458

 1 BEFORE THE

 FLORIDA PUBLIC SERVICE COMMISSION

 2

 3 DOCKET NO. 070098-EI

 4 In the Matter of:

 5 PETITION FOR DETERMINATION OF NEED

 FOR GLADES POWER PARK UNITS 1 AND 2

 6 ELECTRICAL POWER PLANTS IN GLADES

 COUNTY, BY FLORIDA POWER & LIGHT

 7 COMPANY.

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 11 THE .PDF VERSION INCLUDES PREFILED TESTIMONY.

 12

 VOLUME 4

 13

 Pages 458 through 651

 14

 15

 PROCEEDINGS: HEARING

 16

 BEFORE: CHAIRMAN LISA POLAK EDGAR

 17 COMMISSIONER MATTHEW M. CARTER, II

 COMMISSIONER KATRINA J. McMURRIAN

 18

 DATE: Tuesday, April 17, 2007

 19

 TIME: Commenced at 9:30 a.m.

 20 Recessed at 5:52 p.m.

 21 PLACE: Betty Easley Conference Center

 Room 148

 22 4075 Esplanade Way

 Tallahassee, Florida

 23

 REPORTED BY: MARY ALLEN NEEL, RPR, FPR

 24

 APPEARANCES: (As heretofore noted.)

 25

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 2 WITNESSES

 3 NAME PAGE

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 EXHIBITS

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 4 73 - 92 SS-1 through SS-20 549

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 6 162 Schlissel Errata Sheet 551

 7 163 Figure 1, page 21 from Schlissel 622

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 9 and green data points

 10 165 EIA Analysis of Senate Bill 139 632

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 1 P R O C E E D I N G S

 2 (Transcript follows in sequence from

 3 Volume 4.)

 4 CHAIRMAN EDGAR: Okay. We are going to get

 5 started again. I hope everybody had a lovely lunch.

 6 Before we call the next witness, do we have

 7 any housekeeping items?

 8 MR. GROSS: Madam Chair.

 9 CHAIRMAN EDGAR: Mr. Gross.

 10 MR. GROSS: The question of whether or not

 11 Mr. David Schlissel can testify today has reached an

 12 impasse. In terms of the parties trying to work it out,

 13 FPL and Sierra Club, NRDC, et al., have reached an

 14 impasse.

 15 I just want to kind of tell you our side of

 16 the story, which is that at the prehearing conference on

 17 March 30th, I raised the point that Mr. Schlissel and

 18 Mr. Plunkett could only testify today. And there was a

 19 reference to it, but with a little caveat. There was no

 20 commitment in the Prehearing Order guaranteeing that

 21 they would be able to testify, but only if the flow of

 22 the proceedings permitted it. So I raised it again as a

 23 preliminary matter for this hearing.

 24 And as you know, there was a lot of bad

 25 weather up north, and I was in constant contact –

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 1 Mr. Plunkett is from Bristol, Vermont, and Mr. Schlissel

 2 is from Cambridge, Massachusetts. They both ran into

 3 problems with delayed flights getting out, and

 4 Mr. Schlissel was --

 5 CHAIRMAN EDGAR: Okay. Mr. Gross, let me --

 6 just in the interest of time, what is the availability

 7 of these two gentleman?

 8 MR. GROSS: Okay. Mr. Schlissel is available

 9 today. He cannot come back next week. Mr. Plunkett, I

 10 told him to turn around and go home if he could come

 11 back next week, and he said he can come back next week,

 12 so I said -- he was on his way driving here. I mean, he

 13 had flown most of the distance, but there was one leg

 14 that he was going to drive.

 15 CHAIRMAN EDGAR: So Mr. Schlissel -- I'm

 16 sorry. You're going to have to help me with that one.

 17 Schlissel --

 18 MR. GROSS: Right.

 19 CHAIRMAN EDGAR: -- is available this

 20 afternoon, but is not available next week.

 21 MR. GROSS: That's right.

 22 CHAIRMAN EDGAR: Mr. Litchfield, do you have

 23 objection to us taking Mr. Schlissel out of order?

 24 MR. LITCHFIELD: We do, Madam Chairman. We

 25 have -- Mr. Brandt is next up, and he's back by

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 1 Ms. Grealy here, and he's ready to go. He's got

 2 scheduling difficulties next week, and we would like to

 3 get him on and off today, including with his rebuttal.

 4 We have Mr. Seth Schwartz, who is not

 5 available at all next week. He in fact will be out of

 6 the country, off of the continent, so he would be next

 7 up in our proposed order, and he also would take up his

 8 direct and rebuttal at the same time.

 9 Mr. Jenkins has scheduling difficulties. We

 10 would propose him as third, but we could work around

 11 him.

