 3) with an in-service date of June 2011. Using publicly available

information from FPL's Site Plans for these two units, a comparison of three important projections of cost and performance shows the following results:

1) Capacity (Summer MW): OCEC Unit 1's Summer capacity is 1,622 MW. WCEC 3's Summer capacity is 1,219 MW.
2) Efficiency (Heat Rate): OCEC Unit 1's heat rate is 6,304 BTU/kWh. WCEC 3's heat rate is 6,582 BTU/kWh.
3) Installed Cost ($/kW in 2019$): OCEC Unit 1's installed cost in 2019 is $737/kW. WCEC 3's installed cost in 2019$ is $831/kW. (Note that for this comparison, WCEC 3's projected installed cost value of $709/kW in 2011 has been escalated to 2019 at 2% per year to place the installed cost values for both NPGUs in 2019$.)

For all three characteristics, the values for the current OCEC Unit 1 NPGU are better than they were for the WCEC 3 NPGU from the previous RFP. Thus, potential bidders who reviewed the results of the prior RFP's economic analyses would have seen that the NPGU in that RFP was determined to have an economic advantage of more than a half billion dollars CPVRR over the most competitive bids. Then a comparison of the previous NPGU versus the NPGU for this RFP would have shown that the current NPGU is bigger, more fuel-efficient, and has a lower $/kW installed cost. Parties who conducted such a comparison would also likely recognize that OCEC Unit 1 is projected to be the most fuel-efficient fossil-fueled generating unit that FPL has built

and might well have decided not to expend the time and money necessary to prepare and submit a bid for the current RFP.

Q. Does the result of this second approach for judging the strength of FPL's NPGU provide additional confidence that FPL's NPGU is the best resource option for meeting the 2019 need?

A. Yes.

Q. At the conclusion of the RFP process, what was FPL's decision regarding the best option with which to meet its 2019 capacity needs?

A. Having emerged from an extensive evaluation of FPL self-build options as the best self-build choice, and with no eligible outside proposals to compete with OCEC Unit 1, FPL concluded that the OCEC Unit 1 is the best, most economic choice for FPL's customers with which to meet capacity needs beginning in 2019.

Q. Will FPL continue to evaluate OCEC Unit 1?

A. Yes. As explained in the testimony of FPL witness Kingston, FPL will continue to evaluate different designs and models for the OCEC Unit 1 CTs, the heat recovery steam generator (HRSG), the steam turbine (collectively, the "Power Train Components"), and other related equipment necessary for operation of the unit, as a part of FPL's continuing efforts to determine which technology will provide the greatest benefits to FPL's customers.

Q. If FPL were to select an enhanced design or model for the OCEC Unit 1 Power Train Components or other related equipment, how does FPL propose to address such selection as it pertains to the determination of need requested by FPL in this proceeding?

A. FPL requests that, as a part of the FPSC's order granting an affirmative determination of need for OCEC Unit 1, the FPSC provide that its determination is not predicated on FPL's selection of a particular design or model for the Power Train Components or other related equipment necessary for operation of the unit, thus providing FPL the flexibility through its negotiations and analyses to select the Power Train Components and other related equipment that best meet FPL customers' needs in terms of reliability and cost-effectiveness. Of course, FPL would select an enhanced design or model only if the enhanced design or model results in lower projected system CPVRR cost to FPL's customers. In the event that FPL selects an enhanced design or model other than the analyzed technology subsequent to the FPSC having granted a determination of need for OCEC Unit 1, FPL proposes to make an informational filing to the FPSC that documents the projected comparative CPVRR cost advantage of the alternate technology chosen.

VIII. ADVERSE CONSEQUENCES OF NOT BUILDING OCEC UNIT 1

Q. Would there be any adverse consequences to FPL and its customers if the FPSC were not to grant an affirmative determination of need for OCEC Unit 1 in this proceeding?

A. Yes. If a determination of need for OCEC Unit 1 were not granted in this proceeding, FPL's customers will face significant adverse consequences related to either system reliability or the cost of electricity.

Q. Please describe the adverse consequences of denying the need determination of OCEC Unit 1.

A. FPL's reliability analyses show that the FPL system needs a significant amount of capacity (1,052 MW) in 2019. If the need determination for OCEC Unit 1 is denied, and no other self-build generation option is allowed to replace it, then, as shown previously in Exhibit SRS-2, FPL's projected GRM in 2019 would fall to 5.8%, well below FPL's GRM reliability criterion value of a minimum of 10%. In addition, FPL's projected total RM in 2019 would fall to 15.7%, well below FPL's total RM reliability criterion value of a minimum of 20%. Therefore, if the need determination for OCEC Unit 1 is denied, and no other self-build generation option replaces it, system reliability for FPL's customers would be significantly degraded.

On the other hand, if the need determination for OCEC Unit 1 is denied, and FPL's 2019 capacity need is met by another FPL self-build unit, FPL's

customers will face higher costs. Denying a need determination for OCEC Unit 1 at the conclusion of this docket would leave roughly 3.5 years until June 1, 2019 when the additional capacity is needed. This would likely result in the only self-build option that could be constructed in time being simple cycle CT capacity. In the first stage of FPL's self-build analyses, a CT-only addition in 2019 was judged to be approximately $124 million CPVRR more expensive than what was identified at that point as the best CC option. As discussed above, further refinement of the CC option in the second stage of the analysis resulted in a $157 million CPVRR improvement in the economics of the CC unit. Therefore, FPL's customers would be paying up to $281 million CPVRR more if a need for OCEC Unit 1 was denied, and simple cycle CTs had to be built.

In addition to this cost penalty, simple cycle CTs are much less fuel-efficient units than OCEC Unit 1. Consequently, FPL's system air emissions would also increase over what they would have been if the more fuel-efficient OCEC Unit 1 was placed in-service.

Granting a need determination for OCEC Unit 1 will result in FPL's customers benefiting from both a reliability perspective and an economic perspective. Bringing OCEC Unit 1 onto the FPL system by June 1, 2019 will maintain system reliability and allow FPL's customers to be served by the

most economic and fuel-efficient generation option available to meet this need.

IX. CONCLUSION

Q. What is your conclusion about the OCEC Unit 1 project?

A. Building OCEC Unit 1 with an in-service date of June 1, 2019 is the best, most cost-effective choice for FPL's customers for maintaining reliable electric service beginning in that year. This unit was determined to be the most cost-effective FPL self-build option through extensive analyses. Furthermore, FPL's capacity RFP that was issued to identify non-FPL capacity options that would be evaluated as alternatives to OCEC Unit 1 resulted in no viable alternatives being offered. Thus, the OCEC Unit 1 is the best, most economic choice among the available alternatives to meet FPL's customers' resource needs in 2019 and is projected to be the most fuel-efficient CC unit on FPL's system, further enhancing the fuel efficiency of an already highly efficient generation system. It is also projected to be the most fuel-efficient CC unit in the state of Florida.

