(Case No. 95,444, etal.)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Joint petition for determination of need for an electrical power plant in Volusia County by the Utilities Commission, City of New Smyrna Beach, Florida, and Duke Energy New Smyrna Beach Power Company Ltd., L.L.P.	DOCKET NO. 981042-EM

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PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN JULIA L. JOHNSON COMMISSIONER J. TERRY DEASON COMMISSIONER SUSAN F. CLARK COMMISSIONER JOE GARCIA COMMISSIONER E. LEON JACOBS
DATE:	Wednesday, December 3, 1998
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(APPEARANCES AS HERETOFORE NOTED)

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A A long old flat trench, if you will, of natural gas fire in this diagram, steam turbines rolling up to some oil fired -- excuse me -- yes, steam turbines rolling up to some oil fired capacity and so forth. Demand for many, many hours of the year is out there on the flat piece, out there riding around on the high-cost piece of this supply stack. This is the picture.

COMMISSIONER GARCIA: You don't contend that Duke New Smyrna is going to be providing power at that price then; do you?

A These are costs. These are marginal costs of production. The price tag is cost.

No, I don't.

COMMISSIONER GARCIA: Okay.

A In fact, quite - Let me follow up on that Commissioner Garcia; it's a very good question. Suppose the demand is out a significant ways on the gas trench up to where it joins the oil trench, and the demand curve for a given hour is cutting through at that point. The cut-through point gives the price to everybody including New Smyrna Beach, including the old punch, including the new. So your intuition is correct.

COMMISSIONER GARCIA: Everybody gets the same price?

A Everybody gets the fair market price. And the fair market price is set by the marginal provider; absolutely.

Okay. Now this, this slide is what tells you why the Duke New Smyrna Beach project is so valuable. You can put --

COMMISSIONER GARCIA: Let's go back to that, though. Everybody gets the same price, but our ratepayers are protected. Our ratepayers aren't out there. That's only the margin that's out there. Our ratepayers -- Our ratepayers are usually getting -- sucking up all the nuclear right from the start. That's all going into our ratepayers.

So they're out here very few times. This is a very small percentage of FP&L's need or FPC's need that's way out here. That's just the market that's out there for the wholesale price; right?

A Yes and no. The people who are making markets at the margin are quite often out there.

COMMISSIONER GARCIA: Right, but our ratepayers are not out there?

A They may or may not be depending on the set of contractual obligations that they have.

COMMISSIONER GARCIA: And even if they are, they are only in a small way out there. In other words, FP&L is not

putting out all of its need out here?

A Oh, no. No; that's right.

COMMISSIONER GARCIA: My ratepayers or their ratepayers are taking first dibs on all the cheap stuff that FP&L has. Whatever it has left over is out here?

A Absolutely. And to amplify that, what you've done is this is the go-forward costs, the fuel costs and the O&M costs. You've written a contract de facto with your ratepayers to give them return of and return on the embedded cost portion of the plants that are left in the rate base save the Duke New Smyrna, plus the O&M costs.

So absolutely. They're sheltered from energy price -- excuse me -- from any economic rent that would be developed here, but they've had to pay the price of you imposing fixed cost on them over time. That's what the rate base is. That's what fixed cost and variable cost pass through is. You've handed them a fixed entitlement. They don't have to play the market.

COMMISSIONER GARCIA: Yeah, but the other side of that argument clearly is the markets might not have supported what you wanted and they may have been paying less for a market, but they would have never been paying as low as they pay because they are part of it.

A That's correct. That's correct.

But you can see from this chart many of the

discussions in the testimony are made quite clear here. If you put Duke New Smyrna Beach type units in here, you don't eliminate the old punch, you just push them further out the stack; they run less; you save costs in Florida; and you drive down the market price. And you do that on Duke's nickle. They bear all the risk and they bear all the cost.

Let's move over to page No. 11, page no. 11, which is DMN-12, this is pretty important as well. I'd like to spend a minute to go through that.

Consider the supply curve on the left of that diagram. That's the supply stack we just saw in a conceptual fashion. Consider the supply curve on the right hand side of that diagram. That's the same supply curve but with the 500 megawatts of Duke New Smyrna Beach added.

So the left most world is one without the plant. The right most world is the one with the plant. What happens incrementally as the plant comes in? The magic crossing point, the market clearing point, goes from the dot on the upper left to the dot on the lower right.

What happens when that happens? Very important. Irrefutable. Price drops. Price drops to everybody. Your ratepayers get a direct economic benefit from price erosion because of entry of the Duke New Smyrna Beach project. Okay?

Quantity goes up, if there is any elasticity in demand, if you're attracting jobs to Florida, you're attracting investment to Florida, et cetera, et cetera, the quantity of energy is actually sold -- excuse me -- is actually increased.

Now many people say, oh, no, we don't want to consider that; we want to assume demand is fixed. Okay. Lop off CF and the whole right hand side of that and assume demand is fixed at the left most level that goes through the BC point there.

COMMISSIONER DEASON: Doctor, let me interrupt for just a second, before you get -- You're assuming that with Duke New Smyrna that there is going to be a reduction in market price or --

A I'm not assuming it. That's an economic reality. When you put more supply into a fixed market, you have to drop the wholesale price. Absolutely. More supply, same demand: lower price.

COMMISSIONER DEASON: Okay. But under the need determination in Florida, we don't allow more capacity to be built than is needed.

Do you agree with that or disagree?

MR. McGLOTHLIN: By way of clarification, Commissioner Deason, when you say "is needed," you mean for reliability?

COMMISSIONER DEASON: Let the witness interpret that

however he wishes.

MR. McGLOTHLIN: Well, just so you aren't talking past each other, Dr. Nesbitt, would you clarify how you mean --

COMMISSIONER DEASON: What I'm saying is that we don't have a fully open market here in Florida like your cattle analogy, where anybody that wants to go into the cattle business can do it and take their chances.

A Right.

COMMISSIONER DEASON: We only allow power plants to be built according to what is needed. And I guess here today and mainly yesterday we debated to a great extent what that need was. And there is different definitions of what need is.

But, anyway, there is a containment of some degree. You agree -- There is not open entry in building power plants in the State of Florida. If that were the case, you wouldn't be here today; you'd already be building your power plant and wouldn't have to bother with us.

Do you agree with that?

A My understanding is there's not open entry. All I mean to say by this is if you let one entrant in, or two or three. Let's talk about one. You will erode the price.

COMMISSIONER DEASON: Well, I guess my question is what prevents New Smyrna, since there is a cap on the amount of capacity that can be built, what prevents them

from not lowering the price and keeping demand where it is so there's no benefit to the customers of Florida? The only benefit is a higher rate of return to New Smyrna.

A More entry doesn't give a higher rate of return. The more entry you have here -- Consider in your minds' eye, Commissioner Deason, if the right most curve were 25,000 megawatts to the right of the left most curve, you kill the market. You drive the price down below the point where the 25th thousandth megawatt wouldn't want to enter.

Entry causes a lower incentive for the next entrant. And then the next entrant causes a lower incentive for the next entrant. And the next entrant causes a lower incentive for the next entrant.

By analogy, the Silicon Valley is not covered with Intel.

COMMISSIONER DEASON: How do we know there's going to be another entrant? Because if we determine that New Smyrna, there's a need for this plant and there's not need for any other plants, they're the last game in town, there's no more competition because the market, the amount of capacity there is fixed by the decisions of this Commission.

A That's one scenario, yeah. They'll be -- What if there's another applicant?

COMMISSIONER GARCIA: But that would also presuppose

that we hit need right on the head; right?

A Right.

COMMISSIONER GARCIA: Because then if we in Florida hit need right on the head, we'd know where that line ended.

A That's right.

COMMISSIONER GARCIA: In other words, it would never go up because we're the perfect Commission and the perfect State, so it goes. But, obviously this, at the end, is because we don't know exactly what we need. There is a range there of need.

A Absolutely, Commissioner Garcia. Further more, what if your goal was to restrict growth in Florida? You could access need low and accomplish that goal. Don't build the plants, don't build the infrastructure. I don't think that that's your goal, or I would conjecture that that's not your goal.

COMMISSIONER DEASON: No, I don't think that's the goal. I don't think that's the goal of the law. The law says, as I read it, and from a very general standpoint, is that we want needed plants built but we don't want unneeded plants built.

And, of course, there's a big debate on how you determine and define need, but we do agree that there is a requirement for plants to have a determination they are

needed before they are built.

A Absolutely, Commissioner; I understand that.

Let me make one -- I'm going to come to this in one of my subsequent slides, but each plant that's profitable, I would argue, you need. And it drives price down each time you let it in, whether -- no matter how it gets here.

COMMISSIONER DEASON: So you're saying that from an economic standpoint, as long as someone can come in and build a plant at a cost that is lower than the last unit in the dispatch, that it's needed?

A I would argue that. That's my personal opinion. And not to do that imposes costs on Floridians that one doesn't have to impose.

The next slide, no. 12 -- Did I effectively address your question, Commissioner Deason?

COMMISSIONER DEASON: Yes; thank you.

A Okay. On page no. 12, question was asked by Commissioner Clark yesterday, well, how much capacity. And I think she asked it again today. Well, I'm going to give you the Altos model answer to that. And that's on page no. 12.

The way we crafted that analysis, again, in pursuit of being conservative here on evaluating the economic value of the Duke New Smyrna Beach project was to pose the question if it could build, i.e, as much new capacity as it wanted

overnight with no delays right at the beginning, how much would it build? How much would the market absorb?

The answer, Commissioner Deason, to your question, the question is 5400 400 megawatts of brand new high technology gas combined cycle capacity right now today. The market would absorb it. Those folks would make money. The next one wouldn't.

COMMISSIONER GARCIA: You're telling me that I could put out for bid 5400 megawatts in Florida and the market, Wall Street, would pay for that in Florida and there's enough market for it?

A Commissioner Garcia, no. Putting something out for bid is profoundly different than a merchant plant, profoundly different. No.

What I'm saying is that if people entered and were allowed to enter the market to the point at which it was no longer profitable to enter, you would see them voluntarily build 5400 megawatts.

If you bid, it's different. Bidding is very distortionary and very different than a merchant world, very different. So --

COMMISSIONER GARCIA: So bidding doesn't get the lowest price. In other words, I require our utilities to bid out all their new power.

A It does not get the economically efficient

solution; doesn't get the lowest price, no, not necessarily.

COMMISSIONER DEASON: So according to your definition of need, it's 5400 megawatts giving today's economics and the cost of this technology and that we could issue a blanket order saying there's an amount of this much need, come to Florida and build it, and until that point is reached, then need ceases?

A That's my best guess, yes.

And Florida benefits from each and every megawatt that's built because it drives the price down and yet it's still profitable for the merchant.

Furthermore, item no. 2 there is critically important to some questions that you raised earlier. And that is I noted in my model that I allow transmission to go either from Georgia to Florida or from Florida to Georgia, whichever way is the most economic and whichever way the traffic would bear. And, guess what? Nothing goes from Florida to Georgia. This capacity is fully absorbed in the Florida market. We'll return in a minute.

And item no. 3 says at most inconsequential amounts of energy from Duke New Smyrna Beach would ever be sold out of State. We can talk about why that is a little bit later.

Page no. 13: The Duke New Smyrna Beach project saves fuel. We had a pre-debate debate over that a minute ago.

Okay. But according to our estimates DNSB is efficient. It has a 6800 approximate heat rate. It displaces plants on the high end of your supply stack that are 10,500 heat rate and in some cases well above. You get a two BTU for one BTU's displacement savings on fuel, roughly speaking.

When you run through those numbers, you'll see 13.6 trillion BTUs of cumulative fuel savings over the scope of table 10, DMN-7. That's a lot.

Turning to the next page, page no. 14. Okay. So what? Well, when you put less molecules, less BTUs through the combusters of Florida, what happens to pollution? Got to go down. Molecules are what pollute. Put half the molecules through, get half the pollution.

The Duke New Smyrna Beach plant is a net positive adder to environmental pollution in Florida. Two for one. Net positive adder.

How does this happen? Gas in an efficient unit is only half as much as gas in a less efficient unit. So you get a gas for gas savings if you displace gas.

Gas for oil, we know oil is black; it's bad; it's terrible. It's full of all kinds of stuff other than carbons and hydrogens. So you get more than just the BTU for BTU swaps in oil. Important.