 12 My issue is, I have enough cross for

 13 Mr. Schlissel to take up a fair amount of the afternoon

 14 and would not want to start him late in the day. The

 15 offer that I have made to counsel is that we could

 16 perhaps allow Mr. Schlissel to dial in by telephone,

 17 which I know from time to time has been undertaken by

 18 this Commission. And I don't think I had any objections

 19 from any of the other parties on that point.

 20 I would note, however, with respect to the

 21 schedule this week, we went through a lot of testimony

 22 yesterday from various constituents represented here by

 23 counsel and were not able to get started early enough.

 24 And so to that point as well, we've got scheduling

 25 issues as well. We would like to proceed with

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 1 Mr. Brandt and then Mr. Schwartz.

 2 Now, if we had time to do Mr. Schlissel today,

 3 you know, we could undertake that. I just did not want

 4 to suggest to Mr -- except I wouldn't finish, Madam

 5 Chairman. I would not finish with Mr. Schlissel today.

 6 So I think the best part of valor would be to take him

 7 by telephone, and we would be amenable to any scheduled

 8 point at next week's hearing to take that up if that's

 9 acceptable.

 10 CHAIRMAN EDGAR: With all due respect, not

 11 completely, Mr. Litchfield. I am not completely

 12 comfortable with telephone participation. Now, we may

 13 be able to work something out. We do, I understand,

 14 have depositions and interrogatories and other sworn

 15 testimony that was taken as part of the preparation for

 16 this proceeding.

 17 I did say very early on yesterday, and I don't

 18 recall the time, but at some point early in our

 19 proceeding yesterday, requested all parties to work

 20 together as far as scheduling and that I am, as always,

 21 amenable to taking parties out of order with notice so

 22 that all parties who would like to avail themselves of

 23 the opportunity for cross have notice to do that, no

 24 surprises. We do not spring surprises on people here

 25 anyway. But we did have part of a day yesterday, we've

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 1 had all day today, and we've got two days with notice

 2 next week. You know, I've been rescheduling meetings,

 3 and I know that my colleagues have and our staff have.

 4 And again, we're not trying to single out any one

 5 person, party, witness, or whatever. I want us to

 6 conduct the business that we need to do, as I said

 7 yesterday, as thoroughly and efficiently as we can.

 8 Telephone cross is just as somewhat

 9 unworkable, quite frankly. So we have this afternoon,

 10 we have Wednesday, and we have Thursday. I, as I said a

 11 moment ago, am amenable if we can work it out, and I

 12 will look to our staff for assistance with that. If

 13 indeed we can either stipulate a witness, and/or with

 14 that, enter deposition testimony, that seems to me as

 15 one perhaps workable item.

 16 Now, just that so I am clear, Mr. Litchfield,

 17 you have said that you have witness Brandt and witness

 18 Schwartz, who are available today, but may not be next

 19 week, and Mr. Jenkins potentially.

 20 MR. LITCHFIELD: Mr. Jenkins would prefer

 21 because of scheduling difficulties to go today, but we

 22 recognize that that may not be possible, so he is

 23 willing to make adjustments if necessary.

 24 CHAIRMAN EDGAR: Is Mr. Jenkins a witness that

 25 could potentially be stipulated?

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 1 MR. GROSS: He happens --

 2 CHAIRMAN EDGAR: I'm hearing no from the aura

 3 around you. Okay. It was a fair question, and I got an

 4 answer. Okay. So no stip for Mr. Jenkins.

 5 And, Mr. Litchfield, you said that you have a

 6 significant amount of questions for Mr. Schlissel, and I

 7 realize that it is sometimes difficult to quantify a

 8 period of time. But if we all work together, can you

 9 give me an estimate?

 10 MR. LITCHFIELD: Well, obviously, it depends

 11 on the witness. My experience in the deposition

 12 suggests to me that it will take longer than I would

 13 care to take, but at this point, my best guess is that I

 14 have about an hour and a half, maybe two.

 15 CHAIRMAN EDGAR: It looks to me like it may be

 16 an hour or depositions.

 17 MR. LITCHFIELD: You mean entering the

 18 deposition in lieu of cross-examination?

 19 CHAIRMAN EDGAR: I'm throwing that out as a

 20 possibility, yes.

 21 MR. GROSS: Madam Chair, we're not prepared to

 22 use -- if you're referring to Mr. Schlissel's

 23 deposition, that is -- we're not prepared to accept that

 24 proposal at this time. We would like Mr. Schlissel to

 25 testify live. We only have three total witnesses. I

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 1 believe we stipulated to four FPL witnesses. There were

 2 11 witnesses who were testifying.

 3 And I feel compelled to clarify something.

 4 None of those constituents were brought here by my

 5 clients.

