BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 070650-EI

In the Matter of:

PETITION TO DETERMINE NEED FOR TURKEY POINT NUCLEAR UNITS 6 AND 7 ELECTRICAL POWER PLANT, BY FLORIDA POWER & LIGHT COMPANY.

_____/

VOLUME 5

Pages 449 through 576

ELECTRONIC VERSIONS OF THIS TRANSCRIPT ARE A CONVENIENCE COPY ONLY AND ARE NOT THE OFFICIAL TRANSCRIPT OF THE HEARING, THE .PDF VERSION INCLUDES PREFILED TESTIMONY.

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN MATTHEW M. CARTER, II COMMISSIONER LISA POLAK EDGAR COMMISSIONER KATRINA J. McMURRIAN COMMISSIONER NANCY ARGENZIANO COMMISSIONER NATHAN A. SKOP
DATE:	Thursday, January 31, 2008
TIME:	Commenced at 9:30 a.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Official FPSC Reporter (850) 413-6732
APPEARANCES:	(As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

NUMBER:	ID.	ADMTD.
23 through 31		483
32 through 39		555

P R O C E E D I N G S

(Transcript continues in sequence from Volume 4.)

STEVEN D. SCROGGS

continues his testimony under Oath from Volume 4:

COMMISSIONER ARGENZIANO: Okay. So, then, it is different, obviously, as to -- your explanation is different than what you perceived previously.

And, Mr. Chair, I couldn't agree more, we need to find out what is really going on.

Thank you.

CHAIRMAN CARTER: Thank you, Commissioner.

That's one of the good things about what we are doing now is we are listening, and we are going into and digging into the details and all like that. And it is great for each one of us to be able to look at this issue from -- because, wherever we go, we are going to have to defend what we do, and it has got to make sense.

So, Commissioner Edgar, you are recognized.

COMMISSIONER EDGAR: Thank you, Mr. Chairman.

If I may be given a little latitude to just get some thoughts together, and hopefully it will all tie together.

You know, in my mind, we have got -- it's a multi-step process, and we have a couple of different proceedings going on within a larger proceeding. And there was, of course, the prehearing conference, prehearing. And

from that was issued the prehearing order, which put us in the proper posture in order to come to the next step, the evidentiary hearing.

I did have some frustration yesterday, and I apologize to my colleagues for showing that, because I generally try to have a better poker face, but I had some frustration because I felt that we were at an evidentiary hearing and that part of the reason we are here live and in person, or audio, was to be able to ask questions to flesh out the information that we had been provided.

And if not, then we would have a paper hearing and we would not have to, you know, spend all this time altogether in this room. So I had some frustration. And part of that was that I was trying to ask what to me seemed to be direct questions, and I didn't feel like, in some instance, I was getting direct answers. Perhaps my questions were not as clear as I thought they were.

But that brings me back around to -- I think the prehearing conference appropriately laid out issues for additional record building and questions and discussion at this point in the process. And at this point in the process I think it is appropriate for the parties and for staff and for each Commissioner to ask questions if we have them. So I am pleased that we have been able to have some discussion on this point. I realize that we may seem to be belaboring a fine -- one fine

point when there are so many, but I think it is helpful to clarify. I did have some question, and I continue to, as to if this issue were to be approved, if that is the direction this Commission wants to go, whether is that a finding of prudence, and that may be what is the right thing to do. If it is, I just wanted to have a better understanding that, indeed, that is what we would be doing.

If, indeed, this Commission deems it appropriate and the best instance in light of the statute and the rule and every other factor that we approve Issue 9, then to me it is helpful for us to have some discussion as to what the actual language means. And maybe, you know, maybe the language needs to be adjusted slightly. And I see that as a good part of the process, and not as a criticism or anything like that. So I thank each of you for your questions that are helping me think through, but in my mind, you know, the prehearing is one step, but we are at just a different step in the process. Thank you.

CHAIRMAN CARTER: Thank you very kindly.

And, Staff, I'm sorry to interrupt you, but, you know, sometimes when you ask a question, and each one us are kind of listening for certain things, and we hear that. So this was kind of -- I really enjoyed the questions yesterday in terms of looking at this issue from a multi-faceted perspective, and I just wanted to make sure as we go forward, first of all, I want to say, because I don't want anybody to

get the wrong idea, we, the Florida Public Service Commission, are not trying to put a chilling impact on any company trying to do the right thing. None of us, none of the five of us are. And I think that if you look at every vote that we have ever taken, it doesn't show that. Our votes show that we are going to be diligent, dutiful, responsible, and we are going to try to ensure that we keep the lights on. So, I do want to say that. And because we are talking about one -- this is like one of, what, one of ten issues. And we are talking about one issue. This doesn't mean that we have an axe to grind, no pun intended, for Japan Steel Works or any other works. It's just that in this process here, when we get into the evidentiary hearing, as we were down in Miami and later on yesterday when we talked to the public and said there is a public hearing where the public comes and they get a chance to say the things that are important to them, and we take that very serious, and then we told the public that after that there is a more formalized hearing, an evidentiary hearing where people are sworn in, have their depositions, we have cross-examinations not only from the parties but also from the Commissioners and our staff.

So I think this is a dynamic process. Commissioner Argenziano served many years in the Legislature, so she is well aware of how important it is to have the public, you know, for the public to know what's going on, but, also, making the

decisions. And that is the kind of thing about it, we want to make a decision, but we need to have all of the facts. We want to have all of the facts.

And I know that sounds like I'm on a soap box, but I just wanted to kind of set the tone for where we are. We are going to work through the process, and as we always do, we are going to have the best possible position one for the ratepayers and two for the companies.

Commissioner Skop, you're recognized, sir.

COMMISSIONER SKOP: Thank you, Chairman Carter.

And touching upon the points that Commissioner Edgar raised, which I think were excellent points. Again, I don't think that necessarily FPL has precluded itself from the issue as written. Because, again, that certainly is one option we have heard. But, again, the secondary option, the fallback option or the option that maybe was not as further definitized via through a vendor or not being able to be readily transferable, I think what I heard from Mr. Scroggs, if the contractual terms could entail reserving a queue directly with Japan Steel Works, that works directly -- and he did say that was one of the options. But, again, I think part of the issue is we don't know what the commercial terms are yet.

But, again, if it has gone through the vendor and directed for the benefit of, then the portability of that -- we have had portability used in the news lately for a good reason.

But, again, I think that it is equally important to make sure that that is portable, if it is done in the indirect payment method as opposed to the direct. But, again, that's not predetermined to even getting to that issue until we have a determination on need. So, again, I think that this issue is being properly fleshed out. And I do think that if representations were made by FPL to the extent that it would be a direct contractual arrangement with Japan Steel Works that would probably be more on line, or that issue about moving it from one vendor to the other without penalty or harm to the consumer or the ratepayer, that would also be another thing that would probably be consistent with the issue as currently framed.

But I am concerned. I do share Commissioner Edgar's concerns, as well as Commission Carter's concerns, and Commissioner Argenziano's concerns, and Commissioner McMurrian may have even chimed in, so my colleagues' concerns about we need to make sure we know with certainty what we are doing to the extent that we are making the right decisions before us. So, again, I still am supportive, but I need to make sure that we haven't substantially departed from the way the issue was framed before us.

Thank you.

COMMISSIONER EDGAR: Thank you.

Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you. I have, of course, managed to remain quiet on this so far, but I just want to throw out something, I guess, to Commissioner Skop and to my other colleagues about this.

Commissioner Edgar mentioned that perhaps there is some way to modify the issue. And I know that we don't normally look at modifying issues at this stage, and I'm not necessarily suggesting that. Given the confusion it seems that we are having, I just wonder is there, and I wanted to pose it to Commissioner Skop, is there some way to -- and I have played with it a little bit myself, but I don't think that it answers all the questions that have been raised about whether or not this issue is asking for a determination of prudence, and perhaps that is something that we deal with in how we answer the issue.

I think that it is clear from the prehearing positions that I believe that FPL is seeking a prudence determination. It may be more broad or more limited than exactly what the issue is. But I just wanted to throw out is there some way -- would it be helpful at this point to entertain perhaps making a little more broad, especially with respect to whether the payment goes directly to Japan Steel Works or through another vendor to perhaps take out the language that says to Japan Steel Works. And it just leaves the concept of approximately 16 million in order to preserve

the potential for the in-service dates. And perhaps taking out the language about should FPL commit, and just leave it should FPL -- and then you have the phrase set off in commas, and then strike the to, as well, and say make advanced payments.

I'm not sure that still clarifies whether or not the Commission is giving them direction to make those payments or not, but it would, perhaps, tone it down somewhat and take out the commit language. But I just throw that out for your consideration. I think it would still leave the ability for all the parties to still make the arguments that they have been making, but at this stage of the process I don't intend to try to confuse it and make the testimony not fit the issue, as well.

COMMISSIONER SKOP: And, Commissioner Edgar, may I be recognized?

COMMISSIONER EDGAR: Yes, sir.

COMMISSIONER SKOP: Thank you.

And, again, I think that's an excellent point. Again, it may be a little non-traditional and have to tweak an issue on the fly, but certainly we can make the issue conform to the evidence if we choose to do so. But, again, it is an excellent point that you raised, and I think Commissioner Edgar has touched upon.

Just as a point of information, a little background, when this issue came before me, again, it was a difficult

decision at best. There was merit, as I explained yesterday, but as the issue originally came, there were some iterations, and there was a potential staff modification floating around out there.

My concern was that if we came with broad language, again, it would put us, or my colleagues in a very difficult position to the extent that it was not as definitized as it should be to make this type of thing. And that was my whole-hearted concern is that we are not in the process, nor should we be, nor should I put my colleagues in the position of being forced to consider writing a blank check. So, to me it was very, very, very important to make it as discreetly definitized as possible. We vetted that in detail with the parties, OPC and FPL. So, again, we got to the issue as it stands now.

Certainly I'm open to the possibility of tweaking that, to do the right thing for the ratepayer, if that is the direction that we need to do. You know, I am concerned about the portability aspect. The issue may, as written, be properly framed if FPL could figure out in short order whether they are willing to go directly to Japan Steel Works to have the option to use it for either vendor to reserve the queue, then there is no problem as written. But certainly I'm open and flexible to addressing the issue that has cropped up before us to the extent that we are trying, I think, to do the right things when

it is necessary to do so. However, we need to make those issues discreetly conform to what is being presented. And so I'm certainly open to that suggestion that Commissioner McMurrian presented, Commissioner Edgar. And I think you and Chairman Carter had some concerns there, too. So I'm willing to work with everyone to get the right result. It is just, again, my concern was I didn't want to present it as broad or it to come in as long lead payments. To me that is pretty nebulous. We need to know discreetly what we are being asked to do, and I would certainly not put my colleagues in that position. So that is why, again, it was supposed to be very discreet. But, again, there is some uncertainty now. So I think I have said enough on that issue, but hopefully that explains it. And, yes, I am willing to entertain that, should we need go there. Thank you.

COMMISSIONER EDGAR: Thank you, Commissioner Skop and Commissioner McMurrian. The word collegial is in my mind, and that makes me so happy.

A couple of thoughts. Again, and I am repeating myself. I wanted to be clear as to what this issue would mean if we decided to go forward. And having the discussion of the questions, I'm not yet completely clear, but it has helped, it has absolutely helped my thinking. So thank you for that.

I do continue, just for me, to have a concern that this issue, as worded, would put this Commission further into

management decisions than I am completely comfortable with, and that is still a concern that I have. I also recognize that we have another witness later in this hearing who I think can address some of those points, and I'm looking forward to asking some questions and hearing the other questions and, hopefully, that will flesh that out a little bit more.

I also would make the point, again, that one of the questions still in my mind is because it is a new statute, as you have pointed out, Commissioner Skop, and, therefore, whatever we do on this, one way or the other, yes, no, up, down, somewhere in between, I do see as very precedent setting, and, therefore, I want to be all the more clear as to what it really means.

So with that, those comments, I would ask if perhaps, you know, Commissioner McMurrian, you have made some suggestions. We do have additional witnesses, and at least one that I think is going to be on point some to this specific issue, in addition to the current witness, that I know that the parties are listening carefully, which I appreciate, and our staff, and perhaps there could be further discussions between the parties and staff. And, again, of course, we do have the additional witness. So, I say we let the process kind of proceed. It generally works, and we will see where it takes us.

Commissioner Skop.

COMMISSIONER SKOP: Thank you, Commissioner Edgar.

And, again, I think those points are extremely well taken. And also, too, I would just add before we went back to staff conducting its questions to round out the record, it would probably help this Commission immensely if FPL in terms of lunch or over the course of this proceeding can kind of definitize which direction they think they may want to go with this. I mean, I'm not hearing -- I'm hearing concerns for the right reasons, and I think Commissioner Edgar has properly raised those, as I think that all Commissioners probably have that in the back of their mind. I do think that it would facilitate the decision-making process substantially if we can get some further definitization of where you guys think you may want to go with this in very short order.

COMMISSIONER EDGAR: And, again, we have witnesses for the rest of the day. And although I know some of us had hoped that maybe we would be done today, I don't know that I can optimistically project that. So I think we will be probably gathered together tomorrow, and so I think there is opportunity for some of that, again, those discussions between all parties and staff. So, thank you.

Commissioner Argenziano, do you have any additional comment at this point?

COMMISSIONER ARGENZIANO: No, Madam Chair, I'm fine. Thank you.

COMMISSIONER EDGAR: Thank you.

COMMISSIONER SKOP: Thank you, Commissioner Edgar.

And, again, I think I have one quick question before we turn it over to staff for Mr. Scroggs.

Would it be possible, hypothetically, and, again, I don't want to be thinking for anyone, but, again, the way your testimony is reflected there is currently two options floating around. One is a direct payment to Japan Steel Works based on contractual terms through one of the two respective potential vendors. Is there some reverse notion where it could go directly to Japan Steel Works and then be assigned to the particular vendor for the benefit of?

Like, typically, if you were going to go directly to one of your vendors like Westinghouse or GE, that payment would be made to the vendor for the benefit of. And I guess what I'm asking is perhaps the opposite of that. If you made the payment to Japan Steel Works as the issue is framed, then it could be assigned for the benefit of the respective vendor source selection that you chose.

THE WITNESS: Yes, sir, that is a possibility, I assume, at this stage. Let me just say that in terms of reason that we might consider going through a vendor would be to leverage the buying power of that vendor who is going to be buying multiple sets, and that we also do business with our existing fleet so that we may be able to get a better deal for

the customers in risk mitigation through a vendor than we could being one entity buying one set of forgings from Japan Steel Works. We just haven't fleshed that out at this stage.

COMMISSIONER SKOP: And as a quick follow up, again, I think that the concern that Chairman Carter raised as echoed by Commission Edgar, that portability function, I think, is a very, very, very, very important contractual term to flesh out in short order for this Commission to, perhaps, even get more comfortable or go entertain that. Because, again, if it's not portable, I think as Chairman Carter stated and I think Commissioner Edgar has kind of stated, that is an issue. So, again, hopefully we can resolve those in short order.

COMMISSIONER EDGAR: Thank you. Questions from staff.

MS. FLEMING: Yes, we still have more questions. Thank you.

CONTINUED CROSS EXAMINATION

BY MS. FLEMING:

Q Mr. Scroggs, could I have you turn to your Late-filed Exhibit Number 2 from your deposition, please.

A Yes, ma'am.

Q Can you explain -- just briefly explain the substance of this exhibit?

A This exhibit is this spreadsheet that I relied upon. The first page that is entitled FPL AP 1000 COD July 2018 and

July 2020, that page was the information provided directly from Westinghouse. And then --

Q I'm sorry, if I may interject for a moment.

Commissioners, this is identified as Exhibit Number 15 to Staff's Composite Exhibit Bates stamped Number 712 and 713.

I'm sorry. Go ahead, Mr. Scroggs.

A This was the base information that we were provided with from Westinghouse Nuclear, and then the second page where it says summary of long lead would be where I took that information and instead of 2007 dollars, escalated it out in time to years spent dollars, and represented it in a way that is more consistent with how we represented costs in this filing.

Q At the table appearing at the top of the FPL API 1000 COD July 2018 and July 2020, which is Bates stamped Number 712. Do you see that?