Slide no. 15, market power. Okay. Duke New Smyrna Beach directly reduces potential exercise of market power

by the incumbents. As my testimony says, I'm not saying the incumbents are exercising market power. There were a number of questions yesterday about what market power is.

I'd like to point you to no. 2. Duke New Smyrna Beach does not have market power. No way.

Now let's talk about why. It's in my direct testimony as noted here on page 31, but Duke New Smyrna Beach diminishes perspective exercise of market power. How? It sets up -- It dilutes market concentration. Market concentration is what you have to worry about when you're worried about market power. Okay.

It creates a small, what we call a competitive merchant fringe that limits prospects for market power and price slab. Why? The merchant fringe, what is the most propitious time for them to operate? It's when the prices fly up. So they operate right against the interests of anybody who is trying to exercise market power.

Question was raised yesterday what market power is. What is market power? Takes a couple of things to give you market power. Number one is granularity or divisibility of your assets. If you shut your whole asset down, yeah, you have market power but you don't get any money. You have to be able to shut 10% of them down.

MR. GUYTON: Commissioners, I'm going to object. He's taking a point -- Throughout this summary, he's taking

a point that he makes and then he is elaborating a great extent on the point that he makes in his testimony.

I can't argue the fact that he's taken an occasional point out of his summary, but he's not summarizing it. He's elaborating on it, on virtually every slide.

I've sat back and been as patient as I can, but please instruct the witness to summarize his testimony. This is going on probably as long as it would for him to have read his testimony.

MR. McGLOTHLIN: Commissioners, yesterday the opponents to the project asked for forty-five minutes per party to argue a legal motion. We are asking for a bit of latitude so that the witness may have fifteen or eighteen minutes to cover a lot of important ground. I don't think that's unreasonable under the circumstances.

CHAIRMAN JOHNSON: But the witness does need to limit his summary to a summary fashion.

A Thank you. I shall.

Okay. With regard to page no. 15, I only want to make one point related to no. 2: The Duke New Smyrna Beach Plant does not have market power. That's because if they shut down, they are nothing. If they run, they earn something. They're going to run. That's not market power. They're a price taker.

COMMISSIONER DEASON: But do you have a market power

if you can dictate the price?

A You can't dictate the price. If you're going to run all the time up to the full extent of your capacity, you cannot dictate the price. You're a price taker. Whatever the price is, you take it and run. There are times when it's good; great. There are times when it's bad; no.

If you're a price taker, you do not have market power. It's the definition of market power in the economics literature. If you are a price taker, you do not have market power.

COMMISSIONER DEASON: Do you know if the other utilities in Florida that sell on the wholesale are constrained by cost-based tariffs?

A I'm sorry, I didn't hear the question.

COMMISSIONER DEASON: Do other utilities in the State of Florida that sell at the wholesale level, are they constrained by cost-based tariffs or do they have market-based tariffs?

A I don't know.

Moving to page no. 16, the Duke New Smyrna Beach project increases the ability to meet load growth. Demand growth is inevitable in Florida. When and if the plant enters, there's incrementally more capacity chasing the same level of demand. We're a growing demand and by

definition you have more reserve margin.

As I point out in line 14 -- excuse me -- page 14, lines 13 to 20 of my prepared testimony, while I've not quantified the impacts, when you have more supply, same demand, you have more redundancy; you have more reliability. It's a tautology. The more redundancy you have, the more reliability you have.

Page no. 17, Duke New Smyrna Beach provides direct risk reduction to Florida ratepayers. Direct risk reduction, not just saying that we don't give any -- excuse me -- that the Duke New Smyrna Beach plant causes no incremental risk to ratepayers. It actually reduces risk. One hundred percent of the price in marketability risk is borne by the project owners, one hundred percent. No price risk is borne by Florida ratepayers. You have more capacity in place than you would otherwise have on someone else's nickle.

Page no. 18, item no. 9, I believe. Imports from points north of Florida. And by this I mean energy imports, power imports, from points north of Florida will decline in the future. You can't count on them.

Southern is going to evolve from being a net exporter to a net importer over the next decade. It's going to get its imports from its neighbors.

Off peak, Southern's low cost coal units are going to

be increasingly committed to whole markets. They're growing.

On peak, everybody's cost the same. Why would you move on peak power if everybody's costs of generation are the same? There's no price differential to pay the transmission.

Let me summarize then on page 19 by simply stating that the Duke New Smyrna project is manna from heaven. It's manna from heaven. Somebody else is taking all the risk. It augments reliability. It gives you a better environment, reduces the cost and reduces the price.

BY MR. McGLOTHLIN (Continuing):

Q Does that complete your summary, sir?

A Yes, it does.

MR. McGLOTHLIN: Dr. Nesbitt is available for cross examination and questions.

And, Commissioners, I would point out that Dr. Nesbitt does cover the area that includes some of the questions that arose and some of the concerns expressed yesterday. So he is the appropriate witness to respond to such questions.

CHAIRMAN JOHNSON: Thank you.

Mr. Moyle.

CROSS EXAMINATION

BY MR. MOYLE:

Q Dr. Nesbitt, I have been provided a copy of your handout and I followed it and I've reviewed your direct testimony. I need to I think maybe clarify at least one thing. And this may be more appropriate with counsel, but you have a Ph.D. in Economic Engineering from Stanford University; is that right?

A Engineering Economic Systems, yes; I have a doctorate from Stanford.

Q And I suppose then that you are an expert in economic engineering; is that correct?

A Yes, I would say so.

Q You consider yourself as such?

A (Witness nods head affirmatively).

MR. MOYLE: I guess what I'm asking is this witness offered as an expert witness and, if so --

MR. McGLOTHLIN: The answer to that is yes, he's offered as an expert witness with expertise in economic analyses, analyses of markets, and risks, as well as the application of computerized simulations to those analyses.

BY MR. MOYLE (Continuing):

Q I have some probably general questions for you. And I appreciate your willingness to explain them, but there are a couple of points in your testimony, if I could point them out to you, maybe refer them directly to you, and ask you about them.

On page 15 of your testimony, lines 8 through 11, you state that the Altos electric model predicts that there are few places in North America where the need for new gas CC generation is more acute and more immediate than in Florida. Is that your testimony?

A Yes, it is.

Q Okay. And tell me why that's the case.

A I didn't catch your name, sir.

Q I'm sorry. Mr. Moyle.

A Mr. Moyle. Thank you.

Q Jon; that's fine.

A Mr. Moyle, you may recall when I was speaking a moment ago, the scenario that I put together in the model assumed immediate or allowed immediate overnight entry of whatever technology wanted to enter, whatever plant wanted to enter, in each of those 32 regions of the country. And we had the most rapid and the most entry in Florida. 5.4 gigawatts, 5400 megawatts, of immediate entry into Florida at the fuel price differentials we assumed, we considered to be a critical need for entry, a lot.

And the main reason for that was the incumbent plants there are costly. They draw that energy in. They draw that entry in and they want to see lower cost production come immediately.

Q So Florida, in your expert opinion, is not the

first, one of the first states that need this type of a plant?

A It's my view it's in the top of the list of 32 regions indeed, yes.

Q You had a -- To move on, you had a page in your handout and also in your direct testimony on page 29, you had indicated that it's not likely that Duke will sell any power outside of Florida. There's been some discussion about that, that this plant could be located in Florida and then not serve Florida needs but be used elsewhere. And I think that -- I wanted to ask you to elaborate a little bit as to why in your expert opinion it isn't likely that Duke won't sell any power outside of Florida.

A Mr. Moyle, let me answer that this way: In constructing the model, my associates and I enumerated the generation options in Southern and points north of there and in Florida. And we enumerated the transmission capability from Southern Florida and from Florida back to Southern. We didn't presuppose what would actually flow or how those markets would clear. We simply laid in the alternatives, so that those things could all compete against each other straight up based on cost and price.

And under the range of simulations that's articulated in my direct testimony, we never saw flow from Florida North to Southern. Why? Off peak, Southern has got cheap

coal until it gets used up by growth in Southern and contiguous regions, and then it's gas. Or it's coal imported from its nearest neighbors upstream from it, which by the time it gets wheeled a couple of times isn't that cheap any more. You don't see the price differential, okay, between Southern and Florida necessary to transport energy north from Florida.

What does it take to transport energy north from Florida? You have got to have a higher price in Southern than you have in Florida, otherwise no one is going to want to move it. You don't pump water downhill; you don't pump energy downhill. You pump it uphill. You take it from a lower market clearing price region to a higher market clearing price region.

The market clearing price in Southern is never higher than the market clearing price in Florida. So you don't move it north. You move it south. That's why.

Q Thank you for addressing that.

Another comment in your testimony was interesting. I would ask you to turn to page 34. The portion that I was referring to is you make a statement that this project is going to provide a direct economic benefit in the form of lower cost electricity to Florida utilities. That's accurate in your professional opinion, that Florida's other utilities will receive a direct economic benefit in the

form of lower cost electricity if this plant goes forward?

A Let me amplify what I mean by that. The answer is yes. As wholesale prices drop, as wholesale prices drop, people have more propensity to buy the cheaper wholesale power than perhaps relying on whatever alternative form they would have to rely on, which is more expensive. If you put a low cost alternative into it, market prices drop. As prices drop and people behave rationally, they take advantage of that. But the answer is yes.

Q And then it would follow, you would assume that the ratepayers of Florida would also stand to benefit if this plant were permitted; correct?

A Let me answer that this way: My view is as wholesale prices drop, the players in this state will make sure that the ratepayers benefit from that.

Q And this table includes the Commission, I presume; that's part of your answer?

A Yes, they are a player.

Q The comment you made with respect to bidding versus a merchant plant, is it your understanding that as an expert economist that a merchant plant will get you a better lower price than bidding? And if that's yes, could you briefly tell me why?

A Yes, I do. And let me tell you why. How does

bidding work in a generic sense? People compete for the right to pass their capital costs downstream. They get the right to pass costs downstream. How do we know that's the best price? We don't. It's an entitlement.

What about building a merchant plant? Does Duke New Smyrna Beach have the right to pass any cost downstream? No. So we know that if you have the right or the entitlement to pass costs downstream to your customers, there is an incentive to load some costs on. There is an incentive to be higher in costs. That's not to say that you're always higher in costs, but it is to say there's incentives to have a higher cost solution.

Give an example: If I'm a consultant and I know people have to buy my services, do you think I charge the same price as if I know they're shopping around? No, I don't. I don't have the same incentives in those two worlds. Merchant entry is at least as good as the bid solution because merchant entry doesn't force anything on anybody. Strictly voluntary market clearing transactions.

Q You had testified, also -- And this is switching gears a little bit. But in your summary, you testified it's your opinion that there is a need in Florida for this type of plant. Could you briefly summarize why you believe there's that need?

A There was quite a bit of discussion in my direct

testimony, but if you might refer to page 10 in my handout.

Q Okay.

A Noteworthy, incremental cost, the forward cost, of the Duke New Smyrna Beach project and projects like it is, it's at the left end of the hydrocarbon portion, let me call it, of the supply stack.

Q Okay. This is what you spoke of earlier in your direct testimony?

A Yeah.

Q It's also your testimony, isn't it, that this project would result in environmental benefits to Floridians?

A Indeed, I did. Yes.

Q In making your assessment of need, did you go back and historically look at any of the situations we've had in Florida, the 1989 Christmas freeze, for instance?

A I didn't look at it specifically. It was embedded in the demand information we put together to generate the model, but we didn't look at it as an explicit event, no.

Q As an expert economist, I was wondering if you could -- An event like the Christmas '89 freeze, somebody earlier said they couldn't finish their turkey in the oven on Christmas Day, is there a way to peg societal costs with a situation like that? You know, I say the turkey, that's

one thing, but if there was interruptable power, you know, fertilizer companies cannot use power because they're on an interruptable rate, is there a way that you can calculate those societal costs?

A There is indeed. And the way to think about it, I won't take a lot of time in a technical discussion, is based on page No. 11. You look at willingness to pay relative to what you have to pay. Subtract the two, and that looks at societal costs. It's a respectable measure and a respected measure.

A good example of that is your laptop, you probably got it for a couple or three thousand dollars, but your willingness to pay might have been forty-five thousand. You're getting $40,000 worth of benefits. Congratulations. That's the way economists think about it.