 6 CHAIRMAN EDGAR: I understand.

 7 MR. GROSS: They came on their own.

 8 CHAIRMAN EDGAR: And I think Mr. Litchfield

 9 was probably referring to Mr. Beck. But regardless, I

 10 understand your point. Mr. Beck is staying out of this

 11 scheduling discussion.

 12 Okay. How about if we do this. How about if

 13 we take up Mr. Brandt and then we go to Mr. Schlissel,

 14 realizing that that puts us in perhaps a dilemma with

 15 Mr. Schwartz. Is that -- am I getting my witnesses

 16 confused, the availability, that is?

 17 MR. LITCHFIELD: We would really need to go

 18 with Mr. Schwartz next, because he literally will be off

 19 the continent next week.

 20 CHAIRMAN EDGAR: Okay. Then I was confusing

 21 the logistics there.

 22 Mr. Gross, do you have any objection, and

 23 Mr. Beck and Mr. Krasowski, of course, if we take up

 24 witness Schwartz, and then we go to Schlissel, and we

 25 see where we are from that point? And I'm going to ask

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 1 all of you to try to, quite frankly, keep your

 2 questioning efficient.

 3 Mr. Litchfield.

 4 MR. LITCHFIELD: I'm sorry. Were we going

 5 about Mr. Brandt first or Mr. Schwartz first?

 6 CHAIRMAN EDGAR: I thought your suggestion was

 7 Schwartz.

 8 MR. LITCHFIELD: Well, my suggestion was

 9 certainly Schwartz in front of Schlissel, given that

 10 he'll be off the continent, but we had hoped to also

 11 have Mr. Brandt go today, to be on and off.

 12 CHAIRMAN EDGAR: Well, we have until 5:30.

 13 MR. LITCHFIELD: Okay. Fair enough.

 14 CHAIRMAN EDGAR: So with that understanding,

 15 then Mr. Litchfield, it is your witness, and I will

 16 leave it to you as to whether it is Brandt or Schwartz.

 17 MR. LITCHFIELD: It will be Mr. Schwartz.

 18 Thank you.

 19 CHAIRMAN EDGAR: Okay.

 20 MR. KRASOWSKI: Madam Chair.

 21 CHAIRMAN EDGAR: Mr. Krasowski, yes.

 22 MR. KRASOWSKI: We have a very, very strong

 23 interest in a lot of questions for Mr. Brandt, and he's

 24 scheduled to go next. I don't know if the whole day is

 25 going to be taken up with Mr. Schwartz. We could.

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 1 We're very flexible, though, otherwise.

 2 CHAIRMAN EDGAR: And I appreciate that more

 3 than you know. I'm trying to be flexible as well.

 4 MR. KRASOWSKI: Well, we don't want to

 5 complicate what you're doing, and we're here whenever

 6 you want us to be.

 7 CHAIRMAN EDGAR: Thank you.

 8 MR. KRASOWSKI: But we don't want to miss

 9 opportunities. But if it's necessary for Mr. Schwartz

 10 to go first, but either way.

 11 CHAIRMAN EDGAR: Can you work with us if we go

 12 with Schwartz first?

 13 MR. KRASOWSKI: Yes, I can.

 14 CHAIRMAN EDGAR: Okay. Well, let's try that.

 15 And, again, efficient, concise, effective questions and

 16 answers make for efficient and effective

 17 recommendations.

 18 MR. GROSS: Madam Chair.

 19 CHAIRMAN EDGAR: Mr. Gross.

 20 MR. GROSS: I've just been informed that

 21 Mr. Schlissel has a 4:30 flight, and that's why we were

 22 hoping to be able to get him in before that time.

 23 Oh, it's a 5:30 flight, but he has to leave --

 24 he needs some lead time.

 25 CHAIRMAN EDGAR: Sure. If we would, please,

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 1 all, welcome, please realize that I'm trying to work

 2 with all of you and the scheduling restraints that we

 3 have. Duly noted, and we'll do the best we can. But

 4 quite frankly, that's really more in all of your hands

 5 than it is in mine, although I will make every effort to

 6 attempt to keep us moving.

 7 And with that, Ms. Smith, we will need to

 8 swear in your witness.

 9 MS. SMITH: Yes, Mr. Schwartz.

 10 CHAIRMAN EDGAR: Mr. Schwartz, if you would,

 11 stand with me and raise your right hand.

 12 Thereupon,

 13 SETH SCHWARTZ

 14 was called as a witness on behalf of Florida Power &

 15 Light Company, and having been duly sworn, testified as

 16 follows:

 17 DIRECT EXAMINATION

 18 BY MS. SMITH:

 19 Q. Would you please state your name and business

 20 address?