Therefore, I believe the FPSC should grant an affirmative determination of need for OCEC Unit 1 with a target in-service date of June 1, 2019, based on a finding that this project is the best, most cost-effective choice to meet the needs of FPL's customers in 2019.

Q. Does this conclude your direct testimony?

A. Yes.

BY MR. COX:

Q Have you prepared a summary of your testimony, Dr. Sim?

A I have.

Q Could you please summarize your testimony for the Commissioners?

A I'll be glad to do so. Thank you.

Good morning, Chairman Graham and Commissioners.

My direct testimony can be summarized as follows. The testimony first introduces FPL's other witnesses in this docket, Ms. Kingston, Ms. Stubblefield, and Mr. Feldman. Then my testimony explains that FPL has a resource need for new generation of 1,052 megawatts beginning in 2019 and increasing thereafter. The resource need accounts for all DSM found to be reasonably achievable and cost-effective for FPL in the recently concluded DSM goals docket; therefore, there is no unaccounted for cost-effective DSM that can meet FPL's 2019 resource need.

In order to determine FPL's best self-build generating unit, FPL evaluated combined cycle and combustion turbine units at various sites as well as solar photovoltaic facilities. The result of the evaluation is that a large 1,622-megawatt unit, the

Okeechobee unit, was determined to be the most cost-effective choice for FPL's customers.

In accordance with Florida's Bid Rule, FPL issued a capacity RFP to solicit bids for meeting all or some of the 2019 resource need. No bid conforming to the RFP was submitted; therefore, there are no market alternatives to the Okeechobee unit, and it remains the most cost-effective best resource with which to meet our 2019 resource need. Therefore, FPL respectfully requests the Commission to grant a determination of need for the Okeechobee unit. Thank you.

Q Dr. Sim, does that conclude your summary?

A Yes, it does.

MR. COX: Thank you.

Dr. Sim, is tendered for cross-examination.

CHAIRMAN GRAHAM: Thank you.

Dr. Sim, welcome back.

THE WITNESS: Thank you.

CHAIRMAN GRAHAM: OPC.

MS. CHRISTENSEN: Good morning, Commissioner. I have some handouts that I'd -- if you would like to just pass out before I begin my cross-examination. We can just hand it out together.

Two of the exhibits have already been premarked for identification and admitted into the

record, so these are excerpted from that composite exhibit, and the other one is a copy of Commission rule for your convenience.

CHAIRMAN GRAHAM: Okay.

MS. CHRISTENSEN: I don't know if we need mark that one for --

CHAIRMAN GRAHAM: I don't think so.

MS. CHRISTENSEN: -- identification, but I went ahead and put a coversheet on it anyway.

(Pause.)

I think everybody has a copy of the exhibits.

CHAIRMAN GRAHAM: Sure.

EXAMINATION

BY MS. CHRISTENSEN:

Q Good morning, Dr. Sim.

A Good morning.

Q Good morning. Let me refer you to page 12 of your direct testimony. Let me know when you've reached it.

A I'm there.

Q Okay. And on page 12 of your direct testimony you talk about three reliability criteria; correct?

A Yes.

Q And you testify that the loss of load probability that FPL uses is 0.1 days per year or loss

of load of one day every ten years; is that correct?

A My testimony actually only refers to the former, 0.1 day per year.

Q Okay. And you would agree that the 0.1 day per year would translate into one day approximately every ten years; is that correct?

A That's a common translation, yes.

Q Okay. Now I want to refer you to the handout marked Exhibit 64 on the top, and you have -- that's FPL's response to ECOSWF's interrogatory No. 3. This was provided in response to a deposition question as to the loss of load probability absent any generation addition going forward; is that correct?

A Could you repeat the question, please?

Q This exhibit was provided -- it was provided as deposition Exhibit No. 6 to your deposition; correct?

A I believe that's correct.

Q Okay. And that this exhibit was provided as a -- to show the loss of load probability absent any generation addition going forward; correct?

A I'm not sure that's correct.

Q Okay. Can you describe what this exhibit was supposed to show in your -- well, let me take you here. Do you have a copy of your deposition in front of you?

A I do.

Q Okay. Let me take you to page 35 of the deposition. Do you recall -- and if you could read lines 7 through 9 and then read lines 15 through 20 and see if that --

A Let me first make sure I'm on the right page.

Q Sure.

A Does the page you're looking at start, "Question: Dr. Sim, what is FPL's current LLOP?"

Q That is correct.

A And which line, please?

Q I wanted to ask you to refresh your recollection with lines 7 through 10 and then further down the page where we talk about late-filed exhibits, line 15 through 21. And let me know when you're finished reading.

A All right. I'm through reading, and I think the relevant portion starts on line 4.

Q Okay. But in line 7 you would recall your response was, "My recollection, though, is that the LLOP, absent any generation addition going forward, would drive us to a reliability need, I believe, in 2022." And then the question was, "Do you have a numeric value on that?" And then you said that that was provided as a supplemental data request, and that was provided as late-filed deposition Exhibit 6; is that

correct?

A That is what it says, but the relevant portion of this discussion is not as you described it.

Q Well, I'm just asking what the exhibit was. The line 4 says, "I don't recall off the top of my head. We filed that with the Public Service Commission." You were asked to provide that supplemental data response as late-filed Exhibit 6, and I'm asking is the response to interrogatory No. 3 that late-filed exhibit?

A It is an exhibit that projects LLOP but with additional units being put in that appeared in our Ten-Year Site Plan, the 2015 Ten-Year Site Plan.

Q So then it was not provided in response to the question that was -- or the request that was asked, which was "absent any additional generation going forward"?

A I believe that was another interrogatory response.

Q Do you recall what interrogatory response that was provided in response to?

A If you'll give me a moment. Let me go back.

Q Uh-huh.

A The exhibit you put in front of me matches our response to interrogatory No. 2. And you also asked in interrogatory No. 4 for a similar request.

Q Okay. So does interrogatory -- and these interrogatories have been previously admitted into the record, I believe, Commissioner.

I mean, I can -- the table on the top of the exhibit says, "Table ECOSWF No. 3," so I'm not sure why that would be in response to interrogatory No. 4 since the actual header says "Interrogatory No. 3."

Let me ask you this, you would agree that the loss of load probability for 2019 without any additional generation is -- the total for that year is .054856?

A Yes, as was shown on our response to your interrogatory No. 4.

Q Okay. Let me move on. And would you agree that in -- that the loss of load probability without the proposed unit will not be close to the .1 loss of load criteria; correct?

A No, it doesn't equal 0.1. It equals 0.055, which in the LLOP world is getting very close to violating the criterion.

Q Right. But it's not 0.1; correct?

A It does not meet 0.1, but it's getting very close without the Okeechobee unit in 2019.

Q Okay. All right. I think we've already established what the numeric number is, so let me move on to the next question.

25-6.035 requires that peninsular Florida maintain an operating reserve; is that correct?