A Yes, ma'am.

Q This table appears to indicate that Japan Steel Works forging slots, is that correct?

A That's correct.

Q And this table appears to indicate that it would cost FPL 100 million in 2008 and 2009, is that correct?

A That is not correct.

Q Okay. Can you explain that for me, please?

A You see on the title above the years in that specific table, it reads expenditure schedule, paren, percent of price per year, end paren. That represents that that 100 is an indication of 100 percent of the payment for the forging slots would be required in 2008.

Q And is that 100 percent referring to the 16 million?

A That is the number that we developed, yes, ma'am.

Q Now, below that there are several notes, 1 through 6. Note 2, specifically, has an asterisk and it says forging slots reservation fee applies to SG and RV for 2 AP 1000 units.

A That's correct.

Q Does SG and RV, does that refer to steam generator and reactor vessels?

A Correct.

Q Now, in the table at the bottom of that same page, is it my understanding that this also shows the forging slots and the expenditures in 2007 dollars, is that correct?

A That's correct.

Q And there is a dollar amount there of 12 million for 2008?

A That's correct.

Q And why is there is a dollar amount of 12 million when we have been stating that it's a $16 million reservation fee?

A 12 million was the specific value provided to us by

Westinghouse in 2007 dollars.

Q And there is a column there that is labeled reservation year. Is that the year where you intend to put in specific forging slots?

A That is correct.

Q And is it my correct reading that you have -- for 2008 reservation year you have RV 1, RV 2, SG 1, SG 2, RCP 1, and RCP 2?

A That's correct.

Q Now, looking at the table above, you had designated the forging reservation fee, it applies to RV 1, RV 2, SG 1, and SG 2, correct?

A Correct.

Q What does the RCP 1 and RCP 2 refer to in the bottom table?

A These would refer to forgings associated with the reactor coolant pumps for Unit 1 and the reactor cooling pumps for Unit 2.

Q And were those costs or expenditures included as part of the table above?

A Yes.

Q Okay. Can you explain that to me? I guess I'm confused as far as looking at the column in 2008 to 2009 you have asterisk designations. And looking at your note, it says forging slots reservation fees apply for SG and RV for two AP

1000 units, but I don't see that designation for RCP 1 and RCP 2. Can you explain that for me, please?

A This is the specific spreadsheet provided to us by Westinghouse, so this is not my document with my notes. These are notes that were provided to us in discussions with them. We were asking is this reservation fee sufficient for the complete set of all forgings we need for a two-unit project. And the answer we received was yes. So that is how we have represented them to you.

MS. FLEMING: Okay.

COMMISSIONER EDGAR: Commissioner Skop.

COMMISSIONER SKOP: Thank you, Madam Chair.

Also, again, this is a point of information. Because I see where staff is rounding this out on the Late-filed Exhibit 2, on the first page of that hearing exhibit where it was the 12,000, and then the subsequent page looks at rounded and escalated pricing. If staff would look at Staff 6th Set of Interrogatories, Interrogatory Number 92, Page 1 of 1. And also followed by Staff's 6th Set of Interrogatories, Interrogatory Number 89, Page 1 of 1. To me, I mean, that's the information I had available, again, when we definitized the issue. Again, this was late-filed. I recognize there may be some variability which we are trying to flesh out. But I think if you correlate what I was seeing on Interrogatory Number 92 for costs incurred, the 16,208,000 on this document, you

guys probably don't have it, but then it has the breakdown of each item, the forging fee, and the long lead materials that are also kind of articulated on the late-filed exhibits.

I think between the two there probably is that correlation and comfort level because at the end of the day the dollar numbers at least to me seem to be somewhat consistent, but I just wanted to point that out as a point of information. Because, again, the Staff's 6th Set of Interrogatories on 89 and 92 are the ones I kind of looked at, and I am seeing some sort of consistency. But, again, I will let staff flesh that out. Thank you.

COMMISSIONER EDGAR: Thank you.

Ms. Fleming.

BY MS. FLEMING:

Q Mr. Scroggs, with respect to the late-filed exhibits, as we have had different dollar amounts, and on the top of Page 713 there is a $15 million amount in 2007 dollars, correct?

A Correct.

Q And I guess what I'm trying to reconcile is the $12 million on the prior page versus the 15 million on the following page. Can you explain the discrepancy to me, please?

A There is no discrepancy. Again, we used as an input as information from the vendor an estimate that they gave. And if you will look on that first page, right next to the term forging slots in the lower graph it gives an estimate between

8 to 12 million. Okay. And then they used 12 million.

Given the uncertainty of this, we wanted to make sure that we covered appropriately the range that could occur. So I made a decision that 15 million would give me an adequate cover over an uncertain price estimate, and recognized we are using the Westinghouse estimate to represent not only the Westinghouse, but if we went with GE, as well. So, again, that was a judgment call on my part.

Q Thank you for clearing that up. I appreciate it.

Now, earlier you stated that the reservation fee, the 16 million, is still subject to further negotiations, is that correct? Is that my understanding?

A That is correct.

Q So is it fair to assume that the 16 million reservation fee could go up or down at this point?

A That's correct, it could. But we feel that we have provided a number that is very representative of what we expect it will turn out to be.

COMMISSIONER EDGAR: Commissioner Skop.

COMMISSIONER SKOP: Thank you, Madam Chair.

And also to staff, again, on Issue 9 it was framed as approximately 16 million. My concern, again, was when I framed that issue is making sure it was very definitized and more of a, kind of, not to exceed number so we are not writing a blank check. But, again, it does say approximately.

COMMISSIONER EDGAR: Ms. Fleming.

BY MS. FLEMING:

Q Mr. Scroggs, earlier you testified that there will be some remarket opportunity in the future if FPL decides not to proceed with this project, is that correct?

A That's the information we have available. We believe that there may be remarket opportunity.

Q And is that remarket opportunity for the reservation for -- can you explain that remarket opportunity?

A Yes, ma'am, associated with the forging slot reservation fee.

Q If reservation payment is made and for some reason FPL does not proceed with this project, and the remarket value is less than what FPL paid, would the incremental difference between the price paid and the price you received, would it be borne by FPL customers?

A It would be a part of the project costs, yes, ma'am.

Q So, conversely, if the incremental difference between the price paid and the price received is higher, then would that flow through for the benefit of the customers?

A Absolutely.

Q I just want to touch on a few points you made yesterday. You discussed yesterday, you touched on why it's necessary to get a Commission approval now for the advance payment for the forgings. Is it correct that in the past FPL

has made advanced procurements or reservations?

A If you are speaking of conventional generation equipment, yes, it is practice to make some advance payments. However, the lead time associated with those payments are much smaller than the lead time specifically associated with these long lead components.

Q And what were those advanced payments, were they combustion turbines and steam generators?

A I believe that is correct, yes, ma'am.

Q And if you know approximately, what was the lead time for those?

A Those would be measured on the order of months, whereas with the nuclear project we are looking on the order of years.

MS. FLEMING: Okay.

COMMISSIONER EDGAR: Commissioner Skop, did you have a question?

COMMISSIONER SKOP: Thank you, Madam Chair.

With respect to those payments in that context, what is the difference in the order of magnitude between, like for a combined cycle plant versus these ultraheavy forgings in terms of what is typically expended for those, or is it different because it is such a short lead time between them? I mean, typically you put a combined cycle plant up in four years, or three years, depending on how quick you get the long lead

components. So would it be fair to make any sort of comparison between the order of magnitude of what's necessary to get the forging reserve for the proposed nuclear units, or would that be not a good comparison?

THE WITNESS: I would be -- having no specific information in front of me to compare, I would say in general the percentage of project cost being necessary to secure the reservation in the nuclear issue is much less on a percentage basis compared to the final cost of the components being procured.

COMMISSIONER SKOP: Thank you.

COMMISSIONER EDGAR: And, Ms. Fleming, before I call on you again for questions, let me ask you this question.

Chairman Carter had to step away. He had said that he had intended to stop around noon, and I want to, of course, keep us on his time frame. However, I also kind of like to round out witnesses or portions of the proceeding, and we have kept you here for a very long time. Thank you for your patience. About how much longer do you have with questions?

MS. FLEMING: Just two questions.

COMMISSIONER EDGAR: Oh, okay. Then let's go ahead.

MS. BRUBAKER: Actually, if I may, I hate to impinge on Commissioner Carter's time frame, but I also have maybe five, maybe ten, at the most, minutes of questions, if I may.

COMMISSIONER EDGAR: Commissioners, are you okay to

go ahead, or do you want to break?

All right. Then, again, let me just make sure, because he had said that we would break around noon. Is there a problem with anybody else's time frame if we go just a little while longer and take a lunch break? No? Okay. If there is, let me know.

Ms. Fleming.

MS. FLEMING: Thank you.

BY MS. FLEMING:

Q Mr. Scroggs, we were just talking about the past projects and how FPL has made advanced payments, and they were something that were on a much smaller magnitude than a nuclear power plant. Of those forging reservation fees that FPL had to make in the past, do you know how many were approved by the Commission in advance of making such commitments?

A I do not know.

Q Do you know if there is another witness that may be better suited to respond to that question?

A I don't know, but I'm sure we could get you that answer.

MS. FLEMING: Okay. That would be appreciated.

Thank you.

COMMISSIONER EDGAR: Commissioner Skop.

COMMISSIONER SKOP: Sorry to keep butting in, but, again, I think a technical distinction to staff's question is

in order. I think that the components that we are talking about for ultraheavy forging that are pertinent to reactor design are much different from being able to get a forging for a steam turbine casing which, to my knowledge, we still have a U.S. industrial base that is adequate to do that. So I just wanted to point that out as a point of information. I'm not exactly sure and perhaps technical staff, Mr. Ballinger might be able to chime in, but I'm not exactly sure that was a fair comparison, if you will.

COMMISSIONER EDGAR: And, Commissioner McMurrian, I think, had a comment or question. So why don't you go ahead and we'll see where we're at.

COMMISSIONER McMURRIAN: I did. It was to the witness. And thank you. I didn't mean to interrupt in that flow, but it was going back to the 12 million estimate, or at least the high end of the estimate versus the 16 million that is at least referenced in the issue.

Mr. Scroggs, can you help me again. I think you said that 12 million was at the top of the range, and then you essentially added sort of a buffer to get to the 16 in case you went with a different technology. Is there anything in these exhibits that shows what that estimate might be with respect to the GE models?

THE WITNESS: No, ma'am. We have received no similar specific information from General Electric.

COMMISSIONER McMURRIAN: And then just for follow-up, Chairman, and I'm sorry if I missed something from earlier, so then the 12 from the 16 just, basically, you sort of added a buffer so that if you went with the other design, you believe that would account, at least give a more reasonable estimate considering that that design is a larger design and you believe that the costs would be higher than the estimate for the Westinghouse if you were to go with the GE. Do I understand that correctly?

THE WITNESS: That's a reasonable basis behind why I would, you know, add 25 percent essentially to the estimate provided by Westinghouse, yes, ma'am.

COMMISSIONER McMURRIAN: And one other one, Chairman.

I want to better understand the difference. We were talking about the worst-case scenario and how if there might be a possibility of two $16 million payments that would get us to the 32 million. Help me understand again what is the case that might lead to that worst-case scenario of two $16 million payments? And I realize that those are estimates, as well, but can you help me -- go back to that one more time. Thank you.

THE WITNESS: Again, in response to staff asking the question, we talked about a very unlikely event that would potentially occur in the case that we chose one reactor vendor, made a decision to pay for long lead components with that vendor, and then chose a different vendor.

A lot of things would have to happen for two full payments to need to be made. One, the commercial terms that we would have negotiated with the first vendor, the commercial arrangement would not have allowed for any recovery either via work in kind from that vendor, or other consideration for that vendor, or remarket value from the option purchased through that vendor. So all of those fail-safe mitigation techniques that we would pursue in the contract terms would have to fail, and then we would need to have no portability of the reservation, no rights for assignability would allow us to take that to another vendor, and then we would have to make full payment for the other vendor. So a lot of things that we don't expect to have to happen would have to occur in order for that worst-case scenario to occur.

COMMISSIONER McMURRIAN: One more, I suppose, along those lines. If the Commission were to approve the issue that is before us now, and that worst-case scenario developed, do you believe that FPL would have the ability to pass on that worst-case scenario given approval, if that happened, of that issue?

THE WITNESS: I believe the decision would be made in the context of the overall benefits that would be coming to the customer from the project. I think we would be able to justify that it would still be in the best interest of the customers to proceed with the project, even if we had to do that. But,

again, I don't believe that that would be a likely scenario to occur.

COMMISSIONER McMURRIAN: Thank you.

COMMISSIONER EDGAR: Commissioner Skop.

COMMISSIONER SKOP: Actually, I was going to make a question about the most likely scenario which, again, if I were a betting man, but I think I will withdraw the question. Thank you.

COMMISSIONER EDGAR: Ms. Fleming, was that the end of your questions?

MS. FLEMING: Yes, ma'am.

COMMISSIONER EDGAR: Thank you.

Ms. Brubaker.

CROSS EXAMINATION

BY MS. BRUBAKER:

Q Jennifer Brubaker, Legal staff, Mr. Scroggs; just your indulgence for a few quick questions.

Now, we have spoken about the selection of essentially the two designs that FPL is considering for this project. And is it correct that design selection is expected to be finalized sometime in the middle of this year?

A Yes, ma'am.

Q Approximately?

A The June time frame.

Q Has FPL filed its site certification application with

DEP for this project?

A We are preparing that application, and it is our intention to file that concurrently or prior to the combined operating license in March of 2009.

Q So by the time the site certification application is to be filed, you do expect to have finalized the design?

A Absolutely.

Q Thank you. A few more.

Would you agree, generally speaking, that FPL makes decisions about how and when to spend money for the purposes of providing electric service to its customers essentially every day?

A Yes, ma'am.

Q And would you agree with the statement that FPL in making its decisions on those expenditures tries to make sure that those expenditures are handled prudently or made prudently?

A Yes, ma'am.

Q Now, you are a project manager for FPL, so you have worked on a number of different types of plants. Currently, you are on this plant, which is a nuclear plant, but you have also worked on more traditional designs like gas and coal, correct?

A Yes, ma'am.

Q Now, for those more traditional types of plants --

let me rephrase that.

For the nuclear plant that is currently under consideration, there is a specific rule, is there not, that contemplates the cost-recovery for the cost associated with the building of that plant?

A Yes, ma'am.

Q Is there a similar rule that addresses the specific recovery of costs, the annual review and prudence determinations regarding more traditional type of plants like coal or gas?

A Yes, ma'am.

Q Could you identify what that rule is?

A There is a process, but not an annual cost-recovery process. Maybe I misunderstood your question.

There is not a similar annual cost-recovery filing for fossil fuel generation or other types other than nuclear.

Q With regard to those types of plants, for instance, that you would use gas or coal, or what have you, would you agree that FPL is still expected to make prudent choices in putting forward and constructing that plant?

A Yes, ma'am.

Q Even though there is not an annual review process specifically contemplated for that recovery?

A Yes, ma'am.

Q Would you agree that expenditures associated with

constructing gas or coal plants could reach $16 million, hypothetically speaking?

A Certainly they are more expensive than $16 million.

Q Now, in your testimony you do address, to a limited extent, the cost-recovery rule for nuclear, correct?

A Yes.

Q In your opinion, would you agree that the provisions in that rule, to some extent, reduce the financial risk that FPL is exposed to in pursuing the construction of a nuclear power plant?

A Yes.

MS. BRUBAKER: Thank you. I have no more questions.

COMMISSIONER EDGAR: Commissioners, any other questions at this time? No.

Any questions from you, Mr. Butler?

MR. BUTLER: I do have some brief redirect. Would you like me to do it now, or after the lunch break, your preference.

COMMISSIONER EDGAR: Can you give me an approximate? Five minutes? Twenty minutes?

MR. BUTLER: I think it is probably less than five.

COMMISSIONER EDGAR: Well, then let's go ahead and move forward. Thank you.

REDIRECT EXAMINATION

BY MR. BUTLER:

Q Mr. Scroggs, you were asked on several occasions about the issue of portability of the forging reservation that would be achieved if we pay a forging reservation fee. Is it FPL's intent in negotiating to negotiate as much portability of the forging reservation as possible, consistent with other commercial considerations?