 21 A. My name is Seth Schwartz. My business address

 22 is 1901 North Moore Street, Arlington, Virginia 22209.

 23 Q. By whom are you employed and in what capacity?

 24 A. I'm employed by Energy Ventures Analysis,

 25 Inc., and I'm a principal in the firm.

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 1 Q. Have you prepared and caused to be filed 33

 2 pages of prefiled direct testimony in this proceeding?

 3 A. Yes.

 4 Q. Do you have any changes or revisions to your

 5 prefiled direct testimony?

 6 A. No.

 7 Q. If I asked you the same questions contained in

 8 your prefiled direct testimony, would your answers be

 9 the same?

 10 A. Yes.

 11 MS. SMITH: I would ask that Mr. Schwartz's

 12 prefiled direct testimony be inserted into the record as

 13 though read.

 14 CHAIRMAN EDGAR: The prefiled direct testimony

 15 will be entered into the record as though read. And

 16 before we go further, may I ask about the redirect? I

 17 know at one point, there had been a desire to take them

 18 up separately. However, there has been some discussion

 19 about taking them up together in the interest of time.

 20 Do we have a consensus on that?

 21 MS. SMITH: We're planning to do

 22 Mr. Schwartz's direct and rebuttal appearance.

 23 CHAIRMAN EDGAR: Mr. Gross, can you work with

 24 that, and to the other intervenors as well?

 25 MR. GROSS: Madam Chair, yes.

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 1 CHAIRMAN EDGAR: I'm seeing nods across the

 2 board. Okay. Then we will do the rebuttal as well.

 3 BY MS. SMITH:

 4 Q. Mr. Schwartz, are you also sponsoring any

 5 exhibits to your direct testimony?

 6 A. Yes, I am.

 7 Q. And do those exhibits consist of documents

 8 SS-1 through SS-20?

 9 A. Yes.

 10 MS. SMITH: And those exhibits have been

 11 premarked for identification as 73 through 92.

 12 CHAIRMAN EDGAR: Thank you.

 13 BY MS. SMITH:

 14 Q. Mr. Schwartz, have you prepared and caused to

 15 be filed 15 pages of prefiled rebuttal testimony in this

 16 proceeding?

 17 A. Yes.

 18 Q. Do you have any changes or revisions to your

 19 prefiled rebuttal testimony?

 20 A. No.

 21 Q. If I asked you the same questions contained in

 22 your prefiled rebuttal testimony today, would your

 23 answers be the same?

 24 A. Yes, they would.

 25 MS. SMITH: I ask that Mr. Schwartz's prefiled

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 1 rebuttal testimony be inserted into the record as though

 2 read.

 3 CHAIRMAN EDGAR: The prefiled rebuttal

 4 testimony will be entered into the record as though

 5 read.

 6 BY MS. SMITH:

 7 Q. Mr. Schwartz, are you also sponsoring any

 8 exhibits to your rebuttal testimony?

 9 A. Yes.

 10 Q. And do those exhibits consist of documents

 11 SS-21 through SS-32?

 12 A. Yes.

 13 MS. SMITH: And, Madam Chairman, those have

 14 been premarked for identification as 135 through 146.

 15 CHAIRMAN EDGAR: Thank you.

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 1 BY MS. SMITH:

 2 Q. Mr. Schwartz, have you prepared a summary of

 3 your direct testimony?

 4 A. Yes, I have.

 5 Q. Would you please provide that summary to the

 6 Commission?

 7 A. Yes. I was engaged by FPL to provide an

 8 expert opinion on FPL's transportation and fuel supply

 9 strategy and the reasonableness of the projected

 10 delivered fuel costs for FPL's Glades Power Park.

 11 Like other utilities in Florida, FPL's

 12 reliance on coal-based generation is less than the

 13 national average. In 2005, FPL's ownership interest in

 14 Scherer Number 4 and St. Johns River Power Park

 15 contributed only 5.2 percent to FPL's power sales.

 16 Historically, coal prices have displayed lower

 17 volatility than natural gas or oil prices. The

 18 commitment to FGPP will reduce FPL's fuel prices and

 19 reduce price volatility for FPL's customers.

 20 FPL's baseline fuel plan for FGPP calls for a

 21 blend of 40 percent Central Appalachia coal, 40 percent

 22 imported coke, and up to 20 percent -- imported coal,

 23 I'm sorry, and up to 20 percent petroleum coke. These

 24 shares can be adjusted to take advantage of the lowest

 25 cost fuel at the time. This plan is reasonable, as it

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 1 will provide sourcing flexibility and allow FPL to

 2 realize a low fuel cost with reliable supplies.