Q Let me ask just a couple of other questions and I'll finish up.

There was a bit of discussion earlier about the risk of this plant not being built or not running. As an expert economist, having looked at the situation in Florida and the numbers, do you think there is any significant risk of this plant not providing electricity and running if such electricity were contracted for by others?

A I think there is no such risk. I think, if I put myself in the position of the owner of this plant, every

hour that the price is above my production costs, I'm going to be running. I'm going to have especially strong incentives to run my plant on peak. I'm not going to withhold one iota of production on peak because that's the time I have to make all my money. I have more incentive than anybody else to run.

No, I think they'll run.

Q One final question: It's your expert testimony that this plant, if it is permitted to go forward, will result in both ratepayer benefit and environmental benefit to Florida; is that correct?

A That's correct.

MR. MOYLE: I appreciate your indulgence, Madam Chairman. I don't have anything further.

CHAIRMAN JOHNSON: Mr. Guyton.

MR. GUYTON: Thank you, Chairman.

CROSS EXAMINATION

BY MR. GUYTON:

Q Dr. Nesbitt, will you describe for the Commission the market structure that your model assumes that the Duke New Smyrna power will be sold into?

A Yes, sir. Might I refer you to page no. 4 again. I'm sorry. Page no. 4 in the handout. I apologize.

If you look at in the middle of that page competitive hub, and you look at a whole bunch of arrows going into

that competitive hub, many of which come from what I've designated indigenous generation, and some of which come from inbound transmission, the structure of the market that I've assumed for Florida is that all the existing and the prospective new generation units, which were arrayed in those rectangles in the mid left, have to compete based on price, based on the supply stack that you've seen in the competitive hub. And the person in the competitive hub, just as they would in a --

COMMISSIONER GARCIA: Which is not how it actually works; right?

A It may not be. It's the way the wholesale market works, I would argue.

Okay. And they compete in the competitive hub priced on their price -- based on their cost. Excuse me. And inbound transmission competes based on its cost as well.

So we're simulating the operation of a Florida market as choosing the lowest cost alternative from investment, operation, retirement, and inbound transmission, the lowest cost solution.

Q Now you assume for Florida an aggregate market; do you not?

A Yes. Florida is assumed as one aggregate region. Yes, it's represented that way.

Q And you assume an aggregate market that everybody

sells at and buys at fair market value; correct?

A That's correct. We assume one competitive hub, as you can see in the diagram, which is an aggregate for all of Florida; yes, sir.

Q And you assume for purposes of your model that there is no excess or shortage of supply; correct?

A If you'll refer, Mr. Guyton, to the picture on page 6.

Q I'm sorry, Dr. Nesbitt, would you answer the question and then give me whatever detail that you would like, please, sir?

A I'd like to answer it, if you don't mind, in the context of figure 6.

Q Fine.

A There's one price that represents the aggregate of Florida as shown in figure 6 and there is one quantity of consumption for Florida as represented in figure 6.

Q So you assume no excess or shortage of supply; correct?

A Market clears -- Energy markets clear in Florida; that's the assumption.

Q So there is no excess or shortage of demand?

A Mr. Guyton, I have trouble with that question. At the market clearing price, there is no excess and there's no surfeit. Energy is sold and bought.

Q And what you have here is --

CHAIRMAN JOHNSON: Mr. Guyton, hold up for a moment.

Sir, as you answer the questions, could you start them with a yes or no answer. Often times it's -- Particularly at this late hour, it's hard for us to follow where you're going.

A Yes, Madam Chairman.

CHAIRMAN JOHNSON: But if you start with a yes or no, feel free to elaborate on your answer.

MR. GUYTON: Thank you, Madam Chairman.

BY MR. GUYTON (Continuing):

Q And this is a wholesale market that you've modeled; correct?

A This is the wholesale -- Yes, this is the wholesale market that I modeled.

Q And this is a micro economic market structure, where everybody in Florida on the producer side is price taking profit maximizing, and everybody on the consumer side is cost minimizing, shop-around consumers?

A That's correct. That's the way I represented it.

Q Now you describe this market somewhat in your Exhibit DMN-15; do you not?

A Yes.

Q And there you speak of the coming merchant world or the coming merchant electric world. What do you mean by

those terms?

A The coming merchant world to me -- Let me define merchant world. Merchant world has two aspects to it in my view. Number one, zero cost pass through. Nobody can impose costs on anybody else, and no obligation to serve. No obligations at all.

The coming merchant world, as indicated in that document, it's my personal view that we'll see the merchant world within the next decade. I don't know when.

Q Doesn't that also assume that there is no market power?

A Doesn't what assume there was no market power?

Q Your phrase "the coming merchant world, doesn't that assume that no one has market power?

A Does not; does not assume that.

Q Do you recall your deposition, Dr. Nesbitt?

A I recall portions of it.

Q Do you have a copy of it, sir?

A Yes, I do.

Q Would you turn to page 88 of the first day, please.

MR. McGLOTHLIN: For clarification, this is FP&L's deposition?

MR. GUYTON: Yes.

A I believe I have page 88. Do you have a line

citation?

BY MR. GUYTON (Continuing):

Q Yes, sir. I asked you at page 17 -- I'm sorry -- at line 17, "Several times in your DMN-15 you speak of the coming merchant world or the merchant electric world. What do you mean by those terms?"

And at line 25 and part of your answer, wasn't part of your answer, "There is no market power. Market power is precluded"?

MR. McGLOTHLIN: Mr. Guyton, the page number reference, please.

MR. GUYTON: Page 88, line 25.

MR. McGLOTHLIN: Thank you.

A I do see that, yes.

BY MR. GUYTON (Continuing):

Q Are you changing your testimony now or is that part of what you mean by the coming merchant world?

A Let's me clarify my testimony here, if I might. What is merchant world? It's a world where there is no fixed cost pass through, no obligation to serve. Okay.

I'm not sure whether there is monopoly power allowed or not in the definition of merchant world. As I think about it now, the way most -- I know the way Mr. Stalin thought about the merchant world is one in which no one has market power.

I'm not sure there is a definition of merchant world that's clean and pure. I would say, yes, I am changing this prior testimony in my deposition. I don't think the existence or non existence of a market power has any relevance to a merchant world.

Q In your coming merchant world is every plant privately owned?

A Not necessarily.

Q Would you turn to page 89 of your deposition. Actually, I'm going to read the question at page 88 and I'd ask that you read the answer that you gave in your deposition.

"Several times in your DMN-15 you speak of the coming merchant or the merchant electric world. What do you mean by those terms?"

Would you read your answer, please, sir?

A Excuse me. I didn't follow where you were.

Q I'm at page 88, line 17 through 19. Same page we were on a minute ago.

A Yes.

Q "Several times in your DMN-15 you speak of the coming merchant world or the merchant electric world. What do you mean by those terms?"

That was a question I posed; wasn't it?

A I see that.

Q Would you read your answer, please, sir?

A Yes, I will.

"To me a merchant world is one in which there is no guaranteed fixed cost pass through by anybody, in words that I use. Charles Stalin, former FERC Commissioner used, nobody is capable of forcing costs on anybody else in a system. That's a merchant world. Okay. And there is no market power. Market power is precluded. Everybody is a pure competitive price taking profit maximizing producer or a cost-minimizing consumer. Every plant is privately owned and every plant de facto is profit center. And that's a merchant world."

Q Now in the term "coming merchant world," is it still your testimony that every plant is privately owned?

A The notion of private ownership here is profit maximization, not whether or not there are shareholders or it's public. It's do they pursue price taking profit maximization.

If it's clarification you're looking for, I will say that if they're price taking profit maximizing, then they behave as a private agent.

Q Now this coming merchant world, that is not a world that currently exists in Florida; is it?

A It's my understanding that it does not exist yet.

Q But that is the world that you have modeled in

your simulation?

A That's not the only world that I've modeled, but the model simulates that world.

COMMISSIONER CLARK: Dr. Nesbitt, that's a yes to his question?

A No. That's neither.

Let me answer that this way, Commissioner Clark. In a merchant world or in regulated world, people march up the supply stack in ascending order of costs. So it models both worlds.

BY MR. GUYTON (Continuing):

Q Would you turn to page 89 in your deposition?

A I'm on page 89.

Q All right, sir. You recall I asked you, "Is that the world as it currently exists in Florida?"

And you said, "As far as I know it's not."

And then I asked you, "Is that world that you have modeled" -- "Is that the world that you have modeled in your simulation?" What was your answer there?

A My answer there is -- was "That's the world, yes, that we have modeled in our simulation, a world in which everybody is a price taking profit maximizing producer and a cost-minimizing consumer. It's a world in which you have a robust complete wholesale power market that clears itself at the market clearing price. That does not mean that

people don't march up the supply stack in ascending order of costs the way they do in a regulated world. It's simply a characterization of that world."

Q And what transitions would have to happen to the Florida wholesale market to achieve the market world that you've modeled in your simulation?

A I see that you asked me that question before as I recall.

Q Go ahead and your answer and make sure that we're not inconsistent here.

A Okay. I've read my answer there. What was the pending question?

Q What transitions would have to happen in the Florida wholesale market to achieve the merchant world that you've modeled in your simulations?

A I think the answer beginning on line 23, let me reread that as I would answer that now. The wholesale market -- There's not one answer to the question. There are a number of prospective ones. The answer to your question is I don't know all of them. Elimination of fixed costs pass through or O&M cost pass through would go a long ways towards that, as I pointed out here.

Another way is to set up a highly transparent power exchange that shows everybody the price all the time and force everybody to go through it. That's another way that

could contribute to it. It may or may not get you all the way there.

Another way is total deregulation of everything except for transmission and downstream. It's another way to get there.

COMMISSIONER CLARK: You know, Dr. Nesbitt, then I'm confused. I thought you said your model modeled the coming merchant world and whatever we have here now. And what I hear you say now is it doesn't.

A Commissioner Clark, maybe let me clarify that. The coming merchant world in some dimensions is not particularly different from the existing regulated world. The dimension being that when you look at the mix of generation units in the region that you're looking at in ascending order of forward costs, it's the case that the regulated world strives to access those plants in least cost, i.e., ascending cost fashion. Isn't that correct? Yes.

The market will access that mix of plan in ascending order of cost as well.

The models that you get to simulate that can come from quite different dimensions, but they come up with that answer. In my lexicon, the market, be it regulated or unregulated, walks up that supply stack in ascending order of costs in much the way Commissioner Jacobs alluded to

yesterday. That's common.

COMMISSIONER CLARK: So your model is applicable to the coming market and it's applicable to what we have now?

A That element of it is.

COMMISSIONER CLARK: Okay.

A That element of it.

BY MR. GUYTON (Continuing):

Q Would you turn to your DMN-15, please, sir, and specifically if you would look at page 12.

A I'm on page 12.

Q If you'd look in the first paragraph. I think it's the fifth line down. Do you see the sentence that begins "In the coming electric world"?

A I see that.

Q Would you read that, please, sir?

A You mean --

Q Out loud. I'm sorry.

Out loud is what I was going to ask you, make sure you did.

A I understood that. "In the coming merchant electric world, the price differential will no longer be determined by rate-based formulas through which fixed as well as variable costs can be imposed downstream on unwitting customers by companies with regulatory complicity. It will not be determined by system landis

which reflect the fact that fixed costs were imposed on customers completely apart from energy sales."

Q Thank you. Is it your view of regulation that regulation determines price differentials, quote, by rate-based formulas through which fixed as well as variable costs can be imposed downstream on unwitting consumers by companies with regulatory complacity?

A It's my view that those costs by construction can be imposed on customers downstream, all customers. And the way they're imposed is that the regulators force them to be composed under the mandate that they have, yes.

Q Now my dictionary defines complicity as participating in wrongdoing. Do you mean to suggest in this sentence that regulators are participating in wrongdoing?

A Not at all.

What I mean to suggest is it's -- it's a -- It's a contractual -- Or it's a -- I won't say contractual. Let me not add any more.

Q All right. Would you turn to page 24.

COMMISSIONER CLARK: You're just really saying regulation isn't really the best substitute for competition? I mean, it can't match competition in terms of what you're trying to illustrate?