MR. COX: Objection to the extent this calls for a legal conclusion. Dr. Sim is not an attorney and he's not put on as an expert in the law or -- thank you.

MS. CHRISTENSEN: I would just state that he's the resource director for FPL and I'm sure he's familiar with the Commission's rules and what the rules require, and I'm asking in that capacity, not as a lawyer.

CHAIRMAN GRAHAM: I'll allow the question if Dr. Sim can answer it.

THE WITNESS: Could you repeat the question, please?

BY MS. CHRISTENSEN:

Q Certainly. Rule 25-6.035, *Florida Administrative Code*, requires that peninsular Florida maintain an operating reserve; is that correct?

A I think that's part of what that reads.

Q Okay. And an operating reserve is the amount of generation capacity that has to be available to the system operator within a short interval of time to meet demand in case a generator goes down or other disruption in supply; is that correct?

A I think that's generally correct.

Q Okay. And spinning reserve is the extra

generating capacity that can be available by increasing power-up generators already connected to the power system; correct?

A Again, generally correct.

Q Okay. And the spinning reserve, by definition, is met through generator or generation only; is that correct?

A That's correct.

Q Okay. I'm going to refer you to the handout marked hearing Exhibit 59, FPL's response to interrogatory No. 65 on page 2 of that response, and I'm going to direct your attention to the third hashmark down.

A I'm three.

Q Okay. And it has -- on that page it has the breakdown of the various components FPL used to decide on the 10 percent generation-only criteria; is that correct?

A You're talking the third hashmark on this page?

Q Yes. That's a description of the breakout of how FPL made its determination of what the -- what made up the 10 percent generation-only margin reserve criteria; correct?

A No, not the third hashmark. The third

hashmarks begins to discuss, as do the first two hashmarks that precede it, as to the overall process that FPL followed which led it to see the value in a generation reserve margin criteria and then to establish a 10 percent value as the value for the criteria.

Q Okay. This says that the -- their recommendation attempted to ensure the operator have approximately 2,650 megawatts of generation reserves. Is that correct what it says underneath the hashmark?

A I'm sorry. We may be discussing different pages. I thought you were on the first page.

Q No. I want to indicate page 2, third hashmark down.

A In that one we do talk about how the -- once we had established the need for a GRM criteria, how we established what that criterion value was.

Q Okay. So then it would be correct that it says -- it's basically a breakout of the various components FPL used in deciding the 10 percent generation-only reserve margin criteria; correct?

A What the value was.

Q Okay. Now looking at the numeric small numeral 3 underneath those breakouts it talks about 450 megawatts of FPL's share of Florida's reserve sharing obligation; is that correct?

A That is correct.

Q Okay. And that reserve sharing is the amount of operating reserves under Rule 25-6.035, ***Florida Administrative Code***, that FPL has been allocated; is that correct?

A Under the reserve sharing agreement, yes, that is FPL's share.

Q Okay. Now let me take you back to page 12 of your direct testimony. You also talk about a 20 percent reserve margin and the additional 10 percent generation-only reserve margin, correct, in addition to the 10 percent generation reserve margin; correct?

A Yes. We list all three reliability criteria on that page.

Q Okay. And FPL started to introduce the 10 percent generation-only criteria on its planning documents in 2014; correct?

A Repeat the question, please.

Q This 10 percent reserve margin generation-only criteria that FPL has been using, that was introduced in 2014; correct?

A Yes and no. It was introduced in our Ten-Year Site Plans going back as far as, I believe, 2011 as a concern of ours and as a metric we were tracking and we were analyzing. In 2014, we announced that we had

determined what an appropriate criterion value was and we began using it in our resource planning in 2014 with the understanding that that criterion would take effect in the resource plans in 2019.

Q Okay. So the answer to my question is, yes, you started using that criteria in 2014.

A If your question is using, it would be correct, 2014.

Q Okay. And you would agree that the Florida Reliability Coordinating Council does not use a 10 percent generation-only reserve margin; right?

A Would you define "use"?

Q As FPL uses it. Does the Florida Reliability Council use it in the same manner that FPL is proposing to use it here today?

A Again, I think my answer is both a yes and a no. In terms of using it in resource planning -- and let me step aside for a moment. The FRCC does not do resource planning as does -- as do individual utilities. They track what the individual utilities are doing and --

MS. CHRISTENSEN: Chairman, I think we're going a little bit far afield of what the actual question was. The question was "Do they use a 10 percent reserve -- generation reserve margin?"

CHAIRMAN GRAHAM: That's fine. Dr. Sim, as I normally do, I'll let them control how long they're going to let you editorialize. And if you can just give a distinct yes or no answer and a brief --

THE WITNESS: I'll do my best, sir.

CHAIRMAN GRAHAM: Thank you.

THE WITNESS: Can you repeat the question, please?

BY MS. CHRISTENSEN:

Q The question simply was does the Florida Reliability Coordinating Council use a 10 percent generation-only reserve margin?

A My answer is, yes, they use it in order to track trends in peninsular Florida's -- if you call it a utility system, as to the direction it's going for its dependency upon DSM resources. They do not determine at this point in time the adequacy of those resource plans using a GRM criterion.

Q Let me guide you to your deposition at page 95.

A I'm there.

Q Okay. Starting at line 14 through line 17, do you recall being asked, "Okay. Does the Florida Reliability Coordinating Council use a 10 percent generation-only reserve margin?" And your answer was,

"They do not use it as a planning standard." And then you go on to say that, "However, in the last couple of years they have done projections as to what generation-only reserve margin is projected to be for peninsular Florida." Do you recall that question and answer?

A I do, and it's consistent with the answer I just gave.

Q So they do not use it -- let me just make sure I'm clear, they do not use it as a planning standard; is that correct?

A The answer is yes with the clarification that planning standard is something that they judge the adequacy of resources.

Q Okay.

A They do track it and have for several years.

Q And you're not aware of any state commissions that have approved a 10 percent generation-only reserve margin; correct?

A That's correct.

Q And you would agree that FPL has never planned to meet its reserve margins solely through the use of DSM programs; correct?

A Let me ask a clarifying question. Do you mean by that when we look into the future, have we decided

we're going to meet all of that increased resource need solely through DSM?

Q I'm saying as a matter of planning resources, FPL never has planned to use -- to fill its 15 percent reserve margin or the 20 percent reserve margin using solely DSM programs; is that correct?

A Not -- the answer is, yes, that's correct, to the best of my recollection.

Q Okay. And just using a 20 percent reserve margin without a 10 percent generation-only component, you found that at least 5 percent of the reserve margin was being met through generation; is that correct?

A Can you specify a time period for that question, please?

Q Well, let me -- during your analysis when you were looking at the 10 percent generation reserve margin, when you did your analysis, when you did your initial analysis, you found that at least -- without establishing any generation reserve margin, you found that at least 5 percent of your reserve margin was being met by generation; is that correct?