A Yes. And we would also look for other commercial vehicles that in the lieu of specific portability would compensate us for that potential.

MR. BUTLER: Thank you. That's all the redirect that I have.

COMMISSIONER EDGAR: Exhibits?

MR. BUTLER: Yes, I would move Exhibits 23 through 31, I believe it is.

COMMISSIONER EDGAR: That is what I have, 23 through 31. Seeing no objection, we will show those entered into the record.

(Exhibits 23 through 31 admitted into the record.)

COMMISSIONER EDGAR: Mr. Scroggs, thank you for your patience. You are excused.

THE WITNESS: Thank you.

COMMISSIONER EDGAR: Okay. We will go to lunch break. Does 1:30 work? Commissioners, is that -- okay. We will come back from lunch at 1:30, and then it will be your

witness. Thank you.

(Lunch recess.)

CHAIRMAN CARTER: We are back on the record. And the last time we left another witness was called.

MR. ROSS: FPL calls Doctor Nils Diaz.

CHAIRMAN CARTER: Has the witness been sworn?

MR. ROSS: He has not.

CHAIRMAN CARTER: Mr. Diaz, would you please stand and raise your right hand.

(Witness sworn.)

DR. NILS J. DIAZ

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

DIRECT EXAMINATION

BY MR. ROSS:

Q Would you please state your name and business address?

A My name is Nils J. Diaz. You said my business?

Q Your business address, please.

A Business address. 2508 Sunset Way, St. Pete Beach, Florida.

Q By whom are you employed and in what capacity?

A I am employed by the ND2 Group as Managing Director, and by Florida Power and Light as a consultant.

Q Doctor Diaz, have you prepared and caused to be filed

42 pages of prefiled direct testimony in this proceeding on October 18th, 2007?

A Yes.

Q Do you have any changes to your prefiled direct testimony?

A No.

Q If I asked you the same questions contained in your prefiled direct testimony today, would your answers be the same?

A Yes.

MR. ROSS: Mr. Chairman, FPL requests that the prefiled direct testimony of Doctor Diaz be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony will be inserted into the record as though read.

BY MR. ROSS:

Q Doctor Diaz, are you also sponsoring exhibits to your testimony?

A Yes.

Q And do those exhibits consist of documents marked NJD-1 through NJD-8?

A Yes, sir.

MR. ROSS: Mr. Chairman, I would note that Doctor Diaz' exhibits have been premarked for identification as Exhibits 32 through 39.

CHAIRMAN CARTER: Okay.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF NILS J. DIAZ

DOCKET NO. 07_____-EI

OCTOBER 16, 2007

Q. Please state your name and business address.

A. My name is Nils J. Diaz. My business address is 2508 Sunset Way, St. Petersburg Beach, Florida, 33706.

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

A. I am the Managing Director of The ND2 Group (ND2). ND2 is a policy and expert advice consulting group with a strong focus on nuclear matters. ND2 presently provides advice for clients in the areas of nuclear power deployment and licensing, high level radioactive waste issues, and advanced security systems development.

Q. Please describe your professional experience.

A. I have more than 40 years of experience in the design, construction, operation, and regulation of nuclear power plants. My educational background is set forth in further detail in my resume, which is attached as Exhibit NJD-1.

I served as the Chairman of the United States Nuclear Regulatory Commission (NRC) from 2003 to 2006. In this position, I served as the principal executive officer of, and the official spokesman for, the NRC, which

is the federal agency with primary responsibility for protecting the public health and safety, the common defense and security, and the environment with respect to the use of radioactive materials. As Chairman of the NRC, I had ultimate authority for all NRC functions pertaining to emergencies involving NRC licensees. I was also directly responsible for all high level NRC interactions with the Executive Branch of the Federal Government and Congress, as well as international relationships and policy development under the NRC's charter. Prior to my appointment as Chairman, I served as a Commissioner of the NRC from 1996 to 2003.

Prior to my appointment to the NRC, I was the Director of the Innovative Nuclear Space Power and Propulsion Institute (INSPI) for the Ballistic Missile Defense Organization of the U.S. Department of Defense, and Professor of Nuclear Engineering Sciences at the University of Florida. As the Director of INSPI, I exercised prime contractor responsibilities for a diverse group of industries, national laboratories, and universities, under contracts with the Air Force, Defense Nuclear Agency, National Aeronautics and Space Agency, and the Department of Energy (DOE).

From 1969 to 1996, I held positions as Professor of Nuclear Engineering Sciences at the University of Florida, and as Dean for Research at the California State University, Long Beach. I have also consulted on nuclear energy and energy policy development for private industries, as well as the

U.S. Government and other governments. I have testified as an expert witness, and recently as the NRC Chairman, to the U.S. Senate and House of Representatives on many occasions for the last 25 years.

I also co-owned and managed six small corporations serving the nuclear industry and government, and conducted research and development on leading edge technology issues. I have also consulted for nuclear utilities, energy and high technology corporations, and financial institutions. I served full-time as the Principal Adviser to Spain's nuclear regulatory agency from 1981 to 1982.

Q. Please describe your educational background.

A. I hold a Ph.D. and M.S. degrees in Nuclear Engineering Sciences from the University of Florida, and I have a B.S. Degree in Mechanical Engineering from the University of Villanova, Havana.

Q. Please describe your other industry experience and affiliations.

A. I was licensed as a Senior Reactor Operator by the NRC, trained on reactor systems and operations at reactor vendors' installations, and received formal training and practice in health physics, radiological sciences, and nuclear medicine. I have worked at several nuclear reactor installations during both construction and operation phases.

I am a fellow of the American Nuclear Society, the American Society of Mechanical Engineers, and the American Association for the Advancement of Science. I have participated, or chaired, national and international committees

and task forces dealing with issues of reactor safety, reactor deployment, nuclear regulation, high level waste disposition and nuclear non-proliferation efforts.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibits NJD-1 through NJD-8, which are attached to my direct testimony.

Exhibit NJD-1	Summary Resume of Dr. Nils J. Diaz
Exhibit NJD-2	Collective Radiation Exposure of Nuclear Power Plant Personnel (NRC data)
Exhibit NJD-3	10 Years of NRC's Safety Indicators
Exhibit NJD-4	World Association of Nuclear Operators (WANO) Index
Exhibit NJD-5	U.S. Nuclear Industry Capacity Factors
Exhibit NJD-6	Nuclear Plant License Renewal and Power Uprates and U.S. Base Load Electrical Capacity
Exhibit NJD-7	NRC's Expected New Nuclear Power Plant Applications
Exhibit NJD-8	NRC's Design-Centered Review Approach

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to address:

- The status of the U.S. nuclear power industry and its role as a major baseload electrical generator; the performance of the current fleet of plants; improvements to operational safety and on-line generating

performance; and the successful development of the license renewal and power uprate programs;

- Next generation nuclear power plant technology, focusing on enhancements to operational safety and reliability from advanced reactors with NRC certified designs, and on state-of–the-art advances in materials, technology and construction techniques available for the deployment of new nuclear reactors;
- Nuclear power safety regulation and licensing in the U.S., with emphasis on the revisions to the previous two-step NRC reactor licensing process and the corresponding improvements to the efficiency of new plant licensing, including the role of Design Certification, Combined Operating Licenses (COLs) and Early Site Permits (ESPs) for the deployment of new standardized nuclear power plants in the U.S., in the context of more effective and efficient licensing procedures and reduction of financial risk;
- The present status of potential Combined Operating License Applications (COLAs) to be filed with the NRC, and the applicability of new licensing processes to a Turkey Point application;
- The suitability of the Turkey Point site for new nuclear generation, and the key factors to be considered by the NRC in the acceptability of the site;
- The status of present and expected physical security requirements, and their potential impact on the deployment of new nuclear power plants;

- The suitability of spent fuel storage for new nuclear plants and issues related to the disposition of spent fuel produced by nuclear plants;
- Issues related to reactor decommissioning, in the context of another key issue favorably resolved for considering new nuclear power plant deployment.

Q. Please summarize your direct testimony.

A. My testimony addresses the need for additional deployment of nuclear power generating units in the State of Florida, based on its strategic importance for electrical generation, and the favorable status of the key factors for new nuclear construction. The sustained safety and reliability performance of the current U.S. fleet of nuclear power plants and the enhancements made to licensing and regulation are enabling factors for the construction of new nuclear generation. The enhancements to the NRC licensing framework will improve the effectiveness and efficiency of new plant licensing and adjudication processes. These processes are based on standardization of reactor designs and the capability to apply for a combined construction and operating license for new advanced, certified nuclear power plants, limiting financial risks and enabling informed decision making by electric utilities. New reactors are safe, simpler, easier to operate and maintain; new modular construction techniques, coupled with the Combined Operating License framework, should help control uncertainties about construction schedule and cost.

The status of physical security protection for existing and new nuclear power plants, plant decommissioning efforts, and of the spent fuel storage and disposition programs, are adequate to support new reactor development.

It is my conclusion that the deployment of two new nuclear electrical generating units at the Turkey Point site will meet safety, reliability, environmental and fuel diversification goals at both the State and federal levels.

STATUS OF U.S. NUCLEAR POWER INDUSTRY

Q. What is the role of nuclear power in meeting U.S. electric power needs?

A. The importance of abundant, clean, electric generation to our country cannot be overstated. The benefits of clean, user-friendly electrical energy can be found in every aspect of modern life and as a cornerstone of our economy. A reliable and economical supply of electricity is the backbone for our commercial, industrial and everyday energy needs. Nuclear powered electrical generation is a major baseload electrical producer that fits the economical, environmental and national security needs of our nation, and can meet the timetable for additional electricity demand. Nuclear power has unique strategic advantages for the U.S. and for Florida in particular, including fuel diversity, independence of the fossil fuel marketplace, and the

capability to operate for long periods of time with stable electricity costs, even in the event of a fuel supply disruption

Q. Does nuclear power have any particular advantages in meeting peninsular Florida's electric power needs?

A. Yes. Nuclear power has the advantage of safely, reliably, and economically providing large amounts of electric capacity and energy, as part of a diversified generating portfolio and without material emissions of air pollutants or carbon dioxide. These are valuable benefits for any location suitable for a nuclear generation site, but they are particularly important for Florida, with its rapidly growing population, scarce fuel energy resources, and need to import nearly all of the fuel used to meet its electric energy requirements.

Q. What is the nuclear industry's role in U.S. electric generation and how has it performed?

A. The 104 nuclear units licensed to operate in 30 States generate approximately one-fifth of the nation's electricity and have a combined record of more than 2,615 reactor years of safe operation, providing reliable capacity and energy for electricity consumers around the country. These plants have in total provided about 15,570 billion kilowatt-hours of electrical energy to the nation since 1980. Notably, nuclear electrical generation has increased by 20% since 1994. The increase, which matches the increase of coal-fired generation during that period, is the result of improved operating performance and enhancements of the new nuclear fleet, and the addition of only one new

nuclear unit since 1996. Electricity generated by all other sources has increased about 30% during the same period. The nuclear power fleet has an established management and technical infrastructure to operate safely and reliably with short scheduled shutdowns for refueling and maintenance, and unscheduled shutdown periods have been significantly reduced. This industry's improved operational record is a major contributing factor to the resumption of new nuclear deployment plans in many countries, and specifically in the U.S.

These achievements have been accomplished with an exceptional record of protection of the public health and safety and plant personnel. Workers at U.S. nuclear stations have among the best occupational safety records in the U.S., highlighting the care and attention spent by plant management on maintaining a safe work environment. One component of this record is reflected in the nationwide reduction of nuclear workers' radiation exposure. As shown on Exhibit NJD-2, the personnel exposure nationwide has been further reduced by improving operating and maintenance practices, and it is maintained at a fraction of the personnel dose allowed by NRC regulations.

Q. Please describe the regulatory framework for nuclear generating units.

A. The use of nuclear materials for electricity generation is regulated by the NRC, pursuant to the Atomic Energy Act of 1954, as amended (AEA), which was enacted to ensure adequate protection of the public health and safety and the environment. With respect to the operation of commercial nuclear power

reactors, nuclear safety is the nation's highest priority. Radiological safety oversight is the responsibility of the NRC.

Q. Please describe the public health, safety and reliability performance of U.S. nuclear operations.

A. Public health and safety, the environment and national security have been protected during the entire operating lifetime of the U.S. nuclear fleet. Moreover, an in-depth review of the operating performance data from the nuclear fleet shows almost two decades of consistent improvements in the two most important performance indicators: safety and reliability. The NRC records show that, during the last 10 years, the safety-related performance indicators have sustained levels of performance well above requirements. Exhibit NJD-3, pages 1 through 5, displays the 10 year U.S. NRC data for Safety Systems Failures, Safety Systems Actuations, Forced Outage Rate (%), Equipment Forced Outages/1000 Commercial Critical Hours, and the Automatic Scrams While Critical. Furthermore, and based on the industry-wide gains in safety and reliability, the NRC was able to revise the reactor inspection program, with industry and other stakeholders support, and to develop the Reactor Oversight Program (ROP). The ROP is a comprehensive and objective nuclear power plant inspection program that is safety-focused and risk-informed. The concurrent Industry Trend Program supports the ROP by monitoring trends in indicators of industry performance as a means to confirm that the safety of operating power plants is being maintained. No statistically significant adverse trends have been identified by the Program to

date, based on level or declining long term trends developed by the NRC, including those from the Accident Sequence Precursor Program. The Accident Sequence Precursor Program (ASPP) systematically evaluates U.S. nuclear power plant operating experience to identify, document, and rank the operating events that were most likely to lead to inadequate core cooling and nuclear core damage, if additional failures had occurred. Each one of these factors represents the sustained safety improvement of the U.S. operating nuclear fleet; considered together, they represent the maturity of a safety-focused industry.

The nuclear industry has also established rigorous, industry-wide, peer-performance reviews, conducted by the Institute of Nuclear Power Operations (INPO) and the World Association of Nuclear Operators (WANO). The WANO index is an internationally recognized and comprehensive measure of nuclear plant safety and reliability. It is calculated by summing weighted values of key indicators, input on which is provided by all nuclear plants on a quarterly basis. The WANO indicators and their weighting factors are listed on Exhibit NJD-4, page 1, and the corresponding composite index for the operating U.S. nuclear fleet as a function of time are shown on page 2. The WANO safety and reliability indicators also show the improved operational safety performance for the U.S. fleet during the last decade.

One factor that provides a clear overview perspective of the performance improvement of the U.S. fleet is the plant capacity factor. The capacity factor is the ratio of the actual electricity generated over a period of time, to the amount of energy that could have been generated if the units ran at full capacity throughout that period. The U.S. Nuclear Industry Capacity Factors for the years 1980-2006 are shown on Exhibit NJD-5, page 1. The U.S. nuclear fleet capacity factors have shown consistent improvement over the last 20 years. As stated before, there is a strong correlation in the U.S. fleet between high reliability and safety; the capacity factor is a leading indicator of reliability. The corresponding performance indicators for FPL's reactors are discussed in the testimony of FPL witness Stall, displaying the same improved performance as the leading performers in the country. The safety and reliability performance of the U.S. operating fleet is the direct result of a mature nuclear industry, placing safety first in their priorities and reliability as a companion, and of a mature regulator that was willing and able to focus its resources on the issues important to safety and reduce unnecessary regulatory burden.

Among the most recent safety and security improvements for the existing fleet of operating reactors has been the integration of safety, security, and emergency preparedness features and requirements following the 9/11 terrorist attacks. The demands for enhanced security led the NRC and the industry to consider better ways and means to enhance the safety of nuclear plants. With

safety as the primary objective, corresponding improvements in security and emergency preparedness were made in an integrated manner. The results were enhanced plant control for the dominant series of potential severe accident scenarios and improved protection of the public health and safety. Major improvements in plant security have been achieved and tested during force-on-force exercises conducted by licensees under NRC supervision, at all nuclear power plants in the nation. The new safety, security and emergency preparedness framework constitute a well-developed and functional infrastructure for use in the deployment of new nuclear plants.