A Let me address that this way. When markets are

competitive, when you have easy entry, when you have people behaving as private owners, it's well known it's the most economically efficient solution. The least amount of mistakes are made. The market is smarter than any individual because it contains the decisions of every individual. That's all I would say.

So where you can use non regulation, yeah, use it. That's my view, my personal view.

COMMISSIONER CLARK: It better allocates scarce resources?

A Yes; that's what efficiency means.

COMMISSIONER CLARK: And it drives price to cost?

A Excuse me?

COMMISSIONER CLARK: It drives price to cost?

A It drives price to marginal cost as long as market -- there's no market power, yes.

COMMISSIONER CLARK: Thank you.

BY MR. GUYTON (Continuing):

Q Would you turn to page 24 of DMN-15.

A Mr. Guyton, I'm on page 24, yes.

Q Thank you. On the first line of a discussion there you use the term "deregulation," speaking of it opening up a Pandora's box. What do you mean by the term "deregulation"?

A Well, it has quite a few elements to, including

but not limited necessarily, to merchantization as I have defined it, which means elimination of cost pass through, elimination of cost oversight, elimination of obligation to serve.

Q Deregulation is something that your simulation assumes in this case; correct?

A It has assumed deregulation. And, as I've pointed out before, there are elements that are common to the deregulated and the regulated world.

Q And it's assumed that deregulation as you've defined it not just for the Florida market, but for all regional markets in your model?

A That's correct. All 32 have a common representation of the regulatory scheme, yes.

Q Let's turn, if you will, to -- I guess we are on it. We'll talk a little more about it. Your North American Regional electricity model. It doesn't employ reserve margin criterion; does it?

A In this simulation it does not. It has the capability to do it.

Q And your North American Regional electricity model doesn't employ a loss of load probability value in this simulation; does it?

A In this simulation it did not.

Q And your North American Regional Electricity

model didn't employ an unexpected -- or an expected unserved energy criterion in this simulation; did it?

A It did not. And the reason it did not is we wanted to assume as much capability on the part of every plant in North America as we could so we would have a conservative valuation of the Duke New Smyrna Beach project. We wanted to be conservative.

Q So you assumed 100% availability of all the units?

A That's the way we did it in this simulation, yes.

Q Now your North American Regional Electricity model adds capacity when the capacity is economically viable and profitable; correct?

A I'm sorry, I didn't understand the question.

Q Your North American Regional Electricity model, the way it adds capacity is that it adds capacity when the capacity is economically viable and profitable?

A It adds capacity up to the point where the next increment of capacity is no longer profitable. And it adds profitable capacity at each opportunity, yes.

Q And is that the way it adds combustion turbine units as well?

A That's the way it adds all units.

Q Now in that model, your North American Regional Electricity model, you've used a load forecast; have you

not?

A We have used a load forecast. We've used historical information and we've put together our own forward demand forecast, yes.

Q And you've used a net energy for load forecast in the model?

A That's my understanding that we did, yes.

Q And the net energy load forecast that you use for Florida was from NERC 1996 database; was it not?

A I'd have to check that. I have people here in the room who can tell me which particular year that was.

Q Please do.

A '96?

Mr. Guyton, it was 1996.

Q And that data was reported by utilities in 1996 to their regions and that in turn was reported to the NERC; correct?

A I believe that's the process, yes.

Q But that forecast only extended from 1996 through 2005; correct?

A I believe those were the years, yes, ten years forward, I believe.

Q How did you forecast Florida's energy requirements beyond 2005?

A I think that was laid out in my deposition. If

you don't mind, I'd like to find that. It might take a few minutes.

Q Well, sir, you might want to take a look at page 64 and 65, first day.

A Thank you.

May I have the pending question reread?

Q How did you extend your net energy for load forecasts beyond 2005 for your simulation for Florida?

A I'm trying to think of how to answer that simply without a long answer.

As you probably remember from the deposition, what we project out into the future is the entire shape of load subject to the considerations that are in my direct testimony. It's not just forecasting net energy for load. But I believe that was based on the 10-year forward projection that you talked about extrapolated forward I believe at the average ten-year growth rate. I'd have to check that in the deposition. And from that point out, which I believe was 2005, to the end of the simulation period, which I believe was 2014. So it's the average growth rate across the decade of projected, of NERC projected net energy for load.

Q Now your North American Regional Electricity model does not use a peak demand forecast; does it?

A What it uses is a time varying forecast of demand

in each forward year. So it does not strictly and only forecast peak, no. It forecasts the entire forward distribution of demand.

Q Now when you model units in your North American Regional Electricity model, you don't model individual units, you model aggregates of units of certain types; do you not?

A In this simulation we used aggregates, yes.

Q And for those aggregates you develop a weighted average heat rate for each type of unit?

A That was the process that was used for this simulation, yes.

Q And you develop a weighted average non fuel O&M for each type of unit?

A That was the process, yes.

Q How do you model unit power sales in the North American Regional Electricity model?

A If you recall, all the sales of energy, as I alluded to earlier, go into a common regional aggregate point of sale/point of resale, if you will, wholesale hub, competitive hub. So all energy goes in and is purchased by cost-minimizing customers and all of it goes out.

Q Well, sir, how do you -- What do you understand a unit power sale to be?

A I don't know what you're using the term as right

now.

Q If one utility within the Florida region sold the output of its power to another utility, how would you model that? Would you model that at the contract price?

A Mr. Guyton, Florida is modeled as one single aggregate. So intra-Florida exchanges would not be specifically modeled. It's an aggregate market.

Q And if you had a unit of power sale between the SERC region and Florida, where you were buying the output of a SERC unit, a Florida utility was buying that, how would that be modeled?

A The way that would be modeled is there's a competitive hub, as I've termed it, within what I've called Southern in the model. It's got a market clearing price. There's a competitive hub in Florida, as I've characterized earlier. It has market clearing prices. All sales of energy between those two hubs occur at those market clearing prices.

Q So you'd market that transaction at the market clearing price from SERC to Florida instead of at a contract rate; correct?

A I mark -- Exactly. As I mentioned in my deposition, I mark all sales and all purchases to market. All sales and all purchases are to market.

Q So you made no attempt to capture contract

prices?

A Not in this simulation I didn't.

Q Now your model models purchases from non utility generators by pricing them at the market clearing price that your model otherwise calculates, essentially just subtracting that capacity from demand for load; correct?

A As I mentioned in my deposition, that's one good way to think about it. The other equivalent way to think about it is the way that was evident in the California supply stack we saw earlier. You put it at the extreme left hand side of the supply stack at a very, very low cost, so it's always dispatched first. The net effect is equivalent.

Q And you said there were two different ways to think of it. Which way did you do it in your simulation?

A The way we did it in the simulation was to put it in at a very low cost, i.e., put in the, as an example, hydro, at a very low cost and make sure it dispatched first into the supply stack and into the market.

And the effect of that is to sell it at the market clearing price.

Q Once again, you didn't look at the contract prices for non utility generators to develop the price for the dispatch?

A Not within each region. Everything is mart to

market.

Q Now if there were a unit that were owned by a Florida utility but located in another region, would that resource be treated as the resource of another region or would it be treated as a Florida resource?

A It would be treated correctly as a resource in the other region because what its energy does is goes and competes and affects the market clearing price in what you've termed, Mr. Guyton, the other region. The physical entry into that other region affects prospectively the market clearing price there. Once all the action happens in that other region, that other region either competes or doesn't in the region where the owner resides.

Q And, once again, to capture the price of that unit, you would price it at the market clearing price in the region other than Florida rather than at its contract price; correct?

A For this simulation, I've reflected its price at the market clearing price in both regions, the origin region and the destination region, yes.

Q And that doesn't reflect the contract price? Or that doesn't -- I'm sorry. There isn't a contract price.

When you modeled Florida in your simulation in this case, you didn't include any planned or proposed utility additions; did you?

A I think we did, and I think we did by allowing the model to have as much, quote, unquote, early capacity as it wanted. It shows 5400 megawatts of early capacity, i.e., immediate overnight installations in Florida of gas combined cycle capacity.

To the extent that represents what the utilities are planning, then we did. To the extent it doesn't, then we didn't.

Q But you didn't attempt to go out and identify the specific planned and proposed unit additions and add those at their heat rates and at their projected costs? Instead, you used a generic gas combined cycle for your analysis; didn't you?

A Yes, and, indeed, we did. And the reason we did that, as I alluded to before, we wanted to be conservative on our estimates of market clearing price. We wanted to have those prices reflect entry and quick entry of best available technology, not necessarily announced technology or announced plant.

Q And you didn't model any -- In your simulation, you didn't model any repowering projects; did you?

A We did not model repowering projects explicitly, no.

Q To your knowledge, has the North American Regional Electricity model been presented to a regulatory

agency before?

A To my knowledge it has not.

Q To your knowledge, has the North American Regional Electricity model been reviewed by a regulatory agency before?

A I'm having a hard time with your question, Mr. Guyton. The modeling approach has been around for 25 years. The modeling approach has been reviewed by and used in support of a number of regulatory arenas. I don't know how to answer those questions in the way you've posed them.

The specific model itself that was run for this simulation, I believe not.

Q And your North American Regional Electricity model as it was run for this simulation has not been relied upon by a regulatory agency before; has it?

A I don't know.

Q Now, Dr. Nesbitt, you have not disclosed even under a protective order in this docket or a protective agreement all the inputs and the outputs of your North American Regional Electricity model; have you?

A I've attempted to do that. I think I have. I may have missed some. But it has been my -- It has been my intention to disclose all the inputs and all the outputs to the Altos North American Electricity model.

Q Well, even in your most recent attempt, you were

selective about your years, weren't you, and you didn't give all the years that you modeled on the short-term run?

A I don't know whether I did or not. It was my intention to do that.

Q In this proceeding, even with the offer of a non disclosure agreement, you've not shared the model's internal logic; have you?

A I haven't shared the model's internal logic, indeed. The gigantic collection of your reports that you have articulates the model's internal logic in great detail.

COMMISSIONER CLARK: Was that a yes or no?

A That's a yes. I have shared all the internal logic, yes.

COMMISSIONER GARCIA: I don't know if that answers the question, though. He says you've given him -- Have you given him the internal logic for the model? That you got your inputs from the reports filed by FP&L doesn't necessarily tell us.

A Let me tell you what I've given them and maybe that will help. What we've intended to give is all the methodological documentation, all the equation documentation, all the input documentation, all the output documentation, all the economic science, everything. Everything we have written. And it's all proprietary and

it was all disclosed under a protective order. It's all been given. I don't know of anything that was withheld or not given. And that's on the internal logic of the model as well.

BY MR. GUYTON (Continuing):

Q What was it that you offered to license to Florida Power & Light Company for $45,000, Dr. Nesbitt?

A What we offered to license to Florida Power and Light Company was the ability to make your own runs, just as Microsoft would request a license for you to run Excel. That's what we offered.

Q And what would be entailed for Florida Power & Light to be able to make its own runs?

A What would be entailed?

Q Yes.

A Call me up.

Q And what would you provide to Florida Power & Light that you didn't provide to Florida Power & Light in discovery?

A What we would provide includes the source code. You could look at the source code at our site. It's protected, but you could go through it until your heart's content with no restrictions other than you don't carry it offsite. That's the only thing that was not provided to you.

And the right to use it for your benefit.

Q Let's go back to your DMN-7, please, sir.

A I'm on DMN-7, Mr. Guyton.

Q Dr. Nesbitt, what were all the models that you used to develop the capacity factor data shown in column 3 of DMN-7?

A The models that were used to develop that included the ones that you mentioned earlier on. I'd like to resummarize those. The North American Regional Electric model, North American Regional Gas model, and the operations model.

Q During the course of discovery, did you provide to Florida Power & Light Company the operations model?

MR. McGLOTHLIN: I'm going to object to the question unless he lays a predicate that the model was asked for.

MR. GUYTON: We'll get to that. I don't know that we need the predicate to ask -- for him to answer the question as to whether or not he had provided the operations model.

MR. McGLOTHLIN: Well, there's an assumption there that the model was supposed to have been given. We don't know until it's established that a discovery request was made for it.

MR. GUYTON: I don't know that there is any presumption at all. I just simply asked if he provided the operations model to Florida Power & Light.

MR. McGLOTHLIN: And I object to the question unless a predicate is laid.