A Again, you're not specific as to what time frame, so let me answer it this way. From the time we began to look at our dependency, our growing dependency on DSM to meet our resource needs, we were projecting

that generation-only resource needs were projected to drop below 5 percent. I think it was 4.7 percent at its lowest. But it was a steady decline from around 2010 down through 2018 or '19 at that point in time.

Q Let me ask you this clarifying question. With FPL having a share of operating reserves, you already have at least a portion of your reserve margin that must be met by generation; correct?

A Assuming circumstances allow it, meaning load, breakage of units, et cetera, then, yes.

Q Okay. You indicated, when you were taking your deposition, there was a winter peak day January 11th, 2010, where FPL exceeded the generation portion of its margin reserve and had to use DSM to maintain the load; is that correct?

A That is correct.

Q And you said that the January 2010 event was part of the analysis and decision-making in the development of the generation-only reserve margin; correct?

A That is correct.

Q During that event, FPL was supplying over 500 megawatts of energy to a neighboring utility; is that correct?

A Capacity, yes.

Q Okay. And at the beginning of the event you had 1,900 megawatts of load management and at the end of the event you still had approximately 1,100 megawatts of load management available; is that correct?

A Yes, with a slight correction. The 1,900 number should have been 1,700 megawatts.

Q Okay. And clarify, there was no firm load that was taken off the system during that 2010 event; correct?

A That's -- that is correct. It was about as close as we have come in recent memory.

Q Okay. And just a few questions in general about FPL's system. FPL has added solar units since 1999; is that correct?

A A small number of solar units, yes, as they have begun to become cost-effective in certain circumstances.

Q Okay. And do you know how many megawatts of solar have been put on FPL's system since 1999?

A Approximately 330.

Q Okay. And FPL has added new gas-fired units since 1999; is that correct?

A Yes. We have added new gas-fired units and we have retired considerable amounts of fossil fuel capacity at the same time.

Q And you would agree that these new gas-fired units have improvements in efficiency and reliability; correct?

A We're speaking reliability here?

Q Well, they're more efficient and more reliable than the units, the older units that were retired; correct?

A Again, I'm trying to determine whether the thrust of your question is reliability or fuel efficiency.

Q Well, let's break it up into two different parts and maybe that'll make it easier.

You would agree that when you've added these new gas-fired units, you've had improvements in efficiency; correct?

A Yes. They are much more fuel efficient, as would the Okeechobee unit be.

Q And you would also agree that the new gas-fired units that have been added since 1999 are also more reliable. They have better availability rates.

A Availability is not a factor in reliability.

Q Well, that they're more reliable generally speaking as a --

A In part, yes. In part, no. And if I may explain.

In regard to forced outage rates, meaning breakage of the units, they are generally projected to be more reliable than the older steam units that they replaced.

Q Okay.

A In turn -- however, to get that lower forced outage rate, one has to perform more and more rigid planned outages in order to maintain lower forced outage rates. So, therefore, from a reliability standpoint, we have much less flexibility as to when we can take units out. And in checking back after my deposition, I find that the planned outage hours are actually greater than the old steam units that they replaced.

Q So they're less reliable than the older units?

A They're more reliable in regard to forced outage. They are probably less reliable in terms of planned outages.

Q But FPL maintains control of when you do the planned outages; correct?

A Again, in part, yes, and in part, no. There are -- the new combined cycle units have very rigid schedules in terms of operating hours as to when they must go out. The old existing steam units, we had a lot more flexibility. We could delay a month, we could delay a couple of months sometimes. Here when you reach

that threshold of operating hours, you take the unit down.

MS. CHRISTENSEN: Okay. All right. I have no further questions. Thank you.

CHAIRMAN GRAHAM: ECOSWF.

MR. MARSHALL: Thank you.

EXAMINATION

BY MR. MARSHALL:

Q Good morning, Dr. Sim.

A Good morning, sir.

Q Reserve margin is calculated using a simple deterministic calculation.

A Certainly a deterministic calculation, and it can be -- it can be simple or it can be fairly complex depending upon what you try to account for, but it's definitely deterministic.

Q So it does not take into account probabilistic-related elements such as forced outage rates.

A That is correct. It generally is not accounted for in reserve margin calculation.

Q It also doesn't take into account the increased reliability that comes from having additional units in the sense that it looks at the overall reserve margin and doesn't look at how many units are in the

system.

A That is correct.

Q For example, two 50-megawatt units that can be counted on to run 90 percent of the time are more valuable in regard to utility system reliability than is one 100-megawatt unit that can also be counted on to run 90 percent of the time.

A Yes. And I believe you've read our 2015 Ten-Year Site Plan.

Q Yes. Reserve margin doesn't take that increased reliability into account.

A No, it does.

Q A probabilistic methodology is needed to take that increased reliability into account.

A Yes, as supposed to a reserve margin deterministic view.

Q And one such probabilistic methodology is the loss of load probability methodology; is that correct?

A Yes.

Q And this is a methodology that FPL utilizes.

A Yes. We've utilized it for decades. In fact, decades before 1999.

Q And the loss of load probability is essentially a calculation of the probability that FPL won't be able to meet all firm load.

A Correct.

Q Essentially the loss of load probability is the blackout risk from insufficient generation.

A I've never heard it termed quite that way, but in general, yes.

Q And this is one of the three reliability criteria that FPL uses.

A Yes.

Q For loss of load probability FPL currently uses a criterion of a maximum of 0.1 days per year.

A Correct.

Q As I think has already been stated, this is often, you know, often expressed as one day in ten years.

A Yes.

Q And this is calculated -- loss of load probability is calculated for each day of the year using the daily peak hourly load.

A Yes.

Q So in layman's terms, if the loss of load probability was one day in ten years, that would mean that you would expect that there would be one day where it would be expected that all firm load would not be met in that ten-year period because of lack of generation.

A Yes. If in every year of those ten years you

were at exactly 0.1 LLOP projection, you would expect that every ten years you would have at least one occurrence when you would not be able to meet firm load.

MR. MARSHALL: We have an exhibit to hand out, and this is excerpt from staff Exhibit 64. I don't know if, Mr. Chairman, you would like us to mark it as a new exhibit or just keep --

CHAIRMAN GRAHAM: We don't need to remark it, but thanks for handing it out.

(Pause.)

Okay.

BY MR. MARSHALL:

Q Dr. Sim, do you have the -- what was just handed to you in front of you?

A I do.

Q Now this is a loss of load probability projection created by Florida Power & Light?

A Yes, in response to interrogatory No. 1.

Q And this projection was created in -- the numbers underlying this projection were made in 2014; is that right?

A I'm trying to recall the exhibit. But subject to check, yes.

Q And this is a projection without the 10 percent generation-only reserve margin.

A Yes.

Q For 2015 the total projected loss of load probability was 0.000387 days per year.

A I'm sorry. For which year?

Q 2015.

A Yes.

Q And that works out to be about one day in 3,000 years.