 3 I would like to provide a brief overview of

 4 FPL's proposed fuel supplies. Central Appalachia is the

 5 second largest coal supply region in the United States

 6 and is the closest coal supply region to Florida. FPL's

 7 forecast of coal supply and prices from this region has

 8 taken into account the impacts of the long-running

 9 dispute over surface mining, which was the subject of a

 10 recent West Virginia court decision. Two class 1

 11 railroads provide service between Central Appalachia and

 12 Florida, and FPL's transportation strategy provides for

 13 the use of both railroads in order to retain

 14 competition.

 15 Imported coals would likely originate in South

 16 America, although other sources are possible as well.

 17 Both Colombia and Venezuela export large volumes of high

 18 quality steam coal.

 19 Petroleum coke is a refinery by-product, which

 20 can be a lower cost fuel, and many utilities have

 21 successfully incorporated it into their fuel supply

 22 program. The petroleum coke most likely to supply FGPP

 23 would originate from refineries in the Gulf of Mexico or

 24 the Carribean. The imported coal and petroleum coke

 25 would move through existing or new import terminals.

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 1 Other plants in Florida have successfully

 2 employed a similar fuel supply strategy. Throughout its

 3 operations, St. Johns River Power Park has relied on a

 4 similar blend of South American and Central Appalachia

 5 coals as well as petroleum coke. Other plants in

 6 Florida rely on petroleum coke for a portion of their

 7 fuel supply, including Big Bend, Seminole, Lakeland, and

 8 JEA's Northside plant.

 9 My key findings are as follows:

 10 Number one, FGPP will help FPL diversify its

 11 generation portfolio and will reduce fuel prices and

 12 fuel price volatility.

 13 Number two, FPL has developed a fuel supply

 14 plan that is not dependent upon a single coal supply

 15 region or fuel type. The ability to use coal from more

 16 than one supply region provides both security of supply

 17 as well as market competition. This security of supply

 18 and competition is further enhanced by FGPP's access to

 19 two class 1 railroads. The incorporation of petroleum

 20 coke into the FGPP plant design allows for an economic

 21 source of fuel when the opportunity is presented.

 22 Third, the delivered coal price forecast

 23 developed by FPL is reasonable and is consistent with a

 24 forecast which I prepared and submitted to this

 25 Commission in February of 2006 on behalf of the Orlando

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 1 Public Utility Commission as part of its need for power

 2 application on the Stanton coal project.

 3 Thank you very much.

 4 Q. Mr. Schwartz, have you also prepared a summary

 5 of your rebuttal testimony?

 6 A. Yes, I have.

 7 Q. Would you please provide that summary to the

 8 Commission.

 9 A. Yes. My rebuttal testimony responds to the

 10 assertion of Mr. Richard Furman that an IGCC would be a

 11 lower cost option for FPL's customers despite its higher

 12 capital costs, because an IGCC would be fueled by

 13 petroleum coke, and that the cost differential between

 14 coal and petroleum coke would more than offset the

 15 higher capital costs.

 16 I conclude that Mr. Furman's findings are

 17 incorrect because his fuel cost assumptions overstate

 18 the differential between the delivered price of coal and

 19 petroleum coke. Mr. Furman assumes that petroleum coke

 20 will cost less than half the price of coal based on the

 21 average 2004 and 2005 delivered coal prices reported --

 22 to Florida power plants reported by the Energy

 23 Information Administration. I've reviewed the relevant

 24 Energy Information Administration reports and found that

 25 Mr. Furman's numbers are wrong and that the reported

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 1 petroleum coke costs do not represent fully delivered

 2 costs to Florida's power plants.

 3 Further, the average petroleum coke cost to

 4 Florida Power plants do not reflect fuel economics at

 5 FGPP, because FGPP is an inland plant and has different

 6 delivery characteristics than a coastal plant, where

 7 most petroleum coke is used.

 8 Mr. Furman's conclusions were also based upon

 9 a comparison between an IGCC using 100 percent petroleum

 10 coke to an ultra-supercritical boiler using 100 percent

 11 coal. FPL indicated in its application that its fuel

 12 plan for FGPP would use 80 percent coal and 20 percent

 13 petroleum coke. Mr. Furman has overstated the fuel cost

 14 differential by not including a petroleum coke component

 15 in his assumed fuel costs for the ultra-supercritical

 16 option.

 17 Mr. Furman also failed to consider that the

 18 market for petroleum coke would change if petroleum coke

 19 were widely used as a fuel strategy for many new power

 20 plants, as suggested by Mr. Furman. The petroleum coke

 21 market is very small compared to the coal market, and

 22 one new plant the size of FGPP would consume over

 23 one-fourth of the current uncommitted domestic supply of

 24 petroleum coke if it used exclusively petroleum coke.