CHAIRMAN JOHNSON: The witness may answer.

A I don't believe that was provided to Florida Power & Light Company. I'll have to check, but I don't believe it was.

BY MR. GUYTON (Continuing):

Q Earlier we handed out the request for production that Florida Power & Light Company made to Duke New Smyrna, FP&L's First Request for Production. Do you have a copy of that? Did a copy make its way to you, Dr. Nesbitt?

A Was that the document that was handed out at the conclusion of the earlier discussion?

Q Yes, sir.

A I believe I have it. Help me make sure.

Q Well, the first page reads, "Florida Power & Light Company's First Request for Production of Documents Nos. 1 through 13 to Duke Energy New Smyrna Beach Power Company, Limited, LLP."

A Yes, that's the one I have.

Q All right, sir. If I understand your testimony correctly, you used the operations model to develop column 3 of DMN-7; correct?

A As I testified earlier, we used the North American Regional Electric model and the operations model,

yes.

Q Is your DMN-7 a document in which it is assumed or projected that the project with its heat rate of 6,832 BTU per kilowatt hour will displace generation from less efficient gas fired steam boiler or even from less efficient CTG units?

A Yes. The premise of that document assumes such displacement.

Q Is DMN-7 a document in which it is assumed or projected that the project will displace oil fired generation?

A Oil fired or -- I'm sorry.

Q Oil fired generation.

A The reason I answered no to that earlier is what the document does is it asks the question what if it displaced all oil in column 5, what if it displaced all gas in column 6.

Q But this is a document, is it not, in which it is projected that it assumes in column 5 all oil, and in column 6 all gas; correct?

A That's correct. Column 5 it asks the question if all oil -- If oil and only oil were displaced, how much would there be. And column 6 is if gas and only gas were displaced, how much would there be. Yes.

Q And this -- I'm sorry. I didn't mean to cut you

off. Were you through?

A Yes.

Q Is your DMN-7 a document which projects or supports the project's projected capacity factor ranging from 83% in 2002 to 94% or more by 2012?

A What DMN-7 does is simply articulate the capacity factor that comes out of the operating model. It tells you what the answer was to the North American Electric model and then the operating model. And then it goes on to make the subsequent calculations, which are on that page.

Does that answer the question?

Q Yes, sir; I think it does.

Would you look at Florida Power & Light Company's First Request for Production now, again, please?

A Yes.

MR. GUYTON: May we have that marked?

COMMISSIONER DEASON: Mr. Guyton -- Mr. Guyton, before -- are you leaving for now DMN-7?

MR. GUYTON: No, Commissioner, I'm not.

COMMISSIONER DEASON: Are you getting ready -- Okay.

MR. GUYTON: May we have that marked for identification, please, Chairman?

COMMISSIONER JOHNSON: Exhibit 20.

(Exhibit 20 marked for identification).

BY MR. GUYTON (Continuing):

Q Dr. Nesbitt, would you look at request for production no. 1 on what's now been identified as Exhibit 20?

A That's on the second page; yeah.

Q Yes, sir. It asks for all documents and analyses in which it is assumed or projected that the project with its heat rate will displace generation from less efficient gas priority steam boiler units.

And I believe you've stated that DMN-7 would have been responsive to this; correct?

MR. McGLOTHLIN: Object to the characterization. I don't think that's what the witness said.

BY MR. GUYTON (Continuing):

Q Would DMN-7 be responsive to this Request for Production, Doctor?

A It would have been only partially responsive. The displacement issue comes out of the North American Regional Electric model as well and leads to the capacity factors themselves.

I have a hard time answering the question the way you posed it, sir.

Q That's fine. I'm not asking if it was solely responsive. I just asked if it was responsive.

Would the analysis or simulation that you did from your operating model also be responsive to Request for

Production No. 1?

A No, it wouldn't have. The operating model simply generates the capacity factor you see in column 3 for one single plant or one single plant aggregate. It doesn't look at displacement or substitution in the way that table DMN-7 does. DMN-7 is fairly self-contained.

Q All right. Would the operating model have been responsive for Request for Three -- Request for Production No. 3 that says "Provide all documents and analyses supporting the project's," and if you will move to the end of it, "capacity factor ranging from approximately 83% to 94%"?

A It would have been. And my recollection is it was included in the license agreement that was offered to you. The operating model is a licensable product of Altos.

Q But it wasn't provided in the disks that were provided in response to Request for Production Nos. 1, 2 or 3; was it?

A My understanding or my recollection is it was not provided.

MR. McGLOTHLIN: I'm going to object to any continuation of the line of question on the grounds that this is obviously a discovery dispute. The appropriate way for FP&L, if it feels that it has not received the discovery it has asked for, is to file a motion to compel.

To my knowledge, no such motion is outstanding and it's inappropriate to pursue this in cross examination in preparation for a motion to strike when there's been no request appropriately made.

MR. GUYTON: It's quite a dilemma I face. First I couldn't raise it on voir dire. Now I can't raise it in cross examination.

I think it's entirely permissible. Let me explain, and I'm going to renew my motion at this point because I think it's pretty clearly established that the operating model run, from which the capacity factors were derived on DMN-7, should have been provided in discovery; certainly was responsive. And DMN-7 should have been provided as well.

Dr. Nesbitt has a model that he didn't disclose in his testimony. We found out about it ultimately through discovery in a deposition. But we asked in discovery for preparation for that deposition, which would have -- If it had been provided to us, as it should have been, we would have been aware of the existence of the operations model. We would have had an opportunity to take a look at its inputs and its outputs and the other matters that it computes.

It is a very significant portion of this gentleman's testimony because if you look at DMN-7, this is the only

exhibit on which Dr. Nesbitt has any data from any of his models beyond 1998. This is the only exhibit. And the only exhibit is -- The only data on this exhibit is the capacity factors on DMN-7, column 3.

Had we been given an opportunity that we should have been given to explore the operations model that underlies this exhibit, we wouldn't find ourselves in a position of having to struggle through two days of deposition and discovering only almost on the eve of hearing just what it was that we had and we didn't have.

Now it's worse than that because if you look at what was provided by Duke New Smyrna, they provided, as Dr. Nesbitt acknowledged, disks. We were given the impression that we had all of the analysis.

Now we find out, and we've only been able to establish in the last few minutes, that we didn't have all the analysis.

Commissioners, I simply think that Florida Power & Light finds itself in a situation where we have no choice but to move to exclude and strike DMN-7 and the testimony associated with it in his prefiled testimony, as well as the same exhibit in a Joint Petition Exhibit and the associated testimony.

And we move to exclude it on the basis that it should have been provided in discovery and wasn't.

Now could we have filed a motion to compel? Well, had it been suggested -- Had we been aware that we didn't have everything in a timely manner before the close of the discovery deadline, perhaps we could have. But we were blissfully unaware that we didn't have this information because we were led to believe that we did. We took days to pore through this information and now we find that indeed we didn't have all that we needed.

This is a crucial portion of this gentleman's testimony. We think it should be struck.

MR. McGLOTHLIN: May I respond?

COMMISSIONER JOHNSON: Yes.

MR. McGLOTHLIN: First, I'd like to point out that Mr. Guyton alluded to learning about this information during a discovery deposition. That deposition was held on November 10th and November 11th. And I spent a long time during the deposition watching Dr. Nesbitt and his colleague help Mr. Guyton get into the model and look over their shoulders and the computer and offer cooperation and help.

And I'm comfortable in saying that our side has been more than forthcoming in efforts to give FP&L the information to which it was entitled.

I was also led to believe by Dr. Nesbitt's answer that FP&L was informed that this particular information was a

licensable product and that there were some additional steps that would have to be taken in order to get it. And to my knowledge FP&L did not pursue that.

So I think it's fallacious to say that Duke New Smyrna failed to provide them everything it was required under discovery.

More than that, I believe if we'll have a moment to break and look at the transcript of deposition, I think all that was made clear at the time.

COMMISSIONER JOHNSON: Okay.

MR. GUYTON: I'll say this.

COMMISSIONER JOHNSON: I'm sorry. Let me make sure I understand. You're saying at the deposition that was taken on the 10th or 11th, the discussion as to the availability of the information and how one would go about receiving that information was provided?

MR. McGLOTHLIN: Yes. Now we're having to rely on memory at this point because, again, we weren't aware of the complaint until it came up during the hearing this morning. But I think if we could have a few moments to consult the transcript, we would glean more.

COMMISSIONER MOYLE. Okay. Mr. Moyle.

You need to turn the mike on.

MR. MOYLE: I'm sorry. Just by way of introduction, I think that Mr. Guyton admitted when he was making his

motion that they found out about the information in the deposition. So in my mind this isn't the case of somebody willfully concealing something. If they actually provided the information in the deposition and there was failure to either ask a follow-up question about, well, could I get that or to file a motion to compel, it sure in my opinion doesn't warrant a striking of testimony.

I would ask how many times FP&L has ever been subject to a motion to compel in any of the proceedings it's been in prior to this one.

MR. GUYTON: Commissioners, I want to make sure you understand something. We knew at the time of deposition. We figured out at the time of deposition that we didn't have the operations model run. What we didn't know was that the operations model run was responsive to Request for Productions 1, 2 and 3. And we weren't able to discern that until we were able to go back and take a look at the remainder of Dr. Nesbitt's testimony.

I remind you that we were doing one and two depositions a day through that period of time. And by the time that we became aware of this, our opportunity to compel was gone. The discovery deadline had come and gone.

MR. McGLOTHLIN: Mr. Guyton --

MR. GUYTON: But -- But --

MR. McGLOTHLIN: Did you --

MR. GUYTON: But --

COMMISSIONER JOHNSON: Hold on. I want to make sure I understand Mr. Guyton's argument.

MR. GUYTON: But we -- But we were lead to believe by the Request for Production response that all the documents that were responsive to 1, 2, and 3 were on the two disks -- I'm sorry -- the three disks that Dr. Nesbitt provided us. And we didn't discover that until after the discovery deadline had passed. And the only remedy that we have now is to move to strike the testimony.

MR. McGLOTHLIN: I suggest he had another remedy.

COMMISSIONER JOHNSON: Mr. Guyton -- Hold on one second. I want to make sure I understand Mr. Guyton's position.

So you were -- Whether in the deposition or at some other time, you thought that in those Requests for Productions that the disks that you were given provided you with the information that he had referred to in those depositions?

MR. GUYTON: We knew that we didn't have the operating model runs. We learned that in deposition. We confirmed that in deposition.

COMMISSIONER JOHNSON: Okay.

MR. GUYTON: But we nonetheless thought that we had

all the documents that were responsive to Request for Production 1, 2, and 3.

COMMISSIONER JOHNSON: And would that have given you the operations model runs?

MR. GUYTON: It should have been. That's what Dr. Nesbitt just acknowledged several moments ago that those runs would have been responsive at least to Request for Production No. 3. We were under the impression that we had all the documents that were responsive to that. And it turns out we didn't. We didn't have the operations model, and that's what we needed, but we didn't know that's what we needed even though we knew we didn't have the operations model, because we'd been led to believe we had everything that we needed.

MR. McGLOTHLIN: I think we've established that Duke New Smyrna and Altos offered to provide that model under a license agreement at or prior to the deposition.

Now the problem -- One of the many problems I have with FP&L's argument is that they say they had no remedy because the deadline had passed. But FP&L to my knowledge never communicated to Duke New Smyrna or to Dr. Nesbitt's company that they thought they had a grievance because we have been cooperating with them throughout and would have cooperated that point. Deadlines can be changed by stipulation, by motion.

COMMISSIONER GARCIA: If that was a question, Mr. Guyton, why didn't you bring it to the Hearing Officer? If you needed something crucial to your case or this testimony was before us and you were planning on striking it, why didn't you bring it to the attention of the Hearing Officer before this Commission had to sit through and wade through this stuff?

MR. GUYTON: As I prepared for this over the Thanksgiving holidays, it finally dawned on me what I had. I just didn't think there was time. I thought that the appropriate time given the circumstances was to raise it at hearing.

MR. McGLOTHLIN: That assumes there would have been no cooperation, which is not a valid assumption given the amount of cooperativeness that's been extended in this case.

CHAIRMAN JOHNSON: Staff.

MS. PAUGH: Perhaps a short recess would be in order for counsel to take a look at what is proposed to be struck. Perhaps the parties can get together and resolve this. I don't have any other real solutions at this point.