A Subject to check on the math, yes.

Q I can give you a calculator, if you would like.

A That's fine. It seems about right.

Q That means that for over a 3,000-year period, if for every year in that 3,000-year period the number was 0.000387, you would expect there to be one day that all firm load could not be met.

A I'm sorry. Repeat the question, please.

Q If for that 3,000-year period the loss of load probability stayed at 0.000387, that would mean that over that 3,000 year period you would expect there to be one day where all firm load could not be met.

A Yes.

Q In 2018 the loss of load probability was projected to be 0.00782.

A Yes.

Q And that is the equivalent of less than one day in 100 years.

A Subject to check, yes.

Q Which is also below FPL's criterion of 0.1 days in one year.

A That's correct. And we were not projecting a resource need in either of those two years.

Q And just to be clear, this is a projection without the use of the 10 percent generation-only reserve margin.

A That's correct.

Q Directing your attention to 2018, the two months with the highest loss of load probability are August and July, in that order; is that right?

A For which year?

Q 2018.

A Yes.

MR. MARSHALL: We have another exhibit. This is also an excerpt of staff Exhibit 64.

(Pause.)

CHAIRMAN GRAHAM: Okay.

BY MR. MARSHALL:

Q Dr. Sim, this is the loss of load probability projection by FPL from the 2015 Ten-Year Site Plan assuming that no unit is built in 2019 and 2023 without

any other replacement power.

A That's correct.

Q For 2015 it projects a loss of load probability of 0.00338 -- 3338.

A Yes.

Q That is almost ten times higher than that which was projected in Table ECOSWF 1.

A You're comparing the 2015 values on each table?

Q Yes.

A That is correct. But, again, we're not projecting a resource need in 2015.

Q For 2015 September has the highest loss of load probability in the 2015 Ten-Year Site Plant LLOP projection.

A Are we back on interrogatory No. 4?

Q Yes. Back on interrogatory No. 4.

A Yes, September. And that is a key point that our load -- our peak can vary from month to month certainly over the summer, and that is a factor as one tries to evaluate results of LLOP analyses.

Q Well, in fact, September actually has a higher loss of load probability than all other months in 2015 combined; is that right?

A I have not done the math, but that appears to

be the case.

Q The loss of load probability for 2019 without the 2019 combined cycle unit is projected to be 0.054856.

A That's correct. And as I discussed earlier, in LLOP terms that is exceedingly close to violating the criteria.

Q It is still below FPL's 0.1 days per year criterion.

A Yes, it is, but it's very close to it.

Q In 2019, without the CC unit, combined cycle unit, September still has the highest loss of load probability of any month.

A Yes.

Q It's actually higher than the loss of load probability of July and August combined.

A That appears to be the case.

Q And even under this projection if no unit is brought online in 2019, the loss of load probability does not exceed 0.1 days per year until 2022.

A In this analysis, that's correct.

Q Shifting gears here slightly, what is the System Average Interruption Duration Index?

A I don't deal with that metric, so I cannot answer that question.

Q Is there anyone from FPL testifying today that you know of that does deal with this metric?

A I don't believe so.

Q Do you have any understanding of what it is?

A No. I don't deal with that metric.

Q Okay. Dr. Sim, do you deal with -- what is your role at Florida Power & Light?

A I supervise and coordinate analyses designed to determine both the timing and the magnitude of our resource need and what are the best resource options with which to meet that need.

Q And does that involve including analyzing system reliability?

A Yes. We analyze it in using the three criteria that you pointed out in my direct testimony.

MR. MARSHALL: All right. We have an exhibit to hand out. And this has not been entered into the record, so this would be Exhibit 73.

CHAIRMAN GRAHAM: Yeah, that's correct. Exhibit 73.

(Pause.)

Okay.

(Exhibit 73 marked for identification.)

BY MR. MARSHALL:

Q Dr. Sim, this is an excerpt of Florida Power &

Light Company's 2015 Status Update Report on Storm Hardening Preparedness and Distribution Reliability. Is that what it appears to be?

A That's what it says, yes.

Q If I could, I'd like to direct your attention to the last page. To your knowledge, this is a document prepared by Florida Power & Light?

A It appears to be, yes.

Q According to the last page, the best way of measuring distribution and transmission reliability is by the System Average Interruption Duration Index.

A Yes. These are metrics that are used by the transmission and distribution groups. They're not used by the resource planning groups. I have not seen this report, and we do not use these metrics in evaluation of generation reliability on our system.

Q According to this report, in 2014 FPL achieved a overall reliability adjusted of 66.6 minutes; is that right?

A That's what it says.

Q Dr. Sim, switching gears again, residential load management allows FPL to reduce demand at times of system emergencies typically during peak demand.

A Agree in part, disagree in part. We utilize load management for times when we have high loads, we

utilize load management for when we have unexpected outages of generating units on our system, and we also utilize it for localized areas of transmission problems, et cetera. So there are a variety of uses for load management.

MR. MARSHALL: Mr. Chairman, we have another exhibit to hand out. I believe this will be Exhibit 74.

THE WITNESS: I'm sorry. What was the previous exhibit number that you just gave?

CHAIRMAN GRAHAM: 73?

THE WITNESS: 73. Thank you.

CHAIRMAN GRAHAM: How many more exhibits do you have to pass out?

MR. MARSHALL: It looks like four.

CHAIRMAN GRAHAM: This is a perfect time for us to take maybe a five-minute break, and during that break can I get you to pass them all out?

MR. MARSHALL: Sure.

CHAIRMAN GRAHAM: All right. Let's take about a five-minute break.

(Recess taken.)

Okay. Now we've -- we labeled the first one -- we labeled the first one 73, we've already gone through that. The next one you just passed out was 74, which was excerpts from Florida Power & Light's 2015

Petition for Approved DSM Plan?

MR. MARSHALL: Yes, that's correct.

CHAIRMAN GRAHAM: Okay. So which one are you going to label 75, 76, 78?

MR. MARSHALL: I have as 75 the FPL Residential Load Control Program Rate Sheets 8.217, 8.218, and 8.219.

CHAIRMAN GRAHAM: Okay. That's 75.

MR. MARSHALL: 76 --

CHAIRMAN GRAHAM: Hold on. let's make sure everybody has got that marked.

Okay. Which one 76?

MR. MARSHALL: FPL's 2014 Demand-Side Management Annual Report.

CHAIRMAN GRAHAM: Okay.

MR. MARSHALL: And the other two are excerpts from admitted exhibits, so I don't believe we've been making those.

CHAIRMAN GRAHAM: That's fine.

(Exhibits 74, 75 and 76 marked for identification.)

Okay. You have the floor.

BY MR. MARSHALL:

Q Dr. Sim, were you able to follow all that marking of exhibits?

A I think so.

Q Okay. Well, if -- we'll try to make sure we keep each other on track.

A Thank you.