Q. How has the track record of successful operation affected the regulation of nuclear power in the United States?

A. The operations track record has had a beneficial impact on the regulation of nuclear power in the U.S. As the industry's performance improved, the NRC has been able to place most of its attention on matters important to safety, and to devote more time and resources to its core mission of protection of the public health and safety and the environment. Two key examples of the favorable impact of improvements in plant safety and reliability, and of the maturity of the nuclear industry and the NRC in exercising their independent but connected roles in assuring safety, are the successful license renewal and power uprate programs. These programs extend a plant's licensed life and increase the power output of nuclear power stations, both by a well established and documented regulatory process, and at favorable cost to the utilities.

Q. Please describe the NRC's experience with the renewal of operating licenses for commercial nuclear power reactors.

A. In 1997, the nuclear industry began the process of applying for 20 year license renewals, potentially increasing the life span of a nuclear power plant from the originally license term of 40 years to 60 years. The rigorous application and review process set forth in NRC regulations at 10 CFR Parts 51 and 54, focused on an assessment demonstrating that nuclear power plant structures, systems and components, requiring aging management review, have been identified and that the effects of aging on their functionality will maintain an acceptable level of safety during the period of extended operation. The review places special attention to structures and components that are not subjected to frequent maintenance and surveillance, like structural supports or covered piping and electrical conduit, and emphasizes aging management programs.

To date, 48 nuclear units (including all four of FPL's existing nuclear units) have had their licenses renewed, authorizing operation for an additional 20 years beyond the expiration of their original licenses. In addition, 10 power plants have license renewal applications under review, and 24 more units have submitted letters to the NRC indicating their intent to pursue license renewal. The impact on the national baseload electrical supply from nuclear plant license renewal is shown on Exhibit NJD-6, page 1. The license renewal process, as defined and implemented by the NRC with the plants

improvements executed by the industry, has proven to be predictable and stable. Its successful implementation has had a favorable impact on the base load capacity of the country, where the relatively small investments in plant upgrades (when compared to new base load power) further improved safety and reliability, while maintaining low production cost electricity available without additional carbon impacts. As an added benefit, this process has maintained the technical and supply nuclear infrastructure at levels needed for reliable operation and growth. License renewals have the additional and well-tested benefit of having demonstrated the effectiveness of well-documented technical and legal procedures for major licensing actions. They serve as a recent and successful precedent for stable and predictable processing of COLAs for new plants.

Q. Please describe the NRC's experience with power uprates.

A. The power uprates program is a close companion of license renewal, and has served to increase the electrical generating capacity of existing nuclear power plants by over 4,900 megawatts (MW) over a 20-year period. In a manner similar to license renewal, the NRC has implemented a rigorous, controlled, and open process for licensing power uprates, with significant experience gains that are applicable to the COL process. Exhibit NJD-6, page 2 shows U.S. Nuclear Capacity Additions at Existing Facilities for the period 1977-2007 from power uprates and the projected additions through 2011. Again, additional power capacity has been achieved at modest cost and is favorable to consumers.

Q. How has the management of operating reactors impacted the safety and reliability of the plants?

A. The existing fleet of operating nuclear reactors has achieved a high level of operational safety and reliability through a management commitment to excellence that runs from executive levels deep into most utility organizations. I view FPL as an example of this organizational commitment to excellence. The safety, reliability, and efficiency gains are apparent in practically every major activity of nuclear operations, with well-managed planned outages, minimization of unplanned outages, and coordination between the engineering, maintenance, and operations functions to achieve high capacity factors, low production costs, and improved safety. U.S. nuclear power plants' management activities have benefited from the use of operational risk insights to enhance safety and reliability. Risk insights are products of the risk-informed and performance-based framework established by the NRC to increase the agency's and industry's focus on safety. For example, NRC's ROP is a risk-informed program that utilizes deterministic, experiential and probabilistic assessments to improve safety decision-making at operating reactors. The use of risk-informed and performance-based tools by operating reactors management has improved both safety and reliability; their use for pursuing license amendments has also improved the safety focus of the applications and the regulatory processes.

NEXT-GENERATION NUCLEAR TECHNOLOGY

Q. How has nuclear power plant licensing and technology evolved from the experience of the existing fleet of commercial nuclear power reactors?

A. The NRC, in its role of enabling the safe, secure, and beneficial uses of nuclear power, and being responsive to mandates from the U.S. Congress, began in the late 1980s to establish the basis and the roadmap for a potential new generation of nuclear power plants. The present generation of nuclear power plants eventually proved that they consistently satisfy the statutory criteria in the AEA of reasonable assurance that they can be constructed and operated without undue risk to the health and safety of the public. Although this fact has been recognized over the past few decades, a few key salient features for new designs were considered necessary enhancements in the post-Three Mile Island accident "lessons learned" environment, and became the focal point for technological improvements of new reactors.

The design enhancements for new reactors were focused on increased plant safety, ensuring improvements to core cooling, containment integrity, and the capability to prevent or mitigate the consequences of accidents which could result in potentially hazardous offsite radiation doses. There was a definite emphasis in simplification, standardization and the use of inherent safety features to carry out the intended safety functions. The bottom line was clear: new reactors were to be measurably safer, simpler, more independent of

operator actions, and easier to operate and maintain. A new measuring stick employing probabilistic risk assessments was to be used to establish the safety case, supported by better documented operational experience and models.

What was sought, and eventually built into advanced designs, was an order of magnitude improvement in the key risk factors, relative to present reactors. Furthermore, these gains were to be quantified using probabilistic risk assessments, based on utilizing state-of-the-art technology and materials, and the designs were to be standardized to secure the safety gains and the reliability and economic advantages.

NUCLEAR POWER REGULATION IN THE U.S.

Q. Please describe the current NRC licensing structure.

A. In order to understand the NRC licensing structure, it is important to review the prior legal and regulatory framework under which the current fleet of reactors was licensed. The original NRC licensing process for nuclear reactors, dictated by Section 189 of the AEA and set forth in more specificity in 10 CFR Part 50, imposed a two-step process on an applicant for an operating license for a nuclear plant.

First, the applicant was required to obtain a construction permit. The construction permit application was a significant undertaking, requiring the

preparation of a Preliminary Safety Analysis Report, demonstrating the reactor technology and site suitability, and preparation of an Environmental Impact Statement to satisfy the requirements of the National Environmental Policy Act (NEPA). Section 189 of the AEA required the NRC to hold a mandatory hearing for all construction permit applications, regardless of whether any interested party sought to contest the application. Several construction permit applications were contested.

In the second step of the process, after securing the construction permit, the applicant was required to obtain an operating license to authorize plant operations, after construction was completed. The operating license application was also a significant undertaking, the goal of which was to enable the NRC to make the findings required by the AEA and NEPA. The applicant was required to submit a Final Safety Analysis Report and an Environmental Report. Section 189 of the AEA requires the NRC to provide an additional hearing opportunity at the operating license stage. Numerous operating license proceedings were challenged at this stage, after significant investments were made and plant construction was substantially completed.

The practical effect of the two-step licensing process was to have multiple, duplicative, simultaneous or consecutive reviews, including safety and NEPA reviews, and contested hearings. To complicate matters, plant construction

was started before the design was substantially completed and regulatory reviews of technical issues continued during construction.

In 1974, the promotion and regulatory functions of the Atomic Energy Commission (AEC) were separated and the NRC was chartered anew as an independent regulatory agency. At this time, potential unresolved safety issues were being debated as more information on plant operations was made known. Under the previous licensing process, these unresolved issues were often injected into licensing proceedings, after plant construction had begun.

Furthermore, high inflation and interest rates made financial matters worse, and contributed to delays that were then compounded by the multilayer licensing and adjudication processes. In fact, in several cases, contested adjudicatory hearings were ongoing with plants fully constructed and ready to operate, as in the cases of the Seabrook, Comanche Peak, and Shoreham nuclear plants. Issues that should have been fully settled early in the process, such as emergency preparedness, were left unresolved to the end of the licensing process. The delays in bringing these plants on line, including those caused by protracted proceedings, dramatically increased the costs of these plants.

For example, of the 104 presently operating plants, 54 were placed in operation prior to the Three Mile Island (TMI) accident in 1979 and 50

entered service following the TMI accident. Plants built and commencing operations prior to TMI took an average of about 5.6 years from Construction Permit (CP) to Operating License (OL), and cost approximately $2,100/KW installed in 1992 dollars. The plants commencing operation after TMI took about 11.2 years from CP to OL, and many cost over $5,200/KW installed in 1992 dollars, including the three plants mentioned above. The Shoreham plant also has the dubious distinction of having never operated at full power despite these massive expenditures. These experiences, when taken all together, effectively damaged the confidence of utilities and investors in building new nuclear power plants. The two-step licensing process proved to be onerous and was replaced by a more predictable and equitable licensing structure, and enacted into law by the U.S. Congress in 1992.

Q. What significant alternatives have been made available to the licensing process?

A. The U.S. Congress, with significant input from the NRC and the nuclear industry, has markedly improved the licensing process for new nuclear plants. As codified in Section 185(b) of the AEA and in NRC regulations at 10 CFR Part 52, this revised process is structured to achieve straightforward objectives, with well-defined safety and environmental reviews as a backbone. In essence, the new NRC licensing process still contains the elements needed to make the necessary reviews and safety determinations, including public involvement, safety review, independent review by the Advisory Committee on Reactor Safeguards (ACRS), environmental review, public hearing and

continued NRC oversight. The differences are found in the manner, sequencing and required efficiencies of each and every element of the licensing review and adjudicatory processes.

The new Part 52 licensing process seeks the standardization of nuclear power plants, wherein the applicant seeks a combined construction and operating license (COL) of a standard plant that should be obtained prior to the beginning of major construction, and specifically before construction of safety-related structures. In the COL application, the applicant must submit the same level of information that is required under both the construction permit and operating license process, as set forth in the previous two-step licensing process at 10 CFR Part 50. The NRC will then review the COL and conduct the safety and environmental review, and forward the necessary documentation for the independent ACRS review. The NRC is then required to conduct a mandatory hearing on the COL application prior to granting the license.

If the COL is granted, the licensee then will be given the authority both to build and operate the plant. This authority is contingent on plant construction conforming to the license, and a finding by the NRC of reasonable assurance that the plant will operate according to the COL. In order to arrive at this finding, the licensee must demonstrate satisfactory performance of

inspections, tests, and analyses, and satisfaction of defined acceptance criteria (ITAAC) that are set forth in the COL.

The COL process also has another feature not present in the previous licensing process, which could, at the option of the applicant, further streamline the process. The applicant can reference a reactor design in its COL application that has previously been certified by the NRC in rulemaking pursuant to 10 CFR Part 52. The benefits of referencing a certified standard design in the COL application is that plant design issues that were resolved by NRC in the design certification process are entitled to finality in the COL process. It is within the COL applicant's discretion whether to reference a certified design in its COL application. I understand that FPL intends to take advantage of the benefits of referencing a certified design when applying for its COL.

One of the key improvements made to the previous two-step licensing process was aimed at efficient adjudication. In 1998, the NRC promulgated a policy statement to promote efficient adjudicatory proceedings on license renewals and license transfers, followed by a 2004 revision of NRC's rules of practice in 10 CFR Part 2, which resulted in model schedules to implement effective and efficient adjudication. The NRC Commissioners continue to seek efficiency and other improvements to the agency's review of license applications for new reactors. In July 2007, the NRC approved several recommendations from the Combined License Review Task Force that could

lead to a reduction of the COL review schedule timeline. These include having the Commission conduct the mandatory hearings on uncontested matters, expanding the initial COL acceptance review to 60 days to ensure adequacy of the submittal, using environmental statements conducted by other government agencies, as applicable, seeking legislative authority to eliminate the mandatory hearing if one is not requested, and pursuing rulemaking to resolve generic issues of COL applications rather than through individual contested proceedings.

Presently, the NRC schedule estimates 30 months for technical and environmental reviews and 12 months for adjudicatory proceedings; this schedule appears to be more applicable to a first-of-a-kind application or "reference" application. The NRC's intention is to shorten the review schedule, while maintaining the safety focus, by six to fifteen months. The present review procedures should shorten the review schedule for applicants, such as FPL, that use the same technical content in their applications as the "reference" application, besides site specific issues.

Q. What are the advantages of the revised licensing process when compared to the previous two-step process?

A. This process will remove significant uncertainties and potential for delays attendant with the previous two-step licensing process. The revised licensing process shifts the burden of proof for COL applicants to the front end, deferring and therefore reducing financial and construction risks until the

licensing review is favorably advanced. The predictability of the licensing process is placed at the COL stage, before major financial capital and construction expenditures are made. The hearing opportunity at the fuel loading stage is more strictly limited than a hearing at the operating license stage under 10 CFR Part 50. The scope of this hearing opportunity is limited to the licensee's compliance with the ITAAC, with the burden of proof of non-compliance on the intervenor.

The law also allows the NRC to authorize plant operation, prior to the potential ITAAC hearing, if it has made a determination that there is reasonable assurance that a nuclear power plant will be operated without undue risk to the health and safety of the public.

Q. What benefits do you see from the amendments to 10 CFR Part 52?

A. The amended Part 52 is now structured to achieve the objectives of the AEA more effectively and more efficiently. As originally contemplated, the selection of an NRC certified reactor standard design, which is codified by rulemaking, resolves most of the technical safety issues, and is not subject to a formal adjudicatory hearing. If FPL chooses a certified standard design, it will have the finality of the safety reviews conducted for the certified reactor.

The NRC and the industry have extensive experience with all the specific reviews and adjudication conducted under Part 52. There are now over 14 years of reactor vendor and NRC experience with design certifications.

Environmental impact statements, emergency preparedness, and physical security reviews have been part of the NRC everyday work for about 30 years. Moreover, three applications for Early Site Permits (ESP) have been processed by the NRC, with the corresponding mandatory hearings completed, and many lessons have been learned by the NRC through the ESP process that should lead to more stable and predictable environmental reviews and COL processes. However, the COLA process itself is untested and the timing and coordination of its components will require much attention by both the applicants and the NRC. The capability of the Atomic Safety and Licensing Board (ASLB) and the Advisory Committee on Reactor Safeguards to discharge their licensing reviews and disposition of hearings, in conformity with the established licensing schedule, is of particular concern, and would undoubtedly attract concerted opposition and require focused efforts to resolve contested issues.

Q. Have any new nuclear power plant designs been certified under the NRC's design certification rules?

A. Yes, four advanced Light Water Reactor (LWR) plant designs have been certified and two more designs are undergoing review. The certified standard designs, as specified in 10 CFR Part 52, are divided into two types of light water reactors: advanced evolutionary designs, and advanced reactors that incorporate simplified, inherent, or passive means to accomplish the safety functions. Applicable safety criteria are imposed on both systems, with different burden-of-proof requirements; reactors that are not considered

evolutionary are required to demonstrate the performance of each safety system that incorporates new means to accomplish the safety functions. The fundamental difference between the evolutionary designs and those designs that rely on inherent or passive systems to accomplish the safety functions lie mostly in the treatment and resolution of challenges to core cooling for significant transients and/or emergencies. The evolutionary designs rely on the actuation of redundant active safety systems, dependent on multiple pumps and valves. The passive reactor designs rely on redundant safety systems using inherent or passive means to maintain core cooling and integrity, without active injection of coolant by pumps, for the dominant spectrum of postulated accident conditions.

I have been advised that FPL is considering two designs for its COL effort. The first is the Westinghouse AP1000 design, a 1,100 MW advanced standard reactor plant, using inherent, passive features to accomplish its safety functions. The AP1000 was granted Design Certification by the NRC in 2006 and has now essentially completed additions and submitted amendments to the original design certification, incorporating analysis supporting technical improvements and final design features. The AP1000 is a larger counterpart of the AP600, a 600 MW advanced reactor that previously earned certification, after a comprehensive set of tests were conducted to demonstrate the safety performance of the reactor passive safety features.