CHAIRMAN JOHNSON: I'm sorry, Leslie. I wasn't -- I didn't hear your -- You said a recess to do --

MS. PAUGH: So counsel can convene. Mr. McGlothlin has indicated he's not clear on everything that's proposed

to be struck. Perhaps they can discuss this and resolve something in a few minutes of recess.

Does that sound reasonable?

MR. GUYTON: Commissioners, I'd be glad to recess, but I think whether we're clear on -- I think we're clear on what we're moving to strike. I just think we have a difference of opinion.

COMMISSIONER GARCIA: You're moving to strike all the testimony?

MR. GUYTON: Oh, no; very specific portions of it.

COMMISSIONER GARCIA: Just the issues of the model?

MR. GUYTON: DMN-7, both in his exhibit and in the petition, and in the portions of the Joint Petition Exhibit and his testimony where he specifically addresses DMN-7.

MR. McGLOTHLIN: Well, it's clear to me that I oppose the motion because, quite frankly, I think FP&L has chosen the wrong avenue. They had the opportunity to try to work this out. They chose instead to wait until the hearing and surprise us with it. So I don't think a short break is going to change my mind as to my position on the motion.

CHAIRMAN JOHNSON: I'm going to deny -- I'm going to go ahead and make a ruling now and deny the motion.

I agree and believe that there were other avenues that should have been used to pursue this. A motion to compel would have been helpful. And from listening to the

arguments that have been made, at least around the November 10, 11th date, and I think, Mr. Guyton, you agreed that the question was first raised at least as it relates to the operations model runs, and to the extent that you didn't get everything that you needed in some of the other requests, the Request for Productions 1, 2 and 3, that should have been requested early.

Do you have any more questions?

MR. GUYTON: Commissioner Deason, I do have a few more questions about DMN-7. You asked if I was about to leave it.

BY MR. GUYTON (Continuing):

Q Dr. Nesbitt, as you look at DMN-7, the capacity factors in column 3 are used to calculate the other values in the other columns; are they not?

A Yes, they are.

Q You apply the capacity factor for each year to the total capacity of the unit to derive the generating column or the generation column?

A That's right. And as we discerned in the deposition, I used 515 megawatts to make that calculation.

Q And that's the unit at ISO conditions; correct?

A I'm sorry?

Q That's the unit's capacity at ISO conditions; is it not?

A I just used 515. The number speaks for itself.

Q Well, wouldn't you agree that if ISO conditions are 514 megawatts, but that the average rating of this unit is 496 megawatts, to calculate the generation from this unit, you should have used the average rating rather than the ISO rating?

A Perhaps, but the point of this -- The point of this exhibit is lost in that kind of difference. It simply notes that you get a two-for-one savings in fuel; very simple exhibit.

MR. GUYTON: Thank you, Dr. Nesbitt.

Commissioner Deason, that's all I had on DSM-7.

COMMISSIONER DEASON: Dr. Nesbitt, could you explain to me why the capacity factors shown on DMN-7 consistently increase from the year 2002 to the year 2012?

A Yes. Let me summarize a few of those reasons. That's a good question. There's a lot -- In the North American Regional Electric model a lot of demand growth assumed in V-Car and in Carolinas.

COMMISSIONER DEASON: I'm sorry; what?

A A lot of demand growth assumed in Florida, in V-Car, in Southern, NESPP, and the various regions. Demand is growing. The existing coal capacity there is fully consumed and dedicated to whole markets. As that happens, you walk on the combined cycle piece of the supply traunch

for more hours of the year. And as demand grows, the coal and other base load type capacity stays constant, the capacity factor on the combined cycle units increases over time.

CHAIRMAN JOHNSON: Additional questions, Mr. Guyton?

MR. GUYTON: That's all I have. Thank you.

CHAIRMAN JOHNSON: Mr. Sasso.

CROSS EXAMINATION

BY MR. SASSO:

Q Dr. Nesbitt, neither counsel for Duke nor anyone else has given you a definition of need for purposes of this proceeding; correct?

A No. They've asked me to define my own definition of need for this proceeding.

Q And your definition is essentially that need is market driven; is that right?

A No. The need speaks for itself. The need is the need for lower cost, higher reliability, cleaner, well augmenting options.

Q Determined by the market?

A Determined by whatever prices are transacted and whatever costs of the marginal unit occur at that time. If you want to call that the market, you can.

Q Now your model that you've been discussing this afternoon and this evening focuses on wholesale demand and

wholesale supply; is that right?

A That's correct. There's no attempt to represent anything downstream from wholesale except in terms of a demand curve or a demand projection.

Q Could you look at page no. 6 in your summary exhibits?

A I'm sorry. I don't know quite where to look.

Q The handouts that you gave us all this evening.

A Oh, I'm sorry. Yes, sir.

Q Is that fundamentally the premise for your opinions about need in this case?

A I'm having a little bit of trouble answering that. That's the premise that underlies the model that I used to determine need.

Q Yeah, that's fine.

Now, in fact, you produce or reproduced that same model or that same I guess exhibit or chart in DMN-15; is that right?

A I believe it's figure 8 there. I'll have to check, but I believe it's in DMN-15. Yes, it's figure 8.

Q And, incidentally, DMN-15 was copyrighted in 1998; is that right?

A That's correct.

Q Could you read aloud for the Commission the caption on figure 8?

A Yes. "Figure 8: After deregulation, here's the way the world will work."

Q Thank you.

A And here's the way the world works in part before deregulation.

Q Now you've determined that the wholesale market in this state is such that 5400 megawatts of new -- of combined cycle capacity may be economically added through the year 2002; is that right?

A Yes.

Q And you conclude that any company or utility considering building a combined cycle plant in Florida before that year would rationally conclude that it could make money off of plant up until the point that 5400 megawatts of new capacity is added; is that right?

A No, I didn't say utility company, no. What I assumed and what's implicit in that 5400 megawatt number is this: A price taking profit maximizing producer would make money until he or she was the 5400th megawatt, and then he or she would stop making money.

Q So that number wouldn't -- I'm sorry. That number couldn't be used for judgments by investor-owned utilities in Florida, for example?

A Couldn't be used for judgment? Could you elaborate a little bit what you -- what the question is?

Q That number couldn't be used by, say, Florida Power Corporation or Florida Power and Light to determine whether and under what circumstances to add capacity to their system?

A Well, I think it bears upon such decision. It certainly indicates that the market would absorb it. And it would -- And the price at that market at wholesale would be above cost for the eighty-plus percent hours that are projected, yes.

Q Now using your definition of need, a developer would basically conclude that a plant was needed up until the 5400 megawatts was added, right, a merchant developer?

A A merchant developer, yes, would conclude there was need up to 5400 megawatts.

Q Now, of course, some other economist might put the number at 6,000 or 5,000 or 10,000; is that right?

A I don't know. I don't know what some other economist might do.

Q Well, you or some other economist might guess right or wrong about the number of plants that could be absorbed economically in the State; is that right?

A I wouldn't want to judge my own guess.

Q And let's say ten years out some new technology arrives on the scene, entrepreneurs would make a new set of judgments about whether they could add capacity to the

State based on your economic model; is that right?

A Could you read the question back?

I'm sorry; I missed the last part of it.

Q Well, let's say ten years out or so some new technology arrives that enables marginally more efficient plants, then economists and entrepreneurs' merchant plants would make a new set of judgments about whether to add yet an additional fleet of plants to the State; is that right?

A Not only is that right, if we saw that new vintage or that new generation of plants coming, you'd see it reflected in price now and people today would start making those judgments. They wouldn't wait for ten years because they'd see it coming.

Q Now you're basically using micro economic principles that describe how a competitive market operates; is that right?

A Absolutely right.

Q That's sometimes called the theory of the firm?

A That's sometimes, yes.

Q And these same economic principles apply equally to cattle growers in Kansas?

A They are thought to apply to competitive producers in a competitive market with competitive consumers, as I defined it, yes.

Q Would apply to McDonald's restaurant or a 7-11?

A Not necessarily, not where there's product differentiation like that; not necessarily.

Q It would apply to commodities; is that it?

A Commodified markets. There is debate about whether it would apply to segmented or differential markets.

Q But basically under these principles, an entrepreneur would perform a market study, anticipate demand, pricing cost, and add a new unit as long as he concludes he can make money on it; is that right?

A Not necessarily. You don't have to argue what he or she does. He or she simply adds capacity to the point where it's no longer profitable to add capacity based on whatever criterion he or she wants to impose. It's the act of adding capacity that matters.

Q And how does one make that judgment whether to add capacity?

A How does one make that judgment in the real world or in the model? I mean, could you clarify a little bit?

Q Is there a difference?

A No.

Q Well, answer for both then.

A What most entrepreneurs that I'm aware of do is they render judgments about forward prices. They render judgments about the costs of the assets that they're

projecting to put into those forward price markets. And they discount the margins that they get in those forward markets to present value and see if they exceed the capital costs. If they do, they consider moving ahead. If they don't, they don't move ahead, just like the model does.

Q Now from a perspective of a utility like Florida Power Corporation, would it be your opinion that that utility should plan to add a combined cycle plant to its fleet before the year 2002 only if it could beat other market entrants in meeting an aggregate state-wide demand of 5400 megawatts?

A Not necessarily.

Q Why not?

A There's a couple of reasons. Florida Power and Light Corp is regulated. And it may or may not -- let's assume it does -- seek to rate base its investments. That distorts the decision. That puts an entitlement on the rate of return back. So Florida Power and Light Corp would not be like -- There would be no reason to forecast forward prices. Once you've sold the rate base, as Commissioner Garcia alluded to yesterday, you're whole; you're cool; your okay.

So Florida Power and Light Corp doesn't necessarily have to withstand the market test on its output.

Q Well, let's reverse it. Let's suppose that you

understood that the utilities in Florida were planning to add 8,000 megawatts, let's say, of new generating capacity by the year 2002. Now that wouldn't change your conclusion that the Duke plant should be built; is that right?

A Let me help you with your question. If I knew that they were going to add it -- Planning to add it is different than the reality of adding it. If you told me, hey, Dale, ten years out there's 8,000 megawatts of capacity that was added nine years that you didn't think of and it was added. It wasn't planned to be added. It was added. And it was natural gas combined cycle high technology adds, yeah, you've killed the market for new entrants.

COMMISSIONER GARCIA: While he looks up for the next question, what would happen -- Let's say that these companies go forward with their projects. Let's say they can't reach an agreement with you on price, so they come to this Commission and they decide to build these projects. They're not going to put it into rate base. And they build 8,000 megawatts. What happens then?

A The first thing that happens is you have to worry about affiliate abuse. They say they're not going to put it in rate base. They have a regulated entity and a non regulated entity. Industries that have been --

COMMISSIONER GARCIA: All right. But that's our job.

Let's say we take care of that. We have to do that today and we'll probably have to do it for quite a while.

A Commissioner, I would argue you can't take care of it, but I will assume for purposes of argument that you've taken care of it. And the reason you can't take care of it is the incentive of a regulated company is so strong to load costs on to that side of the line, they will figure out a way to do it.

But let's assume that you've taken care of it, what's next? You've got the same plant with one exception, with roughly the same costs. He has an incentive to have higher costs in his plant if he's a regulated entity than I do if I'm an unregulated entity. Why is that? Every penny that I shave off my operating cost goes to my bottom line. He doesn't care about pennies. Not he specifically, but he, the regulated entity, doesn't care about pennies. They flow to the customer.

I've got to be the lowest cost provider. I have profound incentives to be that. And they're profit incentives.

In a competitive market, my cost structure for the self same unit is going to be lower if I'm a merchant than if I'm a regulated utility.

COMMISSIONER GARCIA: So if you build your power plant and they still can't reach an agreement with you on firm

capacity, you're telling me that the market won't hold it, so I'd have to tell him no about building new capacity?

A You may or may not. Keep in mind, Commissioner, and you're on the right track here, I believe. All he's got to do is compete against the last guy in the supply stack, just like I do. So he may well be able to build a higher cost unit than I.

COMMISSIONER GARCIA: Your model just showed us that all we can -- All the market will bear, according to your model, is 4,500 megawatts, I think.

A The other way: 5400, yes.