Q I'd like to direct your --

MR. COX: I'm sorry. Bradley, could you repeat what Exhibit 74 was, which one was 74?

MR. MARSHALL: The excerpt of FPL's 2015 Petition for Approval of Demand-Side Management Plan.

CHAIRMAN GRAHAM: That was passed out just before the break.

MR. MARSHALL: Do you have it, Will?

MR. COX: Right. I see the one that says -- I saw 76, the Demand-Side Management Annual Report, but I'm not seeing one that -- okay. Thank you. I have it here. Thank you.

BY MR. MARSHALL:

Q And, Dr. Sim, this is an excerpt of FPL's Petition for Approval of Florida Power & Light Company's Demand-Side Management Plan? Is that what it appears to be?

A That's what it appears to be, yes.

Q And this would be a report written by Florida Power & Light or a petition written by Florida Power & Light?

A Yes.

Q We were talking about residential load management programs. And there were two tariffs, correct, residential on-call and residential load control?

A Yes. I don't recall the names, but at least at one point in time there were two such tariffs.

Q I'd like to direct your attention to page 4 just so we can confirm the names, page 4 of Exhibit 74. Do you see at the top where it has -- where it says the two different tariffs?

A The page 4 I'm looking at has a -- in bold Cancellation of FPL's Closed Residential On-Call Tariff Sheets. Is that the right page?

Q Yes, that's the right page.

A Okay. And is there a question beyond that?

Q The question is so the two tariffs were called -- one was called residential on-call and the other was called -- is called residential load management -- or, I'm sorry, residential load control.

A Okay.

Q Is that right?

A There are references to those two on this page, yes.

Q And residential on-call was closed to new

participants in 2003.

A That's what it says.

Q Residential load control started as a pilot in 2003 and became a permanent program in 2007.

A That's what it says.

Q The difference between the two programs is the amount paid to customers to sign up their water heaters and their central air conditioners.

A That's my understanding.

Q And if you look at Attachment 2 to this exhibit, participants were given a $3.50 monthly credit year-round for signing up their electric water heater, if you --

A I'm sorry. Is there a question?

Q Is that correct, that that indicates that they were given $3.50 year-round if they signed up their electric water heater?

A Yes, on this particular tariff.

MR. COX: Chairman Graham, I'd like to enter an objection. Dr. Sim is clearly not familiar with this tariff and it's not been established, and counsel is simply reading parts of it and saying -- Dr. Sim is simply saying, "That's what it says." I'm not sure what the point of this is. Thank you.

MR. MARSHALL: The point of this testimony is

to establish that FP&L has reduced the payout from its demand response program. We plan to establish that maybe partially as a result their participation has not been meeting their projections, which goes to one of the key factors in this docket is are their cost-effective alternatives? And demand response, we believe, is certainly relevant to that.

CHAIRMAN GRAHAM: Just as long as it's leading somewhere.

BY MR. MARSHALL:

Q Now if I could direct your attention to Exhibit 75. This is the rate sheet for the residential load control program.

A I'm there.

Q So under the residential load control program the payment for conventional electric water heaters has been reduced to $1.50 per month.

A Yes, that's what it says in the tariff.

Q Going back to the previous one, the one that's been -- Exhibit 74, the participants were given a $6 monthly credit April through October to sign up their central air conditioning systems under option C.

A That's what the tariff sheet shows, yes.

Q Under -- under the residential load control project the $6 monthly credit has been reduced to $3 if

you go back and look at Exhibit 75.

A That's what the tariff sheet says.

Q Now I'd like to direct your attention to Exhibit 76, which is FPL's 2014 Demand-Side Management Annual Report. This would be a report prepared by Florida Power & Light?

A It appears to be.

Q Now I'd like to direct your attention to what is marked as page 5 of that report where it says, "Demand-Side Management Annual Report, Program Name, Residential, Load Management, On-Call" at the top.

A I'm on that page.

Q Since 2010 FPL projected a cumulative penetration rate of 2.7 percent with 94,700 cumulative participants by 2014 for the residential load management programs; is that right?

A Can you -- to ensure there's no confusion, can you direct me to a column heading?

Q Sure. This would be column D and column E for 2014.

A Okay.

Q The actual cumulative number of program participants in 2014 was 54,522 with a 1.6 percent penetration rate.

A Column G?

Q This would be column G and column H.

A Yes. That's what it says.

Q And so this was a total under projection of -- this was a total 40,178 participants under the projection.

A I'm sorry. Repeat the number, please.

Q So this was a total of 40,178 participants under the projection cumulative.

A Column I.

Q Column I.

A Yes.

Q Switching gears again, I would like to direct your attention to what's marked as staff Exhibit 61, Excerpt FPL's Response to Staff Interrogatory No. 80. Do you have that in front of you?

A I believe I do.

Q This is the bill impact of the proposed Okeechobee unit. This contains that bill, in fact.

A We're discussing interrogatory No. 80?

Q Yes.

A Okay. And was there a question?

Q Yes. The question is does this contain the anticipated customer bill impact of the proposed unit?

A Not quite. It is a bill impact projection, but it was based on an interim version of the Okeechobee

combined cycle.

Q Okay. And this projection would be if no other replacement power was made instead -- was created instead?

A Yes.

Q And for 2020, in nominal dollars the customer bill impact is projected to be $1.22 per 1,000 kilowatt hours.

A That is the projection.

Q And I'd like to direct your attention to the last thing that was handed out, which says, "Exhibit 44 Excerpt." This was based off of the draft exhibit list. In the final exhibit list it's actually Exhibit 50, Excerpt Schedule 2.1 from FPL Ten-Year Site Plan 2015 to 2024.

MR. COX: Bradley, was that Exhibit 50 excerpt or 44?

MR. MARSHALL: It is Exhibit 50 excerpt. Under the draft list it was Exhibit 44. We didn't have -- we just noticed that the exhibit numbers changed in the final exhibit list this morning, so I apologize that we don't have it corrected.

MR. COX: Not a problem. What's the exhibit number for today's hearing though?

MR. MARSHALL: It's Exhibit 50.

MR. COX: Thank you.

BY MR. MARSHALL:

Q And in 2020, based on Schedule -- well, first, Dr. Sim, this is from the 2015 Ten-Year Site Plan. It is, of course, a document prepared by Florida Power & Light?

A Let me make sure I'm on the right page. The top of the page in bold, Schedule 2.1?

Q Sure. Yes.

A Okay. We're on the same page.

Q Okay. That's always good.

The projected kilowatt hour average consumption per residential customer in 2020 is projected to be 14,118 kilowatt hours.

A That's what it says.

Q So if the plant that was built as indicated in Table Staff 80, the previous exhibit, where we discussed having the $1.22 per 1,000 kilowatt hour bill impact --

A Uh-huh.

Q -- if that was plant was built, that means that the -- with perfect ratemaking the expected increase in annual bills per residential customer due to the construction of this plant would be $17.22 just in 2020.