 25 The price for petroleum coke is affected by

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 1 petroleum prices, as well as by supply and demand, but

 2 is capped by the price of alternative fuel, which is

 3 coal. If there is a large increase in demand for

 4 petroleum coke as expected by Mr. Furman, the price for

 5 petroleum coke would rise to the avoided coal price,

 6 eliminating the price differential Mr. Furman requires

 7 to justify an IGCC project.

 8 Mr. Furman has also misrepresented the success

 9 of IGCC projects in the United states. There is not a

 10 single IGCC project which has been built without large

 11 government subsidies. Only four small IGCC projects

 12 have been built in the United States, of which two were

 13 closed shortly after startup, and one was idled for an

 14 extended period of time. Despite the fact that there

 15 have been many proposed new IGCC projects, not a single

 16 one is under construction, and many of the proposed

 17 plants have been abandoned.

 18 In conclusion, Mr. Furman failed to consider

 19 FPL's fuel strategy for FGPP, conducted no evaluation of

 20 petroleum coke supply and demand. Reliance on 100

 21 percent petroleum coke for a project the size of FGPP

 22 would not be a prudent fuel supply strategy, and the

 23 widespread development of coke-fired IGCC projects would

 24 cause petroleum coke prices to rise to equal the price

 25 of coal.

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 1 Thank you very much.

 2 MS. SMITH: Madam Chairman, Mr. Schwartz is

 3 available for cross-examination.

 4 CHAIRMAN EDGAR: Thank you. Ms. Perdue. No

 5 questions.

 6 Mr. Beck.

 7 Mr. Gross.

 8 MR. GROSS: Madam Chair, Sierra Club, et al.,

 9 and NRDC, we do have questions. Thank you.

 10 CROSS-EXAMINATION

 11 BY MR. GROSS:

 12 Q. Good afternoon, Mr. Schwartz.

 13 A. Good afternoon.

 14 Q. I'm Michael Gross, and I represent Sierra Club

 15 and NRDC and several other environmental organizations.

 16 I've got some questions for you.

 17 Referring to page 5, lines 18 through 22 of

 18 your direct testimony, you state, "Petroleum coke supply

 19 is expected to expand over time as additional coking

 20 capacity is installed. Petroleum coke is a lower cost

 21 source of Btu's that many utilities have successfully

 22 incorporated into fuel supply as a means of controlling

 23 costs. The low volatile content of petroleum coke

 24 limits the extent to which it can be burned as part of a

 25 fuel blend." And then refer to page -- and this is

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 1 leading up to a question. Page 8, lines 9 through 10,

 2 where you state, "FPL's fuel supply plan is to burn a

 3 blend of coals consisting of 40 percent Central

 4 Appalachia coal, 40 percent imported coal, and

 5 20 percent petroleum coke." Is that correct?

 6 A. Yes. It's up to 20 percent petroleum coke in

 7 the fuel supply plan.

 8 Q. Okay. It could be less than 20 percent?

 9 A. It could be less than 20 percent if the

 10 economics are not favorable.

 11 Q. Twenty percent petcoke, as it's also referred

 12 to, 20 percent petcoke is the maximum amount of petcoke

 13 that can be used in FPL's USCPC plant design; is that

 14 correct?

 15 A. That's correct.

 16 Q. And this use of petcoke will generate fuel

 17 cost savings; correct?

 18 A. Under the base case projections, it's expected

 19 to be lower cost than coal. But petcoke prices have

 20 been very volatile, in part because of volatility of oil

 21 prices, and sometimes it's less expensive, and sometimes

 22 it's not.

 23 Q. Well, at page 9, lines 23 through 24, you

 24 state, "FPL has incorporated petroleum coke into its

 25 plant design, permit, and fuel supply plan. Petroleum

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 1 coke is an economic source of energy that has provided a

 2 number of utilities with an effective means of

 3 minimizing fuel costs."

 4 A. Is that a question?

 5 Q. Is that what you stated in your testimony?

 6 A. Yes, that's what I stated in my testimony.

 7 Over a long period of time, petroleum coke has been

 8 typically less expensive than coal, but it's not always.

 9 Unfortunately, in the current market we're experiencing

 10 right now, petroleum coke prices have risen to equal or

 11 above the price of coal, and as a result, Jacksonville

 12 Electric Authority and Seminole Electric are not going

 13 to purchase petroleum coke this year. That flexibility

 14 to shift from one supply to the other and use the most

 15 economic source of fuel is part of the strength of the

 16 fuel strategy for FPL's Glades Power Park.

 17 Q. Well, you filed your testimony on January 29,

 18 2007. Has all this change occurred since you filed your

 19 testimony?