COMMISSIONER GARCIA: Fifty-four hundred; okay. They have planning and let's say they go forward, but they can't reach an agreement with you. So they have to build their plants. And they roll theirs into rate base.

A Right.

COMMISSIONER GARCIA: What does that do to them and to the ratepayers if they're on the hook and you're still pumping power and not agreeing to enter into a relationship?

A A couple of things it does. It imposes more cost on your ratepayers than is economically efficient. They're paying too much for what they get.

COMMISSIONER GARCIA: Yeah, but they have a duty to serve; you don't.

A They have a duty to serve. What you do when you

over build the market like that, you certainly diminish and eliminate the incentives for entry.

COMMISSIONER GARCIA: Right.

A Because your supply stack has moved so far out, there's so many hours that where the demand crosses that supply stack where there's no margins, that you've killed the incentives for entry. But the price to do that is to force the capital costs through to the ratepayer that the market wouldn't pull them. So there's a trade off.

BY MR. SASSO (Continuing):

Q Dr. Nesbitt, isn't it a fact that you have not compared the cost of the Duke New Smyrna unit to any other individual unit?

A For purposes of this testimony I have not. I am aware of other cost estimates. I've seen a lot of them in other estimates.

Q Fine, you've answered my question. Thank you.

Now it is your opinion, I believe as you were just describing to Commissioner Garcia, that each merchant plant has a strong profitability incentive to build itself and operate itself at the rock bottom of the cost curve; is that right?

A That's almost right. They have incentives to minimize their costs subject to being capable and available when the prices are higher than their O&M costs, not to

high grade and liquidate their units through imprudent operation. But the lowest possible cost of operation that can allow them to monotize the prices that exist in the market.

Q Well, you've indicated they have very strong incentives to maximize revenues and reduce costs; is that right?

A Maximize profits, maximize the difference between price and cost.

Q They would have a very strong incentive to keep maintenance expenditures at a minimum, for example?

A At a prudent minimum to make sure they're capable when it's time to generate the revenues.

Q Have a very strong incentive to defer any expense they thought they might be able to get away with?

A No, I wouldn't say that.

MR. McGLOTHLIN: Object to the characterization.

A I wouldn't say that at all. I would say to operate prudently, in the most prudent economic fashion.

COMMISSIONER GARCIA: Well, Doctor, tell me what the problems would be if they operated -- Let's take his characterization. What happens to your power plant if you do what he says?

A Well, if I ran the power plant with no maintenance, cut it to the bone, I better get it off my

books in 30 days or 60 days or 90 days or my shareholders aren't going to like me very much.

COMMISSIONER GARCIA: And what happens to Floridians

A What happens to Floridians? In order for me to run that much, basically I have to discount the power to the point where it all moves. I can't put it into the atmosphere. It's great for Floridians if I want to liquidate my asset that quickly. Suppose you drove your car and you never changed the oil and you never put grease in it and you never put gas in it --

COMMISSIONER GARCIA: Well, let's not talk about me because I do that. That's how I run my car.

A Your life cycle cost is obviously lower there, but you pay for it on the back end. Your plant burns up or falls apart or doesn't function. But in order to do that, you've got to put so much on the market and work so hard even in uneconomic times that you're losing money. And the ratepayers of Florida are better off. You're just subsidizing the ratepayers with imprudent operation if you do that.

BY MR. SASSO (Continuing):

Q Let's suppose that Duke decides to enter into power purchase contracts with retail utilities in Florida. Would you agree that a contract involves a hedge between a downside risk and an upside risk?

A I don't want to presume anything about retail contracts.

Q You disagree with that characterization?

A I just don't want to presume about retail contracts. That's not the point.

MR. MOYLE: Also, I would object in terms of presumption. I think there has been testimony previously that there is a contract.

BY MR. SASSO (Continuing):

Q We're talking about wholesale contracts; does that help you?

MR. McGLOTHLIN: Would you repeat the question, Mr. Sasso?

MR. SASSO: Yes, sir.

BY MR. SASSO (Continuing):

Q Let's suppose that Duke decides to enter in a power purchase contract to sell wholesale power to a retail utility in this State. Would you agree that the contract involves a hedge between a downside risk and an upside risk?

A Depends on the terms in the contract.

Q Let's suppose that Duke could sign a long-term contract to sell power at $30 a megawatt hour. And if the price goes to $50, Duke would give that benefit up?

A That's correct, if that happened.

Q And if the price fell at $20, Duke would be protected; is that right?

A That's right.

COMMISSIONER GARCIA: Doctor, let me ask you a question. Are you finished with that line?

MR. SASSO: No.

COMMISSIONER GARCIA: Okay. Keep going; I'm sorry.

BY MR. SASSO (Continuing):

Q And the ratepayers would bear the risk of the price falling to $20 while the retail utility has a contract to pay $30; is that right?

A Not necessarily right. It depends on whether the ratemaking or regulatory body would rule the $30 fixed price contract as a prudently incurred contract. We've been through a lot of that in the last 25 years.

Q Now we've already discussed the fact that Duke has greater economic incentives to reduce costs I believe in your opinion than even State-regulated utilities, like Florida Power; is that right?

A What I would say is not to personalize it to Duke. The merchant has the most incentive to reduce cost to the most prudent lowest level of anyone.

Q And the most incentive to maximize revenues, also?

A Not maximize revenues, please, Mr. Sasso. It's

maximize profits, not revenues.

Q Maximize profits?

A Profits.

Q And as a market-driven entity, a merchant would have a tremendous incentive to negotiate contracts that captured as much of the upside benefit as possible; is that right?

A Not necessarily. The merchant may want to go, as they say in the trade, go naked; may want to just play the spot market and liquidate their asset in the spot market. If contracts that are too good to be true come in, they may want to do that. They have flexibility.

Q May not want to enter into long-term contracts at all; is that right?

A May or may not. It's a market game.

MR. SASSO: That's all I have. Thank you.

COMMISSIONER GARCIA: Let me ask you, Doctor: Isn't there a danger there? We're in a relatively -- Well, I think we're in a very good time economically. Financing is relatively inexpensive. We have a need in Florida, but as Commissioner Deason has pointed out on many occasions, and he has the benefit of having served in some capacity before this board or on this board when interest rates were much higher and building power plants was very difficult and very expensive and ratepayers had to help build that

capacity.

Doesn't that put us in a very dangerous place with you not having a duty to serve like our IOUs in Florida?

A Quite the contrary, no. Competitive market in my view has more reliability than a non competitive. Look at oil: We had shortages in 1980. Now we're up to our eyeballs in $9 oil. And there's no regulators there. There used to be. No.

COMMISSIONER GARCIA: But the perfect example is we had that problem in Florida. We depended on oil in Florida and we got stung and because of that we have sort of changed the mix in Florida or companies have changed the mix. But we can require them to do that. We can't require you to do that. And there you're sitting on the spot market in a particularly advantageous position and putting Floridians at risk to some degree.

A See, I think along those lines, let me talk philosophy for a moment. The market puts the ratepayers at the least risk. Airline customers are at the least risk they've ever been at. Gas customers are at the least risk they have ever been at. Trucking customers are at the least risk they have ever been at. So it's not a tautology to me that regulation is the low risk path. Quite the contrary.

If you impose higher than market costs on people,

that's the worst kind of risk I know for sure on bearing non market costs. It's not necessarily the regulatory solution is the low risk route. It's not necessarily true that the conservative, go slow solution is the lowest route. In my view it's not.

Does that answer the question?

COMMISSIONER DEASON: Let me ask a few questions.

First of all, back to the capacity factor on your Exhibit DMN-7 and it growing consistently from year to year, I think you indicated that the assumption is that there is a growing market and that with this type technology and the costs associated with it, it would run more of the time. It would be dispatched more.

Is that a simple characterization of your answer?

A Yes, sir; that's a simple characterization.

COMMISSIONER DEASON: So I assume then that that assumes that technology is static, that there is not a new wave of new technology that comes in that would then be more cost effective than the combined cycle of New Smyrna because if that happened, I assume then that those units would be built and would be displacing the New Smyrna operation. Is that a correct assumption?

A No, Commissioner Deason, think of it this way. I think the appropriate way to think of it is this: Suppose New Smyrna Beach is built and then suppose in your scenario

there's a new technology that comes in next year and it's a lot cheaper, New Smyrna Beach still beats all those marginal units out there. It still runs. It still makes money and it still enjoys this capacity factor.

Each incremental unit competes against the margin, not the incremental units that are going in at the same time. That's the key.

COMMISSIONER DEASON: So to the extent that there's still marginal units -- There are units out there that are on the margin that are still above the cost of the New Smyrna project, we would still see these capacity factors?

A Above, yes, sir; and above by a magnitude that's enough to pay for that next entrant's capital cost to get in the game. Absolutely, sir.

COMMISSIONER DEASON: Now, let's reverse things a bit. What if we were in a situation, and I think Commissioner Garcia perhaps anticipated my questions. What if we were in a situation to where the incremental costs of providing new capacity was greater than the last guy in the stack?

A That's an interesting question. And that's precisely what happened in the oil and gas business in the 1970's. The marginal cost in the near term of new oil and gas in North America was dramatically higher than what was there. It was not pretty. We had prices flying up because

when you had demand going ahead and you had to bring in new oil and gas resource, you had to go to the high cost source. But you had to do it because the market was there. We stood in gasoline lines and we were willing to pay for the escalating marginal cost unit.

I would commend to you, and Interon puts this picture on the page. If you look at real commodity prices for the last 100 years, they're flat, real inflation adjusted, which means that situation, Commissioner Deason, just doesn't happen empirically. It may for short periods of time, but it just doesn't happen. Increasing marginal cost.

COMMISSIONER DEASON: It just doesn't happen?

A Empirically it doesn't happen except for very short periods of time. In the past history of commodities it just doesn't happen.

COMMISSIONER DEASON: So you're saying that something could not happen to cause gas prices to increase such that the marginal cost of new capacity is more than what the existing cost is?

A In my view at the moment that's a highly unlikely scenario. When we look at the amount of blue water gas that's sitting out in the Gulf of Mexico and we look at the low incremental costs and the plans to expand gas pipe into Florida, into Georgia, into the Carolinas, into the

Northeast, into Chicago, I personally find that a highly unlikely scenario. The incentives for gas producers and gas companies to expand is very, very good at the basis differentials we see now. And, in fact, as you probably know it's happening; it's proposed. I don't see it as a highly scenario.

COMMISSIONER DEASON: Well, what caused the cost of new generation in the '70's to exceed that of imbedded costs?

A The cost of new generation in the '70's to exceed embedded costs? I don't have a complete list in my mind, but part of the problem was the embedded contracts under regulation for fuel were very low. Natural gas was regulated at 50 cents, but incremental spot gas was $2.25; severe regulatory distortion in natural gas.

If you recall, Commissioner Deason, crude oil price controls didn't come off until 1978; severe. They were burning old oil to produce new oil. That's how distorted the system was. So anything new had an artificially dramatically higher marginal cost than anything old. It was strictly a regulatory distortion of price controls and the reduced incentives for people to go out and get the new asset under the price control regime. That's my view.

COMMISSIONER DEASON: Well, you've indicated that under your definition of need, that there's 5400 megawatts

of combined cycle capacity that is cost effective for the Florida market; is that correct?

A That's correct. There's 5400 megawatts that could profitably be added at the economics that we have assumed, yes.

COMMISSIONER DEASON: And that's because that much capacity could be added that would beat the last guy in the stack to the extent that it would provide the opportunity for that new capacity to generate a profit?

A Yes. And let me add to that. I've probably framed it too much as a war game, where I've got to beat the last guy in the stack because there is demand growth. And so that 5400 megawatts of new capacity installation both displaces the old and augments the load growth that's sure to happen and makes up for the imports from Southern that are going to dry up, particularly on peak.

So it's all of the above. And I've probably overestimated and I don't want to leave you with that impression that it's a war game, it's a zero sum, because it's obviously not.

COMMISSIONER DEASON: If we reach a point to where -- and I know you think it's extremely unlikely, but it's still a concern that I have, if we reach a point to where the incremental cost of new capacity, and there is growth and we have to have the capacity for liability purposes --

A Absolutely.

COMMISSIONER DEASON: Who do we go to to build that capacity if it's not cost effective for the merchant plants to come in to the state and do it?