A If one were comparing unlike resource plans,

one of which has a 20 percent reserve margin and, therefore, higher reliability than doing nothing in 2019, yes, the customers would be paying more.

Q And that would be approximately $17.22?

A Subject to your math being correct, yes, that sounds about right.

MR. MARSHALL: Thank you. We have no further questions.

CHAIRMAN GRAHAM: Okay. SACE.

MR. MARSHALL: Oh, real quick, Mr. Chairman. Would you prefer that we move in exhibits --

CHAIRMAN GRAHAM: Afterwards.

MR. MARSHALL: Afterwards. Okay. I just wanted to check. Thank you.

MR. WHITLOCK: Thank you, Mr. Chairman.

EXAMINATION

BY MR. WHITLOCK:

Q Good morning -- afternoon, Dr. Sim.

A Good morning. Can you give me just a moment? I seem to be buried under paper.

Q I am as well, so I'll take that moment myself.

A I'm ready to go, sir. Thank you.

Q Okay. Thank you, Dr. Sim. Bear with me. I'm going to try not to tread back over too much ground that anybody has already gone over. If I do, it's

unintentional and we'll move through it.

Just so I'm clear and it's clear to the Commission, and I'm roughly looking at your direct testimony, page 12, FPL currently, as we sit here today, uses three reliability criteria when attempting to project the timing and magnitude of future resource needs; correct?

A Yes, sir.

Q Okay. And that's a minimum total reserve margin is one of the criterion; correct?

A Yes.

Q LLOP; correct?

A Yes.

Q And then the FPL-created minimum generation-only reserve margin; correct?

A Yes. We also use a GRM criterion.

Q Thank you. Now historically FPL has just used the dual planning criteria, I believe, as it's referred to in FPL's 2014 Ten-Year Site Plan of the reserve margin and the loss of load probability; correct?

A Up until 2014 that would be correct.

Q Thank you, Dr. Sim. And reserve margin and loss of load probability are commonly used in accepted planning criteria or reliability criteria throughout the utility industry; correct?

A Yes. I would say the electric utility industry sees value in both criteria as complementing each other.

Q Now in contrast to the reserve margin and the loss of load probability criteria, the generation-only reserve margin criterion is not a commonly accepted planning criterion throughout the utility industry; correct?

A At least to this point, yes.

Q And, yes, it is not a commonly accepted criterion? Am I understanding you right?

A Yes. To this point in time it is not commonly used.

Q Thank you. And, again, so I'm clear and so the Commission is clear, FPL's claimed need for the Okeechobee gas plant in this docket is not based on the loss of load probability criterion; correct?

A That is correct. It is based on both of the other two criteria, the total reserve margin and the GRM.

Q Okay. And I believe we talked about this a little bit in your deposition. The LLOP, or the loss of load probability criterion, that was driving FPL resource needs back in the 1990s; correct?

A At least in the early 1990s, that is correct.

Q But not since that time?

A To the best of my recollection, no, it has not.

Q And FPL has not come close to compromising this criterion in recent years; correct?

A Again, I'll refer back to our discussion of the projection for LLOP for 2019 without the addition of the Okeechobee unit. At .05 in LLOP perspective, it's coming pretty close, but we have not violated it.

Q Dr. Sim, I appreciate that answer, but that wasn't my question. If you'll listen to my question and answer my questions, I'd appreciate it.

A I will attempt to do so.

Q FPL has not come close to compromising the LLOP criterion in the recent years, in the past recent years, has it?

A Let me ask for clarification.

Q I'm not asking you about the future, Dr. Sim. I'm asking you about the past.

A LLOP -- let me explain my confusion over your question. LLOP is a projection into the future. One doesn't go back and look at what your loss of load probability was in reality. It is a projection into the future. Therefore, I'm confused by your question that you're not asking for a projection. So if you could

clarifying, please.

Q Okay. Well, I believe you've already stated that the loss of load probability criterion was not -- has not been driving FPL resource needs since the early '90s; correct?

A Yes, sir.

Q Okay. Thank you. Okay. Let's talk a little bit about FPL's 20 percent total reserve margin. The basis for FPL's reliance on that reserve margin is a 1999 stipulation entered into by FPL; correct?

A That was the starting point for its use by FPL, yes.

MR. WHITLOCK: Mr. Chairman, I'd like to pass out an exhibit at this point, if I could.

CHAIRMAN GRAHAM: Sure.

MR. WHITLOCK: Mr. Chairman, I believe this will be Exhibit 77.

CHAIRMAN GRAHAM: That's correct.

(Exhibit 77 marked for identification.)

(Pause.)

All right.

BY MR. WHITLOCK:

Q And, Dr. Sim, does this appear to be the 1999 stipulation that I've marked for purposes of identification as Exhibit 77?

A Yes, sir.

Q Thank you. Now, Dr. Sim, just looking on the first page of this, this was also Exhibit 1 to your deposition, this stipulation was approved by the Commission in Docket 981890-EU; is that correct?

A Yes.

Q Okay. And you're aware, are you not, that it was FPL's initial position in that docket prior to entering into the stipulation that the 15 reserve margin it had been using was sufficient and should not be changed to 20 percent; correct?

A That was our initial position which we ultimately walked away from.

Q Are you aware of any substantive studies or analyses that were conducted in Docket 981890 that supported the 20 percent reserve margin?

A I am not aware of what was presented or discussed in that 1999 -- in the docket that led to the stipulation simply because I was not a party to it.

MR. COX: Chairman Graham, I'd like to enter an objection. This line of questioning appears to be calling into question an issue that I think we decided as a preliminary matter is what the issues were in this proceeding in terms of whether there would be a different reserve margin than the one established in

this order. So I object to this line of questioning of Dr. Sim. It's not one of the issues the Commission is deciding today in this proceeding.

MR. WHITLOCK: Mr. Chairman, I'm just asking him about the docket. I'm not asking him anything about the 20 percent or the stipulation itself. I'm asking him about the background to the docket where the stipulation was ultimately entered.

MR. COX: Chairman Graham, I'd just point out that he just discussed 15 percent versus 20 percent, so clearly he's raising the issue that I didn't think was going to be part of this hearing per the ruling at the beginning of this hearing.

MR. WHITLOCK: Mr. Chairman, I certainly think it's relevant -- whether what FPL's position was in that docket as to a -- if it had a position that a 20 percent reserve margin was or was not appropriate prior to entering into the stipulation.

CHAIRMAN GRAHAM: Mary Anne.

MS. HELTON: Well, I think I heard Dr. Sim say that he was not aware of any of the circumstances that were surrounding the stipulation. So based on that, I'm not sure that he's the appropriate witness to be directing these questions to.

MR. WHITLOCK: Fair enough.

CHAIRMAN GRAHAM: Okay.

MR. WHITLOCK: I'll make a note of that for Dr. Sim's rebuttal testimony. Thank you.