FPL is also considering another advanced reactor design, the General Electric (GE) Economic Simplified Boiling Water Reactor (ESBWR) 1,520 MW reactor plants. The ESBWR also has simplified and passive safety features and is presently undergoing design certification review by the NRC. The AP1000 and ESBWR are the only two advanced standard designs in the US market incorporating passive safety features, with simplified designs enabling streamlined operation and maintenance, and significant safety margins

Q. What advantages do you see in new nuclear power plant designs and construction?

A. Major advantages are found in the predicted increased safety and reliability of new nuclear plants, arising from the vast operational experience, and advances in nuclear and materials technology. Technological, construction, and supply chain advances are available today, and are supported by materials advances that should contribute much to the sustained and enhanced operability, reliability and maintainability of plant systems and structures. Nuclear power plants should be built more rapidly than their predecessors due to the use of standard certified designs, to detailed engineering that will be substantially completed prior to start of construction, and by the use of modular construction techniques. Site preparation would be performed ahead of time, and management teams assembled with the expertise, resources and tools to execute the project.

CURRENT STATUS OF COL PROCESS

Q. Please provide the current status of COLAs expected by the NRC.

A. As of September 11, 2007, the NRC is expecting a total of 7 COLAs (for 12 nuclear units) to be filed in 2007, with 12 additional COLAs (for 17 nuclear units) expected in 2008. Shown in Exhibit NJD-7 is a summary of expected applications by 18 different companies for 2007-2009, their reactor design type (if chosen), the site and the state, including FPL's expected COLA for 2 units in 2009, subject to review.

Q. How would FPL and the Turkey Point site benefit from implementation of the new NRC application review procedures?

A. FPL and the Turkey Point site should be able to utilize the new NRC staff review procedures for gains in predictability, submittal clarity and completeness, and to shorten the COLA review schedule. There are several new procedures and processes established to increase the quality and the efficiency of the COLAs review. The first important change will be encountered at the application acceptance process, which is to be extended from 30 to 60 days, but is expected to save months during the actual review. The acceptance review includes new stringent requirements for technical sufficiency, in addition to completeness; informing the application-specific review plan and schedule; and providing for early interactions with the applicant to request additional information.

The second important change will be encountered at the actual application review. FPL is intending to reference a standard certified design in its application, and if the application is submitted in 2009, FPL will be able to use the Design-Centered Review Approach to expedite review and approval of already reviewed identical parts of the application.

The Design-Centered Review Approach is a natural regulatory product for effective and efficient review of standard reactors and standardized applications. A graphical representation of this review approach is shown on Exhibit NJD-8, page 1, for the case of COLAs referencing a design undergoing certification. The approach is simple and effective: instead of every application undergoing a custom, separate review by an assigned team, the first application is selected as a Reference COL (R-COL) and subsequent "identical" applications as surrogates. All issues reviewed and resolved for the R-COL are considered resolved for all subsequent applications that conform to the same requirements; one expert NRC staff team is formed to review each R-COLA and the subsequent "identical" COLAs. Only the site specific information, including environmental features, water usage, electrical grid requirements, and others, are reviewed individually. A graphical representation of how the Design Certification, ESP, R-COLA and subsequent COLAs are related is shown on Exhibit NJD-8, page 2. There is an apparent advantage to referencing a certified reactor and using the review from an R-COLA.

SUITABILITY OF THE TURKEY POINT SITE FOR NEW REACTORS

Q. In the context of the new NRC reactor licensing process, please comment on the selection of the Turkey Point site as a location for new nuclear plants.

A. The Turkey Point site stands out as a preferred location for the addition of two nuclear generation units to the FPL grid. The Turkey Point site is well known and it has been proven to be suitable for existing generation needs. The sum of its existing assets is large and would contribute to lower and more predictable costs, including access to cooling water supply, existing and expandable roads, access for heavy components, experienced personnel and management on-site, well established security and emergency preparedness infrastructure, electrical transmission and distribution infrastructure, and lesser environmental impacts that would result from the development of a comparable and acceptable greenfield location. The selection of a certified standard design is especially appropriate for the Turkey Point site, since the existing infrastructure will be conducive to the efficient utilization of the associated licensing and construction advantages.

Q. What are the main site safety criteria that the NRC will use for the evaluation of the acceptability of the Turkey Point site?

A. The main siting factors and criteria that the NRC will use in its evaluation are those important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low; they are mostly found in 10 CFR

Part 100 and applicable components of 10 CFR Parts 50, 51 and 73. Among the significant factors that will be taken into consideration in determining the acceptability of the Turkey Point site are its physical characteristics, including seismology, meteorology, geology and hydrology. These will be fully reviewed in accordance with the new Subpart B of Part 100, which incorporates the evaluation and seismic criteria in effect for new nuclear power plants. Of particular interest to Florida are the evaluations of factors and criteria pertaining to hurricanes (such as maximum probable wind speed, precipitation and maximum probable flood) and, although less frequent and severe, to earthquakes (such as magnitude and intensity). Protection criteria for both hurricanes and earthquakes are fully developed from the regulatory viewpoint, and have or will be incorporated into every design certification and the final reactor design, construction and operation of the facility. The area of physical characterization of sites and acceptability criteria has reached a high level of maturity and should be efficiently utilized by COL applicants.

NUCLEAR PLANT PHYSICAL SECURITY

Q. Please discuss security issues as they apply to new nuclear power plants.

A. Since its inception in 1954, the AEC, now the NRC, has considered, developed, and enforced physical security requirements. Originally, the main reason was safeguarding weapons grade materials and all information pertaining to nuclear weapons programs. Sabotage was also a consideration,

although taking second place early to the pressing need of nuclear weapons-related national security. Because U.S. commercial nuclear power developed from naval applications to land deployment, a culture and practice of physical security was incorporated into nuclear plants; however, it was not a prominent feature due to the benign perception of the nature of nuclear power. This perception was due to the fact that nuclear power plants, by their intrinsic physical nature, cannot be made into an explosive device nor can its fuel be made into a nuclear weapon.

As the number of nuclear power plants grew, their importance to the nation's electrical generation and the importance of minimizing the possibility of radiological sabotage became apparent. The separation in 1974 of the AEC into two distinct bodies, the promotional Energy Research and Development Administration (ERDA) and the NRC, brought a more definitive separation between the nuclear weapons production capability and civilian power use, with sabotage becoming a more significant consideration at commercial nuclear generating facilities. In 1978, the NRC issued physical security regulations at 10 CFR Part 73. These regulations established requirements for the protection of plants and materials, using the framework of a Design Basis Threat (DBT), the baseline threat that nuclear plants must be able to repel. The history of the implementation of Part 73 at nuclear power plants was relatively uneventful. Still, its importance was clear and vigilance was maintained.

Q. Please describe how the events of September 11, 2001 affected security requirements at nuclear power plants.

A. The events of 9/11 were a wake-up call to the nation, including the civilian nuclear industry. In many ways, nuclear power plants were better prepared than any other component of U.S. critical infrastructure to respond. Already robust defenses were rapidly brought to a maximum level of preparedness and were maintained until resolution of a more permanent path forward. The NRC responded with a new organizational focus on physical security and emergency preparedness. Starting in February 2002, changes were made by issuance of immediately effective orders, to effect improvements without waiting for the normal rulemaking process. These changes covered every significant aspect of physical security and emergency preparedness, enhanced the capability of the nuclear power industry to face potential new threats, while still remaining within the civilian defensive capabilities that can be demanded of non-military installations.

The series of orders issued by the NRC to the nuclear power industry, in a very short period of time, covered the dominant security issues analyzed by expert teams, which included consultation with cognizant U.S. Government agencies and stakeholders. The main issues covered first were: 1) access authorization controls, requiring full background checks for persons entitled to unescorted access to protected areas at nuclear plants, and overall improvements in personnel checks, identification of areas and pertinent

protective measures; 2) Changes to the DBT against which nuclear power plants must be able to defend with high assurance using their own capabilities, including requiring defenses against threats from both land and water; 3) requiring well established strategies to mitigate the consequences of large fires and explosions, regardless of their origin, including airplane attacks; 4) security personnel training and qualification requirements, ensuring the capability of each to respond to new threat requirements, the capability of the organization to respond to multiple threats, and to coordinate responses with local, state and federal law enforcement agencies, in a manner commensurate with the threat; 5) spent fuel pool and/or dry cask storage safety and security enhancements, establishing additional capabilities to maintain the integrity of used fuel for different threat scenarios, including large fires and explosions from a terrorist or an accidental or deliberate aircraft crash; and 6) new and enhanced requirements for force-on-force (simulated terrorist attack) exercises, upgrading the previously established mock-up terrorist attacks to meet the new DBT with new organizational focus. A series of additional compensatory measures, as needed to enhance security and protective capabilities were also added.

The result of this series of orders was a massive, multi-year undertaking by the nuclear power industry and the NRC, with significant improvements to the already robust defenses installed for the primary purpose of protecting public health and safety. The modification to plant perimeters, entrances, structures,

monitoring and defensive systems, security personnel and personnel-related measures, and management have established superior defensive strategies and capabilities at all nuclear power facilities in the U.S. The codification of these changes is continuing for more predictable use by licensees; the NRC approved in January, 2007, a final rule approving the DBT. The directive to mitigate the impact of large fires and explosions is now on preparation for a final rule.

Q. What will be the impact of the post 9/11 security enhancements on new nuclear plant designs and costs?

A. The arena of physical security for existing nuclear facilities has endured revisions to ensure that the public is protected from events challenging the plant, including terrorist's events. Enhancements are always possible; however, significant, necessary and sufficient improvements have already been required and implemented, and "tune-ups" should take the place of further significant revisions to NRC security requirements. These improvements and the cumulative security experiences of the industry and NRC are being incorporated into new reactor designs, construction and operation.

Although the issue of preventing and mitigating potential substantial damages from a large aircraft impact has been well addressed and the results are applicable to new reactors, the NRC proposed recently to analyze further enhancements. In April of 2007, the NRC proposed to require each applicant

for a new reactor design to assess how the design, to the extent practicable, can have greater built-in protections to avoid or mitigate the effects of a large commercial aircraft impact, making them even more resistant to an attack. The assessments should focus on areas such as core cooling capability, containment integrity and spent fuel pool integrity. The proposed rule will be published to seek public and industry comments, and if adopted, will affect new applicants for reactor design certifications and applicants for a combined license that does not reference a certified design. I believe much has been done already in this respect that would be incorporated into new designs and new plant construction and operation without major revisions. The reactor vendors are fully cognizant of the safety and security improvements made to improve safety for existing plants and their applicability to new plants, as well as the need to provide closure to the issue by assessing additional built-in protection, as practicable.

A concern of the NRC and stakeholders alike is the predictability of physical protection costs for new plants. These costs, however, are a minor component of the construction costs of a new plant and they are well known from current experience at the existing reactor fleet. Therefore, potential changes at the design and construction stage for physical security should not be a major consideration for the economics or the construction schedule for new nuclear plants. An important production cost consideration will be security personnel costs; in here, like in other areas, new technologies are emerging that should

mitigate such recurring costs, while maintaining or improving plant protective capabilities.

SPENT NUCLEAR FUEL AND LOW-LEVEL RADIOACTIVE WASTE

Q. Please discuss issues concerning the storage and disposal of spent nuclear fuel and low-level radioactive waste that will be generated by new nuclear plants.

A. There are two basic types of radioactive waste produced by the operation of nuclear power reactors: high-level radioactive waste in spent nuclear fuel and low-level radioactive waste (LLW) produced as the by-product of nuclear power operations, such as contaminated tools, clothing, resins, and other trash. The high-level radioactive waste contained in the spent or used fuel from nuclear power plants can be safely and securely stored on site or off-site in spent fuel pools (which are large pools with borated water) or in concrete and stainless-steel sealed dry containers. All reactors first discharge spent or used fuel into spent fuel pools, where it cools as the radioactive content diminishes with time. Spent fuel pools have been the subject of a comprehensive analysis by the NRC to ensure their integrity under multiple challenging scenarios, including terrorist attacks and the effects of an air crash. While the results of the analysis were not indicative of a lack of public protection, the NRC believed there was need for a few additional improvements to spent fuel pools that would be appropriate for new threats, and ordered licensees to take

additional preventive measures to ensure the capability to maintain the spent fuel cooled under severe circumstances, and to add measures that would prevent or minimize radiological consequences.

The results of the improvements to spent fuel safety and security, in most cases using simple or readily available strategies and modifications, were an enhancement of spent fuel safety. These improvements are being codified for use in new nuclear power plants, and are independent of the proposed rulemaking discussed above for new reactor design certifications.

Q. Given the delays in licensing the Yucca Mountain spent fuel disposal facility, what spent fuel storage capability is necessary for new nuclear plants?

A. In my experience, spent nuclear fuel should be cooled for about ten years before removal from a spent fuel pool. Ten years is now the reactor vendor recommended and NRC accepted base storage capacity. Presently, it is a safe and common practice to do full-core offloads to spent fuel pools during refueling, and to have additional space for maneuvering. These two considerations are more important presently than the delay of the opening of Yucca Mountain because additional on-site spent fuel storage using dry casks is a well proven technology raising no limiting safety or environmental concerns. Furthermore, independent spent fuel storage installations are certainly feasible and under consideration by the DOE and Congress. Both wet and dry storage provide safe and secure storage of spent fuel.

Pending Congressional resolution of the disposition of used fuel, the NRC, which will review the Yucca Mountain application to be submitted by DOE, has maintained its position, set forth in its Waste Confidence Decision at 10 CFR 51.23, that there is reasonable assurance that there will be a geological repository for spent nuclear fuel within the first quarter of the 21st century.

Q. Please discuss whether low-level radioactive waste (LLW) can be stored safely at new nuclear plants, and the safety of transporting radioactive wastes and materials.

A. The operation of nuclear power plants also generates LLW, which is safely stored on site, and frequently disposed at the Barnwell, South Carolina licensed LLW disposal facility, or occasionally, for very low level radioactive wastes, at the licensed Energy Solutions LLW disposal facility at Clive, Utah. Effective June 30, 2008, the Barnwell facility will no longer be available to LLW generators in states other than South Carolina, New Jersey, or Connecticut, for the disposal of Class B and C LLW.

The present capability of facilities to sort, compress, and store LLW at reactor sites for very long periods of time is proven, and is used safely all over the world. As the Barnwell site becomes more uncertain, it is appropriate to establish self-contained LLW compacting and storage facilities at reactor sites.

The transportation of spent fuel, LLW, and all types of radioactive materials for medical and industrial purposes is a state-of-the-art, proven technology, with an outstanding safety and security record of performance. The transportation of high-level waste has been the subject of rigorous research and testing, and has been proven safe here and abroad for millions of miles on the road.

DECOMMISSIONING

Q. Please comment on the process for decommissioning nuclear power plants and the impacts of that process on new nuclear reactors.

A. The decommissioning of nuclear reactors and nuclear facilities is now a mature and tested industrial and regulatory process, with reasonably known costs, with some variation due to state-related requirements. Major reactor sites have been fully decommissioned, with costs covered by decommissioning trust funds. The former commercial reactors at the Trojan, Big Rock Point, and Maine Yankee sites have been restored to unrestricted use, in accordance with NRC's License Termination Rule (10 CFR 50.82), and in compliance with applicable financial assurance regulations.

Decommissioning activities at the former commercial reactors at Millstone 1, Connecticut Yankee, and Yankee Rowe are also proceeding well, as are other

facilities that have de-fueled into dry storage casks and have had the pressure vessel removed, like San Onofre 1 in California.

Essential regulatory components of the decommissioning of reactor sites have been proven successful, including the assurance of funding, as determined by the NRC's periodic review of licensee funding, in accordance with 10 CFR 50.75. An important factor in the cost of decommissioning is the impact of License Renewal in delaying plant shutdown and decommissioning. With the additional term to collect the necessary funds, and the favorable impact of established fund growth, nuclear power plant decommissioning activities are being adequately funded.

Q. Does this conclude your direct testimony?

A. Yes.

BY MR. ROSS:

Q Doctor Diaz, have you prepared a summary of your testimony?

A Yes, sir.

Q Would you please provide that summary to the Commission?

A Yes, sir, thank you. Good afternoon, Chairman Carter, Commissioners. It is indeed my privilege to testify in my home state before the Florida Service Commission in support of the deployment of new nuclear power plants at Florida Power and Light's Turkey Point site.