A Commissioner Deason, one of the interesting phenomenon, and I think very relevant phenomenon in the market, is several years before your capacity gets tight or super tight or critically tight, you know it. The prices are up. The prices are higher more of the time.

When people knock on the door out there, it's because prices are high more of the time. The people come to you with these proposals, you know the prices are high more of the time. There's a harbinger of shortage to come that works very well.

COMMISSIONER DEASON: My concern, though, is that as you've defined need, you've indicated that here in 5400 megawatts there's a difference between what the new supplier can produce it at their cost compared to the last guy in the stack.

My concern is what happens when we've got to have capacity for reliability purposes and somebody has got to come in and build a plant that's more expensive than the last guy in the stack.

A Well, there's --

COMMISSIONER DEASON: Who does that? We cannot rely

on the merchant plant to do that or can we?

A I think you can.

COMMISSIONER DEASON: And how can we do that?

A Again, back to what happens in the market. Okay. The thesis that if -- I'm sorry. Excuse me. The thesis that something is needed but the market prices are not showing it I think is wrong. The market prices will show you when you need it and they will show the merchants and they will show the incumbents. People will know in the wholesale markets when that's coming.

COMMISSIONER GARCIA: So we're not necessary.

A You'll know.

COMMISSIONER GARCIA: So this process that we're engaging in is completely unneccessary?

A I wouldn't say that. You obviously have a number of reasons to do it. You do want to exert some prudence. You want to make sure, for example, I think one legitimate role you have is to make sure there is no market power. You wouldn't want to give the same company necessarily all 5400 megawatts because you've got market power problems again. So there's a role deciding who.

I'm sure there are locational issues that need to be thought out intraFlorida. I haven't worked on those. But I'm sure there are intraFlorida transmission issues.

There are also natural monopolies in transmission and

distribution. You've got to sort through those all the time. There are a number of roles. Market -- Prevention of market power is a critically important role.

COMMISSIONER DEASON: So you're indicating then when prices get high enough, then the incentive is going to be for another merchant plant to come and meet the need regardless of whether there had been -- by building that plant they become the last guy in the stack?

A That's right. And I wouldn't limit it to just merchants. Certainly when the prices get high and the need gets evident, the incumbents come, too.

COMMISSIONER DEASON: Well, what about --

A You don't have to -- I'm sorry.

COMMISSIONER DEASON: Who then is responsible for maintaining the reserve margin capacity when in your own analysis it's very critical that there is a high enough capacity factor that the plant gets run high enough to make it cost effective? Obviously a merchant plant is not going to be built just to sit idle most of the time so that a 15% or 20% or whatever reserve margin is achieved in the State.

A Good point, Commissioner Deason. And one way to do that is when you maintain reserve margin, the economic incentive is to do that with the lowest, and we call it preservation cost unit out there. What's the unit that cost me the least to keep around for the next year or the

next hour, the next month that I need in reserve. Okay.

And a pretty good guess at who that might be is the unit whose operating hours has dropped precipitously and perilously low, the existing incumbent unit.

You know darn well that no one is going to replace that unit because it runs about as often as I'm on the golf course, which isn't enough. Okay. And so you know you're not going to have economic incentive for that.

A reserve market requirement that's predicated on the cost to preserve the capacity isn't a bad idea. Keep the old CTs around. Doesn't cost you much to preserve them from year to year. You're sure you've got them when you need them, but you're not baring uneconomic rate base cost to do it, nor uneconomic operating costs.

COMMISSIONER DEASON: So is the incumbent utility, and we just require them to do it and put it in rate base and their captive ratepayers pay for that?

A I don't see that as a bad solution. It's not a lot of money involved there. The preservation costs of the old units isn't always that high.

COMMISSIONER DEASON: But then the incentive would be to not -- to minimize the reserve margins so you don't have that cost to bear. Do we have that now?

A No. The reason I'm having a hard time, it's probably the same hard time you're having: What's the

right reserve margin? One of the reasons that you have a hard time with that, if you have one 1000 megawatt plant, that's a lot less reliable than 1,000 1 megawatt plants.

COMMISSIONER GARCIA: Doesn't your figure give us like a reserve margin of something like 30%?

A Something like that. I haven't done the numbers, but, yes, sir.

COMMISSIONER DEASON: But that's just a fallout calculation?

A Yes.

COMMISSIONER DEASON: I mean, your 5400 has no bearing whatsoever on what is the proper reserve margin; it just falls out?

A No.

COMMISSIONER GARCIA: Because it would probably displace a lot of other --

A Yeah. And I haven't said, and I think the comment would be appropriate, what you do with the displaced units you keep in reserve or not, I haven't really addressed that here.

COMMISSIONER GARCIA: Well, I guess, if I can just follow-up on this line because I think it does make a lot of sense. If you go to your supply stack issue, on page -- which is page 10 of the handout.

A Yes, sir.

COMMISSIONER GARCIA: What happens when -- Let's say that the need in Florida was for 25,000.

A Yes, sir.

COMMISSIONER GARCIA: And so we're right there. You know, we're looking into the future. All the expensive stuff has gotten out of the way. And so the market has sort of leveled out.

And I guess it goes back to what Commissioner Deason was talking about. Is anyone going to build anything when what you're looking at is a stable market that there isn't any high demand or demand has been stabilized out?

A Sure. Absolutely.

COMMISSIONER GARCIA: I mean, would you be building this plant if I were telling you or your figures were looking at making sales at about 21, 22 dollars?

A I'd be nervous about that, but if sales were up in the mid 20s, yes, I would build the plant.

But keep in mind, Commissioner Garcia, that the price -- This is a static, a highly static rendition of the supply stack. Demand is wiggling across the supply stack in every hour of the year. A lot of hours when, God help us, it's way over to the left and no one makes any money, but there's some hours when it's way over to the right and people make a lot of money: merchants, people who can monotize the difference between price and cost.

So the merchants won't be looking at a world where the demand is fixed static for every future hour at 25,000 megawatts. They'll be looking at a world where a lot of hours --

COMMISSIONER GARCIA: But generally those things average out. I mean, this is an average out. You know, it's sort of like -- I don't know -- like hydro units in certain countries where you have strong hydro. I mean, if you've got bad weather, they go down and the thermal units make a whole lot of money, but most of the other time they're sitting there idle.

A Yeah, exactly. South America does that.

But keep in mind, though, there's an asymmetry on the high side from the perspective of a merchant. Okay. All those hours where he or she is on the left side of this supply stack, he or she doesn't make very much money. But those few hours where he or she is on the high end of the supply stack, which is precisely the time you want them, because that's on peak and that's for reliability reasons.

COMMISSIONER GARCIA: Here's my worry. You sort of grow, and I guess it goes back and Commissioner Deason is much better with technical knowledge of what we're talking about, so I'm dumbing down the conversation for my own understanding.

Let's say we do it your way. We just let merchants

come in. And eventually what happens is it stabilizes itself out to some degree. And instead of having those, because everyone is sort of -- The 5400 megawatts come in. And so the question is that last one in the stack is the one that worries me, that last one, does Duke come here? Does Duke go somewhere else? And how do we get that?

I mean, we know we can get it from our people because we tell them if we get worried, but your interest isn't reliability. Your interest isn't the ratepayer; your interest is money.

A No.

COMMISSIONER GARCIA: I'm not saying that they're not interested in money. That would be wrong, but their money comes at a cost to them.

A That's right.

COMMISSIONER GARCIA: And to this State. They get a certain reliability of it, but we can force them to build that next generation unit at the 21, 22, when Duke wouldn't touch that because it's just -- So what happens?

A That's right.

COMMISSIONER GARCIA: So aren't we taking them out of there and aren't we putting them at a disadvantage and we're letting you just sort of come in to the cream now that may be available in Florida but leaving them the tough times?

A Well, not necessarily. In a way you are and in a way you aren't because you've guaranteed them return of, return on, and full cost pass through, which is theoretically at least about what the marginal plant would be earning in a risk free basis anyway. So, no, you haven't hurt them.

COMMISSIONER GARCIA: But right now we have a market that according to you we could use 5400 megawatts of very efficient power. So why don't we just approve our guys to do it because we know we're going to get -- from them we know that our ratepayers are going to benefit from that all the time?

A Because you'll institutionalize a higher cost structure than you would get by merchandizing part of it and you'll never measure it because you have an incumbent who is a regulated utility. He or she has market power and far less incentive to control costs.

COMMISSIONER DEASON: In a regulated environment, and I know there's a lot of shortcomings to regulation, and I realize that, but in a regulated environment, when you have an embedded cost to production, which is an average of many units, different technologies, and different life cycles, when the incremental cost of new production is higher and the capacity needs to be built and we order the utility to build it, it increases that embedded cost?

A Absolutely.

COMMISSIONER DEASON: But we don't allow them to price it at the new marginal cost of production, it gets averaged in. Likewise, when the cost of new production is less than embedded costs, we don't penalize them and say, all right, charge everything at the new lower incremental cost. When they build new capacity, we average it in and it has a small effect, but it in fact should be the lower price. That's the way that system works.

Now I guess my concern is is that when we go to market pricing and if this plant is allowed to be built, New Smyrna, the project -- And there's nothing wrong with that because that's what markets are all about -- they're going to price it at the incremental costs. Actually, they're going to price it at the cost of whatever the last guy in the stack is at that particular time.

A Indeed. Each --

COMMISSIONER DEASON: It has nothing to do with their costs and they think they can make a profit at that. I'm sure they can because if they're only going to build 500 and the market really demands 5400, they're probably going to be able to maximize and earn a very healthy rate of return.

And I guess -- I guess my question is this: We need 5400 megawatts to insure that the pricing on the wholesale

market is going to be at true marginal price of new production?

A Yes and no. I mean, think about it this way: The reason that 54 -- Keep in mind what my 5400 number is. It's the number of plants that can profitably be added by merchants. Okay.

As Commissioner Garcia and you have both pointed out, I haven't really looked at reliability issues. I've assumed that all the plants are very, very reliable because I want a conservative estimate. I don't want to go 8,000 or 9,000 or 10,000 megawatts and find out it was just a reliability assumption that caused that.

But subject to that, what I'm saying is, and it's very close to what you said -- the 5400 megawatts of capacity that you need are what you're going to get from profit maximizing producers but no more. Okay.

And when you get that, you're going to get a substantial reduction in price in many, many hours of the year, not all, but many. Okay.

So the Florida ratepayers are mighty nicely taken care of to the extent that they get open fluid access to the wholesale market. Okay.

And that last point, I agree with you, Commissioner Deason, in economics no one knows. The last plant is always the problem. He or she gets no profit. Why should

he or she care if he or she is even in there? Absolutely.

As a regulator, if you believe that last plant has some market power or there's some contractual difficulties, it's really fairly low cost, low risk kind of regulation to mandate the last plant. But to mandate 5400 megawatts of endogenous, indigenous fully regulated, poorly incentive plants is not necessarily the only way to do it.

CHAIRMAN JOHNSON: Staff.

MS. JAYE: Thank you, Madam Chairman.

CROSS EXAMINATION

BY MS. JAYE:

Q Staff would ask you to turn to the FRCC 1998 supply stack. This is in your handouts.

A Yes.

MS. JAYE: While you're turning there, Staff is going to handout copies of your deposition.

Madam Chairman, I would ask that this deposition be marked.

CHAIRMAN JOHNSON: I'll mark this exhibit as Exhibit 21. Is this the only exhibit for this witness?

MS. JAYE: Yes, Madam Chairman.

(Exhibit 21 marked for identification.)

CHAIRMAN JOHNSON: We're going to adjourn for the night and reconvene tomorrow at 8:30.

MR. GUYTON: Madam Chairman, I apologize. I've lost

track of my exhibits and I apologize. What is Exhibit 19?

CHAIRMAN JOHNSON: The handout.

MR. GUYTON: Thank you.

CHAIRMAN JOHNSON: Mr. Guyton, what's 20?

MR. GUYTON: The First Request -- FP&L's First Request for Production of Documents to Duke New Smyrna.

CHAIRMAN JOHNSON: And we've marked the Staff one as 21.

MS. JAYE: Thank you, Madam Chairman.

CHAIRMAN JOHNSON: And with that, we'll adjourn until 8:30 in the morning.

(Proceedings in evening recess.)

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