BY MR. WHITLOCK:

Q Dr. Sim, do you believe it's good utility practice for a utility to rely on a 16-year-old study or analysis as the basis for its current reserve margin?

A I think it can be if the utility believes that there are no circumstances that would cause it to change it. As has been pointed out in some of the questions, we have used LLOP of one day in ten years that was set in place decades before 1999.

Q Certainly you'd agreed it's good utility practice for utilities to study and update their reserve margins, wouldn't you?

A If they see a reason to do so, I would say the utility would then be inclined to initiate a study for it, but FPL has not seen that. We have looked at -- several times at the 20 percent versus the previous 15 percent, and we've found that with the circumstances on our system, we feel it's advantageous to have a 20 percent reserve margin for reliability for our customers.

Q Dr. Sim, do you recall in your deposition I asked you the question, "Certainly you'd agree with me,

Dr. Sim, it's a good practice for utilities to -- to study and potentially update the reserve margins, if necessary, periodically, wouldn't you? Answer: Yes."

A If necessary was the key point in that question as I understood it, and we do not see it necessary to conduct such a study because we continue to believe that 20 percent is the appropriate criterion that was entered into in the stipulation.

Q And that belief is not based on any type of comprehensive reserve margin study that FPL has had conducted; correct?

A We have done studies in regard to 20 percent versus 15 percent both on a historic basis and on a projected basis, and we keep coming up with the same answer, that 20 percent is better for our customers in regard to system reliability than is 15 percent.

Q And when you talk about studies, you're referencing in-house FPL analyses?

A Yes.

Q You haven't had any third party come in and do a -- and conduct a neutral third-party assessment of FPL's reserve margin, have you?

A We have not for the reasons I just stated. We don't see a need to revisit it because we believe 20 percent remains the appropriate reserve margin

criterion level.

Q And you felt that way for 16 years?

A Yes, just as we have felt that the LLOP standard has been appropriate for 16 years plus several decades prior to that.

MR. WHITLOCK: Mr. Chairman, I've got what I'll mark as Exhibit No. 78. Actually this has already been -- I don't need to mark it. This has already been admitted, so.

CHAIRMAN GRAHAM: Okay.

MS. HELTON: Mr. Chairman, I didn't hear him say what exhibit number it was already marked as.

MR. WHITLOCK: I'm sorry. This is Exhibit JDW-2, which is Exhibit 29.

(Pause.)

CHAIRMAN GRAHAM: Okay.

BY MR. WHITLOCK:

Q Dr. Sim, do you have that Exhibit 29 in front of you?

A The Astrape study?

Q Yes, sir.

A Yes, sir, I do have.

Q Okay. And I'd represent to you this is a generation reserve margin study conducted for Duke Energy Carolinas in 2012 by Astape Consulting. Is that

what it appears to be to you?

A Yes, sir.

Q Okay. Now you'd certainly agree that studies like this constitute good utility practice, would you not?

A I would say if one believes in the methodology, then it would constitute a reasonable way to take a look at reliability if one felt the need to perform such a study, if one had lost confidence in the reasonableness and appropriateness of your current reliability criteria, which FPL is not at that point.

Q And you cannot ID any study like this for FPL since at least 1999, can you?

A That's correct. We have not performed a study as this even though we have discussed a study with Astrape for FPL.

Q Okay. Let's talk about that. When did you discuss doing a generation reserve margin study with Astrape?

A We discussed it -- let me back up. We discussed it probably -- I don't have an exact date. It was probably eight years or so ago, somewhere in that ballpark. And the FRCC also discussed having a study done by Astrape. In both cases both FPL and the FRCC decided against it.

Q Well, Dr. Sim, you've -- we've sat here and you've told me over and over that FPL just hasn't seen any reason why it would need a generation reserve margin only study -- or generation reserve margin study, so why did you talk to Astrape about having one done?

A Partly out of professional courtesy. I sit on a group, the Southeastern Electric Exchange IRP Task Force that meets twice a year. The Astrape folks come from Southern Company. They branched out, opened their own company, and they've performed services for some of the utilities in the Southeastern Electric Exchange. They suggested it might be to FPL's advantage to at least consider what Astrape might be willing -- might be able to offer us. So out of courtesy to those who were suggesting it and out of curiosity as to what Astrape might be able to add, we asked them down. And we discussed how they approach their studies, and we eventually decided that, no, there was nothing here that would -- that could fit with FPL and our view of reliability.

Q Now what these studies -- one of the purposes of these types of studies is to balance the need for reliability versus the need for adequate electricity at a reasonable cost; correct? To balance the need for reliability and the impact on a utility's ratepayers;

correct?

A In general. But I'd characterized it as being of two parts. Number one, Astrape generally determines or seeks to determine reserve margins based on an LLOE, which is very similar to LLOP, of one day in ten years, what would that reserve margin be? They also take a look at what reserve margin would provide the lowest CPVRR cost as they define it. So those are the two types of studies they typically do for a utility.

Q Dr. Sim, I'm certainly not suggesting that FPL would be limited to a reserve margin study performed by Astrape Consulting. I imagine there are certainly other third-party outfits out there that do these types of studies; correct?

A I imagine there are. But based on my discussion with my peers, the current trend at that time, since Astrape had branched out off of Southern, was these folks have something new, they have a different approach to it. It might be worth you folks taking a look at it. We did. We determined it would not have value for our system for a variety of reasons.

Q Was FPL concerned that an Astrape study might result in a showing that a 20 percent reserve margin was excessive?

A Not at all. We had problems with their

methodology, and we still have issues with their methodology.

Q Have you investigated other third-party consultants besides Astrape to see if you might be more comfortable with their methodologies?

A We have not because, again, we have -- we are very comfortable with the 20 percent reserve margin and we feel like that level is appropriate.

Q Well, Dr. Sim, help me and the Commission understand, what's the harm in having a third-party consultant come in and do a reserve margin study to assure you that what you've been relying on for 16 years remains appropriate at the current -- in modern times?

A Because our own studies have shown that 20 percent is better than the previous 15 percent just as we remain comfortable in the decades older LLOP of .1 day per year.

Q Well, Dr. Sim, your own studies certainly are not like this, are they? Your own studies are anecdotal analyses; correct?

A No. I would not characterize them as that. I will give you that our studies are not this thick.

Q And they're not this comprehensive either, are they?

A And that is correct. And in our view, they

are not using a flawed methodology for FPL's purposes that this particular vendor applies.

Q Well, once again, why have you not researched what other vendors used and found a methodology that would be appropriate for FPL?

MR. COX: Chairman Graham, objection. I think Dr. Sim has been asked this question several times and answered it several times now.

CHAIRMAN GRAHAM: I agree. Please move on.

(Transcript continues in sequence in Volume 2.)

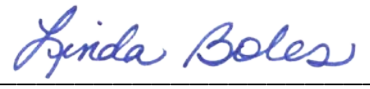
STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, LINDA BOLES, CRR, RPR, Official Commission 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 2nd day of December, 2015.



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