 20 A. No. Prices -- I have a chart in here -- if

 21 you'll look, it's one of my exhibits -- showing

 22 historical prices for petroleum coke. Petroleum coke

 23 prices, as you can see from there, are highly volatile,

 24 in part because of the price of oil, which is the source

 25 of it. I have a chart on Exhibit SS-18.

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 1 No, the price has already increased

 2 substantially by early 2006, and as a result, some

 3 utilities like these in Florida are reducing their use

 4 of petcoke at the present time.

 5 Q. Thank you. On page 29, lines 13 through 15,

 6 you stated, "Because of its characteristics, that is,

 7 high sulfur and low volatility, petroleum coke usage is

 8 limited in pulverized coal boilers, which account for

 9 most utility solid-fuel fired plants." Do you still

 10 stand by that statement?

 11 A. Yes.

 12 Q. And, "Petroleum coke generally has a technical

 13 limit of about 20 percent." Do you stand by that

 14 statement?

 15 A. Yes. That's referring to pulverized coal

 16 fired plants.

 17 Q. Petroleum coke can be used for a larger share

 18 of fuel supply, in some cases up to 100 percent, in

 19 fluidized bed combustors and integrated gasification

 20 combined cycle plants, commonly known as IGCC plants;

 21 correct?

 22 A. That's correct, yes.

 23 Q. Okay. The use of 100 percent petcoke in an

 24 IGCC plant will provide five times the fuel savings of

 25 the proposed 20 percent petcoke in the Glades Power

 532

 1 plant; correct?

 2 A. No, I wouldn't agree with that. Again,

 3 there's a lot of factors that go into selecting and

 4 delivering the lowest cost fuel. Having a flexible fuel

 5 supply strategy like FGPP I think is one way utilities

 6 have used to minimize fuel costs over a long period of

 7 time. Petroleum coke is typically less expensive than

 8 coal, but not all the time, and not right now.

 9 Q. Ratepayers would benefit from fuel cost

 10 savings, would they not?

 11 A. Obviously, it's a long-term levelized cost

 12 analysis that includes capital and operating costs as

 13 well as fuel costs. If that's taken into account, yes,

 14 lower fuel costs are generally beneficial.

 15 Q. At page 10, lines 9 through 11 of your direct

 16 testimony, you state, "There are five major commercial

 17 producing coal areas in the U.S., of which the largest

 18 is the Powder River Basin." Is that correct?

 19 A. Yes, it is.

 20 Q. And in Exhibit SS-4 of your testimony, you

 21 present a table that shows that Powder River coal

 22 represents 38 percent of total U.S. production; is that

 23 correct?

 24 A. I haven't calculated the percentage on that

 25 table, but that looks approximately correct, yes.

 533

 1 Q. Powder River Basin coal is the lowest cost

 2 coal as shown in your Exhibit SS-8?

 3 A. It's certainly the lowest cost coal at the

 4 mine. Obviously, it's located in a remote area, and as

 5 a result, depending upon where the power plants are

 6 located, the transportation costs can be extremely high,

 7 frequently many times the price of coal at the mine.

 8 But it is the lowest cost coal to mine, but not

 9 necessarily the lowest cost delivered.

 10 Q. Well, Exhibit SS-8 shows Powder River Basin

 11 coals at the mine cost about $7 per ton versus 40 to $60

 12 per ton for other coals; is that correct?

 13 A. No, that's not exactly correct. Powder River

 14 Basin coal is a little less than $10 per ton. The other

 15 U.S. coals at the present time are running prices in the

 16 range of 40 to $45 per ton. The $60 price you're

 17 looking at is a delivered price of international coal to

 18 Europe, which is not the same thing as mine prices in

 19 the United States.

 20 Q. Well, the proposed Glades plant cannot use

 21 Powder River Basin coal; is that correct?

 22 A. I don't know for sure technically. I know

 23 it's not part of the fuel supply plan; that's correct.

 24 The Glades plant is a long way from Wyoming, and just

 25 because Powder River Basin coal is the lowest cost coal

 534

 1 at the mine doesn't make it the lowest cost coal

 2 delivered to Florida, and it's the delivered price

 3 economics that are what are important.

 4 Q. Looking back at your Exhibit SS-4, you present

 5 a table that shows that the other Western coals

 6 represent 19 percent of total U.S. production. Is this

 7 correct?

 8 A. That looks approximately correct, yes.

 9 Q. And the proposed Glades plant cannot use most

 10 of these other Western coals; correct?

 11 A. I don't think that's correct, no. I think the

 12 Glades plant could use the bituminous coal from the

 13 Rockies, which is the largest other region. It's not

 14 part of the current fuel supply plan because it is

 15 grossly uneconomic compared to the coals that have been

 16 selected for the Glades plant. But if for some reason

 17 those coals were all of a sudden to become much less

 18 expensive because rail rates from Colorado fell

 19 dramatically, FGPP could adjust its fuel supply plan and

 20 use that coal.