I have spent 40 years of my life in the design, construction, operation, and regulation of nuclear power plants. I was a Commissioner of the United States Nuclear Regulatory Commission, the NRC, from 1996 to 2006, serving as its Chairman since 2003. I now wear different hats, but I remain committed to the same goals that were the focus of my career, protection of the public health and safety, protection of the environment, and protection of the common defense and security. And on that note, I am convinced that nuclear power electrical generation should increasingly contribute to maintain and enhance our energy security, our economical and reliable electricity supply, and our environmental stewardship regionally and globally.

Nuclear power generation is especially needed in

Florida to diversify the fuel portfolio, to balance the dominant role of carbon in generators, to decrease price volatility, and to achieve national and global environmental goals. New nuclear power deployment in Florida is supported by a combination of key favorable converging factors. The safety, security, and generation reliability of the current fleet of light water reactors is proven and is sustained. Improvements made to the design, construction, and operational safety of new standard reactors are enabling factors. New reactors are safer, simpler, easier to operate and maintain. The much improved yet new reactor licensing framework is in place at the NRC providing comprehensive safety and environmental evaluations completed prior to construction limiting financial risk and enabling better decision-making by all concerns.

Nuclear electrical generators have high initial capital cost and become economically competitive by their low production cost supported by low fuel cost, state of the art operation and high capacity factors. The key factor bearing on this determination is the proven capability of Florida Power and Light to construct and operate nuclear units safely and reliably.

The issue of the final disposition of used or spent fuel is not fully resolved and needs to be addressed, but it does not have to be solved now. Used fuel is currently safely and securely stored, and can be so stored for up to 100 years.

The disposition, processing, and ultimate disposal of remaining radioactive residues will be resolved to the benefit of our society long before that time.

In summary, large capacity, high reliability, efficient power electricity generation without carbon or pollution issues should be added to Florida's energy portfolio at the Turkey Point site. That concludes my summary, Mr. Chairman.

MR. ROSS: Doctor Diaz is available for cross examination.

CHAIRMAN CARTER: Commissioners, I'm going to allow the parties, and then at any time if you have a question, no problem whatsoever, we can move in.

Ms. Krasowski. Wait a minute.

Mr. Beck. I'm so sorry, Mr. Beck.

MR. BECK: I have no questions.

CHAIRMAN CARTER: Ms. Krasowski.

MS. KRASOWSKI: Good afternoon. Before we begin, I would ask that the FPL legal counsel identify themselves, because I'm not familiar with who they are.

CHAIRMAN CARTER: Okay.

MR. ROSS: Mitchell Ross for FPL.

MR. FERNANDEZ: Antonio Fernandez for FPL.

CHAIRMAN CARTER: Mr. Ross and Mr. Fernandez.

MS. KRASOWSKI: Thank you.

CROSS EXAMINATION

MR. KRASOWSKI: Thank you.

BY MS. KRASOWSKI:

Q Good afternoon, Doctor Diaz.

A Good afternoon.

Q On Page 31 of your testimony -- well, let me begin first by asking you, are you familiar with Witness Sanchez's testimony?

A Am I familiar with the Sanchez testimony?

Q Yes.

A I have, you know, read the testimonies, but I cannot say that I am familiar to the point of being cross-examined over them.

Q All right. On Page 32, Line 4.

A Page 32?

Q Yes, please.

A Yes.

Q Hydrology is included as a significant factor for safety in the plant, and I was wondering would the drought that we are experiencing in southeast Florida, would that have any kind of impact on your estimation of what kind of security might be needed in regards to water?

A I don't believe that temporary droughts would actually have an impact on the initial determinations that will be made, because this issue will be thoroughly analyzed both by

the Nuclear Regulatory Commission on the federal part, which will have NEPA determinations on the issue, and by the state and community permits. So I believe the issue of hydrology will be exhaustively analyzed and by the time that they do their filing for their permits, this issue should be very well established and determined. Including any factors or variations.

Q Thank you. On Page 39. Let's see. Can you tell me -- well, this is just in your testimony in general on Page 39.

A Uh-huh.

Q How many dry cask storage sites are there currently in the United States?

A You know, I don't remember the exact number, because I have been out of there a year and a half, but I believe there are over a dozen established sites, and they are growing in number every year as the plants select the dry cask storage as a referred option for keeping their fuel on-site and maintaining the capabilities of their own, you know, authority over those casks.

Q Do some of the plants ship their waste to other places after they dry cask them?

A Some plants have done some small shipments. Some shipments have been made to the Idaho National Reactor Testing Site, but the majority of the plants keep their fuel even after

they have been decommissioned. Several plants of late since 1996 have decommissioned and they have removed the fuel from the reactor and placed them on dry storage casks in a portion near where their original facility was and provided the security factors. Other utilities have decided that in order to maintain operational capabilities to do full core offloads when they are working with the fuel, have moved their fuel from the spent fuel pools to dry cask storage right on the plants.

Q And when they moved the fuel from the pool to the dry casks, they have to let the fuel cool in the pools for a number of years before they can move them into dry cask or can they just move it directly into dry cask?

A They normally cool from a period of seven to ten years in the spent fuel pools.

Q And how long has dry cask storage been -- how long have they used dry cask storage?

A We have been using dry cask storage for over 30 years. However, their increased use is now more pronounced. More people are deciding that dry cask offers them a very safe and reliable alternative and so they are moving more and more fuel from the spent fuel pools to the dry cask. It seems to be economical. We believe it is a very safe and secure way of storing the fuel.

Q And how much does it cost for one dry cask, do you have any idea?

A I don't have the numbers per dry cask, but, you know, a complete dry cask facility is millions of dollars, okay. Fundamentally, there is an issue in here that that fuel technically belongs to the DOE, so there is issues of compensation. Other people just start to do it, but the reality is that the utilities have put the safety and security of the fuel ahead of what the compensation is, so they are moving with it, they are doing it right. I have been in many of those facilities and I am very pleased with both their safety and their security.

Q By the DOE, you mean the Department of Energy?

A The Department of Energy, correct.

Q And, who pays for the DOE, is that run off of tax dollars?

A Well, it is not taxpayers' money. There is an assessment of one mill per kilowatt hour that is assessed to every kilowatt hour that it is produced by a nuclear power plant. That goes into this waste fund and that waste fund is administered by the United States government, supposedly by the DOE, and that money has been used for different purposes. First, it was used to try to get the suppository called Yucca Mountain going, and other parts of the money are now being to compensate the utilities for not having moved the fuel, or for dry cask storage, or purposes related to the waste.

Q As former Chairman of the Nuclear Regulatory

Commission, do you foresee spent fuel remaining on-site because of the problems that have arisen with Yucca Mountain?

A I do see fuel remaining on-site for at least the next 20 to 40 years, and that depends when the fuel was discharged or not. I don't see Yucca Mountain coming on-line before the year 2025. I believe that the alternative that has been developed with dry cask is an excellent alternative. It is one that avoids the question and would allow the government of the United States to find the best solution possible. Not a temporary solution, but a solution that actually will serve the country best.

Q And on what do you base your belief that the problems with waste will be solved?

A Well, Madam, how long do you have? Let's just say that I have spent a lifetime working in all of these issues, and, therefore, I am convinced that we have solutions. Now, the way that the solutions will be arrived at are not going to be quick. The reason is that the country is both concerned in maintaining the capability of the fuel that still exists, of disposing of whatever residues there are that will no longer have, you know, radiotoxicity for thousands of years. For maybe 300, 600 years there are small amounts of residues and also to maybe come up with a scheme that prevents in other countries, not a question in this country, the potential misuse of fuel for proliferation purposes. So, we are looking for a

complete solution, and I think that is the right way to go. And complete solutions do not come very easy. They have to be done in stages, and I think that that is precisely what the government is studying and actually doing. It might require more than one stage, by the way, but that is the way we are actually going.

Q Well, thank you. Let's see. Do you have an idea, do you have an idea like what the carbon dioxide and other greenhouse gases would be made during the dry cask storage stage?

A Madam, whatever it is is just from the use of the trucks or industrial equipment, just like in any other construction. Like in construction of this building. You know, the reality is that any human application or any industrial application, especially in the United States, is carbon based right now. Carbon dominates, okay, the energy, you know, domain in this country. And so all of these activities, whether related to transporting children to school, or opening a uranium mine, or transporting uranium from one location to another, they all consume a little bit, a little bit of carbon bearing materials which are burned, and so there is a small amount that will come out.

And when people talk about, you know, carbon producing or not carbon producing generation they are really looking at the generation point. They are not looking at, you

know, what happens before because those uses are so small that they really do not enter into any equation. What happens is that the generation of gases and particulates from burning fossil fuels is very large, like 3 million tons per year for 1,000 megawatts. In a nuclear power plant, there is not zero, it is probably ten kilograms, or 100 kilograms a year when you turn the diesels on. So, there are orders of magnitude, five six orders of magnitude smaller from a nuclear power plant than from a fossil plant, and that is where the comparison comes to be. The rest of the fuel cycles, it doesn't matter what the actual cycle is, it doesn't matter whether you are building windmills, they will all use fossil fuels until that time, which I don't know where it is, where we have electrified our society and we have other sources to do it. But presently they are carbon based and they will generate a small amount. But the main generation of gases occurs at this plant and it goes on for years and years and years until the plant is ended.

Q Doctor Diaz, I have -- and I apologize, I don't know exactly where this particular chart fits in with the exhibition numbers.

CHAIRMAN CARTER: Could you tell us what it is?

MS. KRASOWSKI: It is Exhibit NJD-2.

MR. ROSS: That is Exhibit 33.

MS. KRASOWSKI: Thank you.

THE WITNESS: Yes.

BY MS. KRASOWSKI:

Q In Exhibit 33, you have the collective radiation exposure, and I have a few questions about -- I have a few questions about the operations of nuclear plants. How are these radio -- how are these collective radiation exposures measured?

A Very good question. The present power plants have a variety of ways of determining what is the radiation exposure of a person. It depends on how long will the person or the type of radiation that a person is going to be in a certain area, what is the predominate type of radioisotopes. Right now every power plant has a team of what we call health physicists, which are involved in radiation protection. These health physicists actually set up monitoring devices around the plant, but especially around people that are going to be working with radiation. The sophistication of these techniques is now really very, very, very high. And they have been able to pinpoint what is happening in what places, and that has been one of the major reasons for the reduction of doses to personnel, which have continued to be going down. It used to be much higher than what it is. And this Person-REM, what is here, it says all of the people that are in the plant, you know, multiplied by the radiation doses they have received, and it is a cumulative annual and, you know, plant personnel indication of how good are the radiation protection measures.

So when we look at this, we want to see that there are no peaks. Mostly we want them to be going down.

The assessments that we make compares this to actual programs. They are essentially graded according to their performance. I think Witness Stall talked about the green bars and the white bars. This is one of the programs that we include in the evaluations of the NRC.

Q Thank you. When the radiation builds up in the containment areas and places where people might be working, is that released during a purge?

A No. We can do controlled releases. If there is a certain amount of gases or steam, what we do is we make sure that we do not provide any uncontrolled releases to the environment. Power plants work on the basis of control, management and control of every single aspect of the operation, but most especially of the radioactive effluents and whether they are gases or liquids. Those effluents are monitored. They are released only when we want them to be released and always in quantities much smaller than those that are allowed by law. And the facts, you know, more than that, every power plant self-imposes what we call a LARAL, as low as reasonable achievable limits. So, even below the limits of what is legal. They institute programs to make sure that the releases are small, controlled, and so we really have controlled releases for any time that people are visiting an area.

Q Nuclear power plants, are nuclear power plants allowed to have 22 purges per year?

A 22 purges per year? Nuclear power plants don't have a set number of purges. They look at it quarterly and they look at it annually and they have a certain amount of allowable releases that are done under controlled conditions. And if their releases are under those volumes then that is how you are allowed to release it.

MR. ROSS: Mr. Chairman, I would just like to interpose an objection. The prehearing order granting the Krasowskis intervention in this proceeding specifically stated that the decision should not be construed to permit the Krasowskis to raise arguments relating to nuclear safety. And we have permitted some level of questioning of Doctor Diaz on nuclear safety issues, but I think it is appropriate now to object and to try to keep the scope of this cross examination within the permitted intervention.

MS. KRASOWSKI: Commissioner Carter?

CHAIRMAN CARTER: Yes, ma'am.

MS. KRASOWSKI: I am not asking this from a safety point of view, I am just asking these things from a plant operational point of view, and that has to do with the economics of the plant, also. So that is the only reason. I haven't said anything about safety.

MR. ROSS: I don't think any of the questions, Mr.

Chairman, have gone to the issue of cost. She is asking questions about radiation exposure, which can't be separated from safety.

CHAIRMAN CARTER: Let me think a moment here.

Staff recommendation.

MS. BRUBAKER: Well, I have to concur that that language is in the order. And, of course, the Commission does not have within its legislative mandate issues of nuclear safety, so if the issues are directed to cost-effectiveness perhaps the Krasowskis could focus on that issue and help us all stay within the scope of the proceeding.

CHAIRMAN CARTER: Let's do this, could you use about five minutes to get your notes together? Would you think that would be helpful?

MS. KRASOWSKI: No, I don't really need five minutes.

CHAIRMAN CARTER: You don't need five minutes? You're ready? Just kind of -- but, I mean, I want to give you some latitude to kind of help, but we do want to stay within the confines of the order and within the confines of our jurisdiction.

MS. KRASOWSKI: Okay. Thank you.

CHAIRMAN CARTER: So, I will have to sustain the objection.

MS. KRASOWSKI: May I say it is not every day I get to speak to the former chairman of the Nuclear Regulatory

Commission.

CHAIRMAN CARTER: I told you, I'm fascinated.

MS. KRASOWSKI: And in the presence of PSC here.

CHAIRMAN CARTER: And we have allowed great latitude. As I said, if you need a moment to kind of get your notes together, we are more than happy to do that. We want to cooperate in every way possible.

MS. KRASOWSKI: Okay.

CHAIRMAN CARTER: But if you don't need a break, you are recognized.

MS. KRASOWSKI: Thank you.

BY MS. KRASOWSKI:

Q Doctor Diaz, can you describe what crud is?

A Yes, ma'am, I can describe what crud is. In the language of the nuclear power plants, crud is an accumulation of salts, oxides, that during the operation of the plant stick to the surfaces of the plant. And many times the crud, and I see your question coming, is radioactive because it contains radioisotopes of iron.

Q And how is the crud cleaned and how much does that cost?

A The crud is occasionally cleaned. There are two ways, one is by chemical processes and the other is by thermal processes. Thermal processes are a little cheaper, but they are not as effective as chemical processes. If I remember

correctly, but please don't hold me to it, a nuclear power plant when it actually does what are called a crud burst, they could spend as much as $100,000 doing that crud burst. And that includes mostly the fact that the radiological protection devices in capturing this radioactive material is then captured, encapsulated, put in a manner that is not released to the environment. And so, since it is more radioactive than the normal substances that are normally being handled in the plant on a day-to-day basis, special care is put onto this.

The reason that we do crud burst is to increase the thermal efficiency of the plant. So even though it has a cost, eventually the efficiency of the plant increases and the ratepayers will pay less for the electricity.

MS. KRASOWSKI: Thank you. Just one minute, please.

CHAIRMAN CARTER: Okay. Take your time.

MS. KRASOWSKI: Well, thank you. And sometime I would love to just have a conversation outside of the PSC arena here.

THE WITNESS: Madam, it would be my distinct pleasure to sit with you and your husband and have a long conversation. I would be delighted to do that. I have been doing it all of my life, and I am looking forward to it.

MS. KRASOWSKI: Thank you.

CHAIRMAN CARTER: No further questions, Ms. Krasowski?

MS. KRASOWSKI: No more questions.

CHAIRMAN CARTER: Thank you so kindly.

Commissioners, I'm going to go to staff unless either of you have a question at this point in time.

Staff, you are recognized.

MS. BRUBAKER: Thank you. Just a few quick questions, if I may, Doctor Diaz.

CROSS EXAMINATION

BY MS. BRUBAKER:

Q Were you present at the beginning of the hearing yesterday morning? Did you listen to the public testimony portion?

A No. I listened to part of it on the radio at the hotel. They told me to stay out of here.

Q There was a comment made about Germany decommissioning or exploring the decommissioning of its nuclear plants. Are you familiar with the status of nuclear plants and power production in countries other than the United States?

A Yes.

Q Do you have any comments to offer regarding whether that comment is accurate regarding the decommissioning of the German plants?

A I'm sorry, you are going to have to say that again.

Q Certainly. Do you have any comments to offer, do you agree with the statement that Germany is pursuing

decommissioning of its nuclear plants?

A Yes. I agree that Germany has been pursuing the decommissioning of their nuclear power plants. However, it is not as straightforward as it looks. If I might ask the Chairman of the Commissioners, it might take two minutes, maybe I will tell you what the story is. In Germany for many years there has been a large and growing concern regarding transportation of nuclear waste that used to come from Germany all the way to LaHague in France. And you have seen it in the TVs, you know, people putting themself across a railroad track. So actually, the Green movement got to be very strong focused precisely on the issue of transportation. Eventually, when there was a transition in the government, the government of Mr. Kohl did not have a majority to rule, and so he was really, you know, made a coalition with the Greens that allowed them to then rule, so he became the majority party.

One of the conditions of that alliance was that nuclear power plants -- there will be no new nuclear power plants. So there is a moratorium. And second, that nuclear power plants will be decommissioned in accordance to a schedule and they will be all decommissioned by 2021.

Surprisingly, the utilities say yes. There was a time they were saying no, and why the utilities say yes is a very surprising thing. They actually got a lot of benefits from the government. For example, they got no more problems

with transportation of nuclear waste. The government took that out. They got some rate relief. They got allowance for capital investments. So it is a very convoluted type of negotiations that took place, but the result is that right now, you know, there are plants that are supposed to be decommissioned, to be shut down and then decommissioned and that has been argued.

There is one famous plant that is supposed to be shut down, I believe, in two years, and the owners are saying no, we are not going to shut down, because in the law there are credits that you can pass from one plant to another. In other words, plants that are younger, you know, have more megawatt hour of operation, are supposed to lend other plants the megawatts hours of operation. And the reason for this deal which the government approved was that nobody ever believed that all nuclear power plants in Germany would be ever decommissioned because Germany cannot survive without nuclear power plants. There is absolutely no way they can comply with the Kyoto agreements, with all of the things that they have established for their economic growth, for everything else without the support of the power plants.

So, when the government changed again, they thought that this was going to take place, but it didn't take place. What happened was that another status quo was established and supposedly some new arrangements were being made. Right now

the situation is in an impasse. There is still a date in which they are supposed to be decommissioned, but only two plants have been decommissioned. The rest of them are not, and the rest of them are intended not to. And the states in which these plants are almost rebellious to the federal state in saying we are not going to do that.

That is, of course, in contrast with the very, you know, normal situation developing in the rest of the world where actually there is a reverse. For example, in the United Kingdom which I just returned from, they just established that they are going to go nuclear. There is no longer the capability to use renewables anymore, so windmills, they now have a policy and that policy will be now firmed out, I believe, in the third week in March. They are going to replace their existing power plants with new nuclear power plants, light water reactors like the United States. There is the fact that in Sweden there was a moratorium. The moratorium has now been terminated. There was a moratorium in Belgium. That moratorium I understand will be terminated this year.

There is now growth in many, many countries in the world. Not only Japan and Korea, but China, India, Indonesia. You know, the countries of the east, they are all realizing that to be able to have better reliability of supply and to at the same time comply with environmental concerns they need to have some baseload nuclear power generation.

It is a long answer. I apologize, but it is a historically very, very interesting story.

MS. BRUBAKER: Thank you. I have no other questions.

CHAIRMAN CARTER: Commissioners?

Commissioner Argenziano, do you have any questions?

COMMISSIONER ARGENZIANO: No, Mr. Chairman.

I'm glad that staff asked that question, because it was one of my questions yesterday. I kept hearing that and I wanted to know the facts behind it, and that gentleman certainly cleared that up. Thank you.

CHAIRMAN CARTER: Thank you.

Doctor Diaz, this probably has nothing to do with your testimony, but just from your opinion -- and, parties, I hope this is okay -- I just want to ask, you have a person with this knowledge and expertise you hate to let it go without using it.

Do you have some kind of feel, you know, based upon your experience nationally in the movement in the country in the context of nuclear power and in the context of whether or not there may be some movement on storage and that sort of thing for the spent rods and those kinds of things? I'm justing asking -- it is kind of vague, but I would hate to have you here and not ask you that and not take advantage of your brain.

THE WITNESS: Yes, I think I know a little bit about

it. But take it with a grain of salt, because most of the time I'm wrong on this issue. There has been movement during the last two years in the Congress of the United States to reach some compromise, and the compromise is going more and more to the issue that nuclear power plants have means via the spent fuel pools or dry cask to safely store the fuel for significant periods of time.

At the same time there is a limit and an obligation that the United States government has, and like the Chairman of the Appropriations Committee told me once, we do not intend to bankrupt the government because we are not fulfilling our obligations. So there is a move to try to see if the fuel is eventually moved, or especially the older fuel, the one that has decayed the most, or has been longer in dry cask, move them in stages to -- we don't want to use the word interim, because the nuclear waste law says there will no be interim repository. So we call it the temporary repositories, which are probably going to be in special, you know, designated sites like Savannah River Laboratory or the Hanford Reservation, places that already have a significant amount of waste storage and experience with handling.

At the same time, there is hope that Yucca Mountain will eventually serve, you know, a purpose. It might be the same purpose it was designed to, it might be a different purpose, but so much money has been spent and so much is known

about Yucca Mountain that people are really saying it should be used. There is a companion movement that goes back to where we were 30 years ago looking at salt mines. We are already storing the transuranium elements, the plutonium from the weapons, we are storing them in a salt mine in New Mexico, 2000 feet below sea level in rock salt. Those are wonderful storage spaces.

We have three such places in this country. But I think that the bottom line is what are we going to put in a repository, and I think that question has not been answered. I think we will put all of the weapons, you know, legacy that cannot be misused, I think we are going to put those radioisotopes for which we have no use, but are we eventually going to bury those things that are so valuable to mankind. You know, the uranium and the plutonium and the transuraniums, those things that we know how to handle and that have unique value to us as a society. Does that answer your question?

CHAIRMAN CARTER: Thank you so kindly. I saw Mr. Ross look like he was reaching for his objection button there.

MR. ROSS: No, Mr. Chairman, it was an excellent question.

CHAIRMAN CARTER: Commissioners, any further questions?

Commissioner McMurrian.

COMMISSIONER McMURRIAN: Thank you.

Unlike Ms. Krasowski, we won't get a chance to sit down and chat with Doctor Diaz because of our very strict rules that are there for a good reason, I might add. And so I do want to ask you while you are here, Doctor Diaz. In your opinion, how will utilities make a satisfactory showing of waste confidence when they make their license applications to the NRC?

THE WITNESS: The utilities don't make a waste confidence determination, the NRC makes the waste confidence determination. Waste confidence determination was established, and I have done it twice, on the fact that there is a confidence by the Commission that the United States government will assume the responsibility of safely, you know, store, dispose of spent fuel, or waste from the weapons, or any of those materials that have high levels of radioactivity in a manner that is conforming to the environmental loss of the nation, conforming to the security of the nation, the common defense and security, protection of public health and safety. And, therefore, that determination has always been based on the fact that the government is pursuing the issue.

There is an active roadmap. That roadmap, you know, needs to be there. There has been discussions of the Congress because of the problems with Yucca Mountain to say we are going to make the determination. I think there is a strong opposition to that because the Commission is -- and the NRC

Commission is an independent body of the government. We are set to make decisions that are nonpolitical, that are unbiased, that takes facts into effect, but the Commission will have to have from the government the assurance that there is a pathway. That pathway could include GNEP, it could include interim repository, but the Commission will need, you know, a determination by the Congress that this issue is resolved, okay, within a certain, you know, period of time.

The date that it was put before was arbitrarily set because the Department of Energy said they were going to have Yucca Mountain running by that time. I think the Congress is revisiting the issue. I do believe that waste confidence will be maintained and we will realize that we are no different than any other country in the world. No country in the world has a geologic repository established. None, nobody. And the reason is very simple is that it hasn't been needed because it is safely and securely stored. It hasn't been economical. People have not wanted to dispose of materials that they could then use, and so everybody is kind of waiting to see who comes with the best solution.

I think that people are getting very serious. France just passed a law that will do that. Sweden is actually beginning there escalations for a geologic repository. But I believe that the GNEP and the combination of the potential for new nuclear power plants coming in is going to be a force and

function that will provide resolution to the waste issue.

COMMISSIONER McMURRIAN: Thank you, Doctor Diaz. I appreciate that.

CHAIRMAN CARTER: Commissioners, any further questions?

Mr. Ross.

MR. ROSS: One question on redirect in response to the staff's question regarding Germany.

REDIRECT EXAMINATION

BY MR. ROSS:

Q Doctor Diaz, do you know what the German carbon emissions profile is for power plants in Germany compared to, for example, the carbon emissions profile for a country like France that relies more heavily on nuclear?

A Yes. The carbon emissions profile of Germany is -- actually, it not even in compliance with the Kyoto Protocol. They actually use an averaging technique that included East Germany to be able to determine the Kyoto Protocols, and that is why they were able to use for saying that we could close the power plants. If you do not use those averages, they are a serious problem. And right now they are in serious problems we think in the European community. Although they have developed a significant amount of wind power, but that amount of wind power which, you know, has a limited capacity factor, is not sufficient. Yes, they are not even in competition with the

best. They are actually one of the worst country in western Europe.

MR. ROSS: That is all the questions we have.

CHAIRMAN CARTER: Okay. Let's take up our exhibits.

MR. ROSS: Your Honor, we would move admission of Exhibits 32 through 39 at this time.

CHAIRMAN CARTER: Any objections? With no objection, show it done.

(Exhibits 32 through 39 admitted into the record.)

CHAIRMAN CARTER: Doctor Diaz, thank you so very kindly for coming to be with us today. Very educational and very thorough. You gave good answers.

THE WITNESS: It's my pleasure, sir.

CHAIRMAN CARTER: Mr. Butler, you are recognized.

MR. BUTLER: Shall we move on to our next witness?

CHAIRMAN CARTER: Yes, sir.

MR. BUTLER: We would call Doctor Green.

MR. HUNTOON: Thank you, Mr. Chairman and Commissioners. My name is Steve Huntoon. I'm an attorney for Florida Power and Light Company. I will be presenting Doctor Green and Mr. Dennis Brandt to follow.

CHAIRMAN CARTER: Okay, excellent. Let me take a moment here, Mr. Huntoon. Give me the correct spelling of your name, because I will spell it phonetically. Being from South Georgia, that wouldn't work.

MR. HUNTOON: Well, I'm told it's close. H-U-N-T-O-O-N.

CHAIRMAN CARTER: Oh, I could have done that.

MR. HUNTOON: Doctor Green, I don't believe you have been sworn?

THE WITNESS: No, I haven't.

CHAIRMAN CARTER: Would you please stand and raise your right hand.

(Witness sworn.)

LEONARDO E. GREEN

was called as a witness on behalf of Florida Power and Light Company, and testified as follows:

DIRECT EXAMINATION

BY MR. HUNTOON:

Q Doctor Green, would you state your name and your business address, please?

A Yes. My name is Leonardo Green, and my business address is 1601 Bryan Street, Dallas, Texas 75214.

Q By whom are you employed and in what capacity?

A I am currently employed by Texas Utilities as Senior Director of Finance. At the time this forecast was prepared, I was employed by Florida Power and Light as Manager of Load Forecasting.

Q Have you prepared and caused to be filed 16 pages of prefiled direct testimony in this proceeding?

A Yes, I have.

Q Do you have any changes or revisions to your prefiled direct testimony?

A No changes.

Q If I asked you the same questions contained in your prefiled direct testimony today, would your answers be the same?

A Yes, they would.

MR. HUNTOON: Chairman Carter, FPL requests that the prefiled direct testimony of Doctor Green be inserted into the record as though read.

CHAIRMAN CARTER: The prefiled testimony will be accepted into the record as though read.

MR. HUNTOON: Thank you.

BY MR. HUNTOON:

Q Doctor Green, are you also sponsoring any exhibits to your direct testimony?

A Yes, I am.

Q Do the exhibits consist of Documents LEG-1 through LEG-12?

A Yes, they do.

MR. HUNTOON: Chairman Carter, I would note that Doctor Green's exhibits have been premarked for identification as Exhibits 40 through 51.

CHAIRMAN CARTER: Okay.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

TESTIMONY OF LEONARDO E. GREEN

DOCKET NO. 07____-EI

OCTOBER 16, 2007

Q. Please state your name and business address.

A. My name is Leonardo E. Green, and my business address is 1601 Bryan Street, Dallas, Texas 75201.

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

A. I am employed by Texas Utilities Energy (TXU) as the Senior Director of Finance.

Q. When did you begin your current position?

A. I began my current position with TXU on October 1, 2007.

Q. In what capacity are you sponsoring testimony for Florida Power & Light Company (FPL) in this proceeding?

A. I am sponsoring testimony for FPL as its former Manager of Load Forecasting within the Finance Business Unit. I left that position in September of 2007. I prepared FPL's load forecast and the other information that I sponsor in this proceeding prior to leaving FPL.

Q. Please describe your duties and responsibilities as FPL's Manager of Load Forecasting.

A. I was responsible for the development of FPL's peak demand, energy, economic, and customer forecasts.

Q. Please describe your educational background and professional experience.

A. I earned a Doctor of Philosophy Degree in Economics from the University of Missouri-Columbia in 1983. Prior to joining FPL, I was employed by Seminole Electric Cooperative as the Load Forecasting Supervisor in the Rates and Corporate Planning Department. In April of 1986, I joined FPL's Research, Economics and Forecasting Department, as a Senior Forecasting Analyst. My responsibilities included preparation, review, and presentation of the economic, customer, and load forecasts for FPL. In August of 1986, I was promoted to Supervisor of Economics and Forecasting within the Research, Economics and Forecasting Department. In 1991, I became Manager of Load Forecasting within the Resource Assessment and Planning Business Unit. I am responsible for coordinating the entire economic and load forecasting effort at FPL.

In addition, I have held several Assistant Professorships of Economics and Statistics as well as research and teaching positions with the University of Missouri, Florida International University, and the University of South Florida.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibits LEG-1 through LEG-12, which are attached to my direct testimony.

Exhibit LEG-1	Total Average Customers
Exhibit LEG-2	Summer Peak Load Per Customer

Exhibit LEG-3	Summer Peak Load
Exhibit LEG-4	Winter Peak Load Per Customer
Exhibit LEG-5	Winter Peak Load
Exhibit LEG-6	Summer Peak Weather
Exhibit LEG-7	Florida Real Personal Income
Exhibit LEG-8	Net Energy for Load Use Per Customer
Exhibit LEG-9	Net Energy for Load
Exhibit LEG-10	Non-Agricultural Employment
Exhibit LEG-11	Real Price of Electricity
Exhibit LEG-12	Impact of the 2005 Energy Policy Act Adjustment

Q. Are you sponsoring any sections in the Need Study?

A. Yes. I am sponsoring the load forecast portion of Section V.A.1 and Appendix D of the Need Study. I am also co-sponsoring Appendix C.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe FPL's load forecasting process, identify the underlying methodologies and assumptions, and present the forecasts used in the Need Study submitted by FPL in this proceeding. I will also explain how these forecasts were developed and why they are reasonable.

Q. Please summarize your testimony.

A. My testimony addresses FPL's summer and winter peak demand forecasts, the energy sales forecast and the customer forecast. I explain how these forecasts are developed and why they are reasonable. My testimony also demonstrates that peak demand will continue to show strong growth in both summer and winter

peaks. FPL is expected to add approximately 8,272 MW of summer peak demand and 9,626 MW of winter peak demand between 2006 and 2020. My testimony also shows that FPL is projecting continued strong customer growth in the next fifteen years, and for energy sales to increase by 3.9% in 2007, and 3.8% in 2008. Over the longer-term, 2009 to 2020, the annual average growth rate in sales is estimated to be approximately 2.9%.

DESCRIPTION OF FPL'S EXISTING CUSTOMER BASE

Q. Please describe FPL's service territory.

A. FPL's service territory covers approximately 27,650 square miles within peninsular Florida, which ranges from St. Johns County in the north to Miami-Dade County in the south, and westward to Manatee County. FPL serves customers in 35 counties within this region.

Q. How many customers receive their electric service from FPL?

A. FPL currently serves more than 4.49 million customers, as shown on Exhibit LEG-1, and a population of more than 8 million people.

FPL'S LOAD FORECASTING PROCESS AND RESULTS

Q. Please describe FPL's forecasting process.

A. FPL relies on econometrics as the primary tool for projecting future levels of customer growth, energy sales, and peak demand. An econometric model is a

numerical representation, obtained through statistical estimation techniques, of the degree of relationship between a dependent variable, e.g., the level of energy sales, and the independent (explanatory) variables, which I describe in the following paragraph. A change in any of the independent variables will result in a corresponding change in the dependent variable. On a historical basis, econometric models have proven to be highly effective in explaining changes in the level of customer or load growth. These models have consistently been used by FPL for various planning purposes and the modeling results have been reviewed and accepted by this Commission in past regulatory proceedings.

Predicting the level of the dependent variable in future years requires assumptions regarding the levels of the explanatory variables. Explanatory variables include assumptions on the future number of customers, projected economic conditions, weather, and the price of electricity, each of which is obtained from various sources. For example, the future number of customers is based on population projections produced by the University of Florida's Bureau of Economic and Business Research (BEBR). The projected economic conditions are secured from reputable economic forecasting firms such as Global Insight (formerly known as DRI-WEFA). The weather factors are obtained from the National Oceanographic and Atmospheric Administration (NOAA). The price of electricity reflects the Commission-approved base rates and adjustment clauses.

Q. Does FPL assess the reasonableness of the explanatory variables?

A. Yes. FPL has reviewed and assessed the assumptions regarding the explanatory variables and has concluded they are reasonable. This ensures that the forecast of customers, energy sales, and peak demand are both realistic and rational. A comparison of the historical growth in Real Personal Income for Florida corresponding to different periods with Global Insight's projected Real Personal Income is shown on Exhibit LEG-8. The comparison clearly indicates that Global Insight's forecast of Florida Real Personal Income for the period between 2006 to 2008 may not be in line with history. Based on this analysis, FPL concluded that the projected growth in Real Personal Income for Florida produced by Global Insight was overly optimistic and would lead to incremental needs in capacity that may not be realistic. To account for this fact, in preparing this load forecast FPL used an annual growth in real personal income for Florida similar to the growth observed during the last five years, which averaged 3.2% per year.

FPL'S CUSTOMER GROWTH FORECAST

Q. Please explain the development of FPL's customer growth forecast.

A. The growth in customers in FPL's service territory is the primary driver of the growth in the level of energy sales and peak demand. In order to project the growth in the number of customers, FPL relies on population projections produced by BEBR. Once a year, BEBR updates its population projections for the state of Florida on a county-by-county basis. FPL's customer growth forecast

is based on BEBR's population projections for counties in FPL's service area, released in April of 2006. BEBR includes the potential effects of depressed customer growth as a result of the 2004 and 2005 hurricane seasons.

Q. What is FPL's customer growth forecast?

A. Florida's population and economy are expanding at levels well above the national average. FPL is projecting an annual average increase of 84,768 new customers for the next fourteen years as shown on Exhibit LEG-1. The annual average projected growth of 84,768 in new customers is slightly lower than the historical annual average of 85,882 for the years 1996-2006. These historical customer growth numbers reflect the effect of the 2004 and 2005 hurricanes on customer growth. Absent the elevated number of hurricanes, the historical customer growth would have been higher. The projected customer growth is in line with the population growth assumptions prepared by the University of Florida.

Q. In addition to population changes, what other factors are considered in projecting FPL's customer growth?

A. Factors such as the performance of Florida's economy, affordability index, job opportunities, and international conflicts are also important determinants of growth in FPL's service territory. Florida is still experiencing a period of robust growth in population and this expansion has resulted in a surge of construction of new homes to house this population. The optimistic outlook in the housing market resulted in an over-building of new residences but given the strong growth in population, real estate experts agree that this excessive stock of homes should be absorbed in the next 12 to 18 months. Anecdotally, it is also mentioned that

baby boomers are taking advantage of the low mortgage rates to secure housing for their upcoming retirement. In addition, the value of the dollar vis-à-vis the Euro suggests that Florida's real estate market is attractive for foreign investors. This expanded demand for housing and the jobs created are responsible in part for the recent strong growth in the number of FPL customers. This increased demand, higher insurance costs, property taxes and high price of housing in Florida drastically raised the cost of living and affordability index for Florida. This increase in the affordability index and higher inflation, primarily as a result of higher fuel prices, are limiting the potential growth in customers to a certain extent. This explains why projected customer growth is slightly lower than the customer growth experienced in recent years in the face of a more favorable state economy.

Q. What is FPL's most current customer forecast?

A. FPL's most current customer forecast is shown in Exhibits LEG-1. This is a result of an updated projection of population from BEBR as well as observed recent history of customer growth in FPL service territory.

Q. Is FPL's customer growth forecast reasonable?

A. Yes. The forecast incorporates the most recent available projections made by the University of Florida at the time the forecast was developed.

FPL'S PEAK DEMAND FORECAST

Q. What is FPL's process to forecast summer peak demand?

A. The rate of absolute growth in FPL system load has been a function of a larger customer base, weather conditions, continued economic growth, changing patterns of customer behavior (including an increasing stock of electricity-consuming appliances) and more efficient heating and cooling appliances. FPL developed the peak demand models to capture these behavioral relationships.

The summer peak forecast is developed using an econometric model. The model is a per-customer model that includes: the real price of electricity, Florida real personal income as an economic driver, average temperature on peak day and a heat buildup variable weather consisting of the sum of the cooling degree hours during the peak day and three prior days. The forecasted summer peak usage per customer is shown on Exhibit LEG-2. The forecasted summer peak usage per customer is multiplied by the projected total customers to derive FPL's system summer peak as shown on Exhibit LEG-3.

Q. What is FPL's process to forecast winter peak demand?

A. Like the system summer peak model, the winter peak model is also an econometric model. The winter peak model is a per-customer model that includes two weather-related variables: the square of the minimum temperature on the peak day and Heating Degree Hours from the prior day until 9:00 a.m. of the peak day. In addition, the model also has an economic term, Florida real personal income. The winter peak usage per customer is shown on Exhibit LEG-4. The projected winter peak load per customer value is multiplied by the total customers to derive FPL's system winter peak as shown on Exhibit LEG-5.

Q. What is FPL's process to forecast monthly peak demands?

A. The forecasting process consists of the following:

- Development of the historical seasonal factor for each month by using ratios of historical monthly peaks to seasonal peak (Summer = April-October; Winter = November-March).
- Application of the monthly ratios to their respective seasonal peak forecast (summer and winter peaks) to derive the peak forecast by month. This process assumes that the seasonal factors remain unchanged over the forecasting period.

Monthly peak forecasts are used in generation planning and also provide information for the scheduling of maintenance for power plants and fuel budgeting.

Q. What were FPL's actual peaks during 2006?

A. FPL experienced a summer peak of 21,819 MW in 2006, which is 457 MW lower than the all time record peak for FPL's service territory of 22,276 MW experienced in 2005. This equates to a decrease of 2.1 percent from the 2005 summer peak, and is shown on Exhibit LEG-3. The winter peak for 2005/2006 was only 19,682 MW, well below the all time high winter peak of 2002/2003, which was 20,190 MW, as shown on Exhibit LEG-5.

Q. Please summarize the peak demand forecasts.

A. The fourteen year summer peak demand is projected to grow from 21,819 MW in 2006 to 30,091 MW by the year 2020 or 8,272 MW in absolute terms as shown in Exhibit LEG-3. By the year 2018, the projected summer peak should reach

28,737 MW, a growth of 6,918 MW relative to 2006. By 2021, the summer peak is expected to increase by 2,043 MW from 2018 as shown in Appendix D of the Need Study. The winter peak grows from 19,682 MW in the winter of 2005/2006 to 27,994 MW in the winter of 2017/2018 or 8,312 MW in absolute terms as shown in Exhibit LEG-5. For the winter of 2019/2020 the winter peak demand is estimated to reach 29,308 MW or a growth of 9,626 MW. The apparent accelerated growth in the winter peak forecast is a reflection of the fact that in the 2005/2006 winter season, FPL's service territory did not experience a "normal" winter peak, which diminishes the base value against which these projected peaks are compared.

Q. What estimated impact did the 2005 Energy Policy Act have on FPL summer peak demand forecast?

A. In 2005, Congress passed the Energy Policy Act mandating certain appliance efficiency standards and insulation for new construction, which is expected to reduce energy demand in the future. FPL estimated the 2005 Energy Policy Act would reduce the projected peak demand from approximately 133 MW in 2006 to as much as 1,256 MW in the year 2014. The annual estimated impact of the 2005 Energy Policy Act is shown on Exhibit LEG-12. To arrive at FPL's projected peak demand values used in the Need Determination, the estimated impacts were deducted as line item adjustments from the originally projected peaks for the corresponding years.

Q. What weather assumptions does FPL assume for the summer peak projections?

A. In putting together the summer peak demand forecast, FPL relies on a normal weather outlook. Normal weather is defined as an average of the hourly temperatures for summer peak days over the years 1948 through 2006. The actual temperature values for 1985 to 2006 and those projected from 2007 onward are shown on Exhibit LEG-6.

Q. Is FPL's need for power driven by the demand forecast, the sales forecast, or both?

A. FPL's need for power, i.e., the amount of resources needed, is driven by the peak demand forecast because FPL's needs are currently determined by the summer reserve margin criterion. While FPL uses both a reserve margin and Loss of Load Probability reliability criteria, the reserve margin criterion driven by the peak load forecast has established the magnitude of the resource need for many years. This fact is addressed in the Need Study.

Q. Is FPL's load forecast reasonable for planning purposes?

A. Yes. FPL's load forecast is based on reasonable assumptions, is consistent with historical experience, and is consistent with methodologies previously approved by the Commission.

FPL'S ENERGY SALES FORECAST

Q. Please describe the process FPL used to forecast energy sales.

A. The forecast of energy sales consists of three steps. First, an econometric model is developed for total Net Energy for Load (NEL), which is energy generated net

of plant use. An econometric model for NEL is more reliable than models for billed energy sales because the explanatory variables can be better matched to usage. This is so because the NEL data does not have to be attuned to account for billing cycle adjustments, which might distort the real time match between the production and consumption of electricity.

Next, a line loss factor and a billing cycle adjustment are applied to the NEL to arrive at total use of electricity by the customer. Finally, revenue class models are developed to distribute the forecast of total end-use sales of electricity to the different revenue classes, i.e., residential, commercial, and industrial.

To project energy sales by revenue class, separate models for the residential, commercial, and industrial revenue classes are developed. These revenue class models are developed to obtain an objective allocation of the total energy sales among FPL's different revenue classes. The sum of the sales for all revenue classes will result in total energy sales. The energy sales for each revenue class are then adjusted to reflect the total energy sales derived from the NEL model.

Q. What are the primary inputs to determine the growth in energy sales?

A. The growth in energy sales comes from the overall growth in the number of new customers as shown on Exhibit LEG-1 and use per customer as shown on Exhibit LEG-8. The product of per capita use and the number of customers yields the NEL for a given period as shown in Exhibit LEG-9. The per capita use of electricity and the increased number of new customers are both linked directly to

the performance of the local and national economies. When the economy is booming, the use of electricity increases in all sectors. A strong economy creates new jobs that attract new customers. Under these conditions, new households develop, including those of retirees from other states. However, the reverse also holds true. If the economy is performing poorly, customers with reduced incomes are more apprehensive as to expenditures and tend to restrict their consumption of goods and services. Electricity demand and sales slacken when incomes fall. Job contractions reduce the number of new customers coming to Florida seeking employment opportunities, and new household formations are postponed. FPL relies on the outlook for the state and national economy produced by Global Insight.

Q. What were the basic economic assumptions included in the forecast?

A. Florida's economy has continued to grow at a strong pace and is expected to continue this trend into the foreseeable future. The strong population growth is largely due to baby boomers approaching retirement and the availability of jobs. Florida has been outperforming the national economy, as shown in Exhibit LEG-10, and that pattern is projected to continue. The strong population growth will result in increased demand for various services and new homes; thus, these two sectors are leading the growth for Florida's economy. This forecast also reflects that, as a consequence of the hurricanes in 2004 and 2005, there will still be substantial reconstruction activity and infusion of insurance funds into the local economy. Furthermore, the reconstruction activity fuels the manufacturing sector

to service this reconstruction with construction material, furniture and transportation equipment.

Q. What is the price of electricity assumed in the forecast?

A. The real price of electricity assumed is shown in Exhibit LEG-11. The real price of electricity is substantially higher in the early and latter part of the projected period. The forecast of real price of electricity reflects the projected fuel prices and inflation factor used in the current Need Determination proceedings.

Q. What is the vintage of the Price of Electricity used in the Need Determination Load Forecast?

A. The price of electricity forecast used in the Peak and Energy forecast is based on a fuel forecast produced by FPL in August of 2006.

Q. What is FPL's energy sales forecast?

A. In 2006, due primarily to mild weather and high price of electricity, FPL's energy use per customer was - 0.4% below 2005, but with a projected increase of 1.9% in 2007, and 1.7% in 2008, as shown in Exhibit LEG-8. The longer term compound annual average growth in use per customer is projected to be 1.2% annually after 2009. Customer growth was projected at 2.0% for 2007 and 2.1% for 2008 and then an average of 1.7% for the next 12 years. Combining the energy use per customer and the growth in customers, yields a growth in energy sales estimated at 3.9% in 2007, and 3.8% in 2008, and then an average of 2.9% for the next 12 years, as shown in Exhibit LEG-9.

Q. Is FPL's forecast of energy sales reasonable?

A. Yes. A forecast is considered reasonable if good judgment is used in estimating (availing oneself of the appropriate and most credible assumptions on hand) and testing the model and if the results or outputs make sense when compared to prior similar situations. FPL followed this approach in preparing the forecast.

The models employed by FPL have good descriptive statistics with high degrees of statistical significance. FPL is confident that the relationship that exists between the level of energy sales and the economy, weather, customers, price of electricity, and other variables have been properly assessed and numerically quantified.

Q. Does this conclude your direct testimony?

A. Yes.

BY MR. HUNTOON:

Q Doctor Green, have you prepared a summary of your direct testimony?

A Yes, I have.

Q Would you please provide it to the Commission?

A Sure. Good afternoon, Commissioners. The purpose of my testimony is to describe the load forecasting process, identify the methodologies and assumptions that are used, and present the results of these forecasts that are used in this need determination.

My testimony demonstrates that FPL will continue to experience good growth in the future. In fact, we are predicting that between 2007 and 2020 we are going to add just over 8,000 megawatts of new peak demand and about 12,500 megawatts of winter peak demand.

FPL relies on econometrics to do their forecasting. We have used that in many proceedings and they have proven to be very, very effective in doing a good forecast. The growth is determined primarily by population growth, the economy, weather, and price. And we rely on the best sources for this information. For example, total population projections. We go to the University of Florida. The economic outlook is provided to us by Global Insight. The weather information comes from NOAA, the National Oceanographic and Atmospheric Administration, and the price of electricity is the approved

base rates by this Commission, plus the also approved fuel budget. Once we have all of these assumptions, we feed them into the models that we have developed and that yields the forecast that I just mentioned. We believe that we have a good forecast and that should be used in this need determination.

That concludes my summary.

MR. HUNTOON: Mr. Chairman, Doctor Green is available for cross examination.

CHAIRMAN CARTER: Mr. Beck.

MR. BECK: No questions.

CHAIRMAN CARTER: Ms. Krasowski.

(Transcript continues in sequence with Volume 6.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Hearing Reporter Services Section, FPSC Division of Commission Clerk, 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 1st day of February, 2008.

JANE FAUROT, RPR
Official FPSC Hearings Reporter
(850) 413-6732