 21 Q. On page 9 of your direct testimony, lines 12

 22 through 14, you state, "Although Illinois Basin coal is

 23 used by some of the coal-fired plants in Florida, this

 24 coal tends to be high in chlorine and is not compatible

 25 with the plant and scrubber design selected for FGPP";

 535

 1 correct?

 2 A. Yes. My understanding is on technical

 3 limitations, coals over a certain chlorine level are

 4 excluded from the fuel choices for FGPP.

 5 Q. Therefore, Illinois Basin coal, which

 6 represents 8 percent of total U.S. production, is also

 7 not able to be used in the proposed Glades plant; is

 8 that correct?

 9 A. No, that wouldn't be true for all of Illinois

 10 Basin coal. That would be true for the higher chlorine

 11 content coals, which are typically found in the central

 12 part of Illinois.

 13 Q. Therefore, the domestic coal supply that FPL

 14 has focused specifically on is the Central Applachian

 15 coals, which according to your Exhibit SS-4 represents

 16 only 21 percent of total U.S. production; is that

 17 correct?

 18 A. Which part of your question? No, I wouldn't

 19 say that they focused only on Central Appalachia coal.

 20 Yes, I would say that it does represent a little over 20

 21 percent of total U.S. coal supply and is the largest

 22 coal supply region in the East.

 23 Q. At page 8, lines 12 through 13 of your direct

 24 testimony -- excuse me. I want to make sure. Did I say

 25 on page 18?

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 1 A. No, you did not.

 2 Q. Okay. I meant page 18, lines 12 through 13.

 3 You stated, "EVA's most recent long-term forecast, which

 4 is provided in Document No. SS-11," which is an exhibit

 5 to your testimony, "calls for Central Appalachia coal

 6 demand to decline from 235.6 million tons in 2005 to

 7 about 173 million tons in 2020." Is this correct?

 8 A. Yes, it is.

 9 Q. Now, in answer to a question on page 17, lines

 10 4 through 20, you were asked the question, "Please

 11 provide an overview of the Central Appalachia coal

 12 supply region." And I'm going to paraphrase just to

 13 make more efficient use of time, but basically you said

 14 that Central Appalachia includes coal production from

 15 eastern Kentucky, southern West Virginia, and you listed

 16 a few other states in that area, and is the largest coal

 17 supply region in the eastern U.S., although production

 18 has declined since 1990, as shown in your Exhibit SS-9;

 19 is that correct?

 20 A. Yes.

 21 Q. And you mention that the remaining reserve

 22 blocks in Central Appalachia are smaller and less

 23 conducive to either large surface mining operations or

 24 large underground mining operations; correct?

 25 A. Less than other supply regions, such as the

 537

 1 Powder River Basin, where the surface mines are huge, or

 2 the underground mines, so-called long wall mines in

 3 Northern Appalachia and the Illinois Basin. Central

 4 Appalachia tends to consist of smaller reserve blocks

 5 and many smaller operations and uses different mining

 6 techniques as a result.

 7 Q. You mention that the mines are generally

 8 small, less than 2 million tons per year, and have

 9 limited lives such that each mine typically has

 10 typically less than 10 years of production; correct?

 11 A. That's correct, yes.

 12 Q. And as a result, there's a continuous need for

 13 new mine development and reserve acquisition in Central

 14 Appalachia; correct?

 15 A. Yes.

 16 Q. Okay. And since this area is not conducive to

 17 either large surface mining or underground mining, there

 18 must be more mountaintop coal mining in these states

 19 associated with -- with its associated environmental

 20 damage. Is this correct?

 21 A. No. Underground mining still is the primary

 22 mining technique. I'm not saying there isn't

 23 underground mining in Central Appalachia. I'm just

 24 saying you don't have the type of large reserve blocks

 25 that are conducive to the same type of mining as you see

 538

 1 in the Illinois Basin. And there's a lot of surface

 2 mining in Central Appalachia, not all of which is

 3 mountaintop removal mining. Some of it is, and some of

 4 it is not. But all of it -- we've had a long history of

 5 coal mining in Central Appalachia going back 100 years,

 6 and it uses both surface and underground mining.

 7 Q. Based on your testimony, Mr. Schwartz,

 8 regarding Central Appalachia coal, FPL is not going to

 9 achieve fuel diversity, because it is depending upon a

 10 depleting production area that will create significant

 11 environmental damage; is that correct?

 12 A. No, that's not true at all. The demand for

 13 coal from this region is declining, not the supply. The

 14 reason why the demand is declining is that many

 15 utilities required the use of this low-sulfur coal due

 16 to the Clean Air Act, because they switched to

 17 low-sulfur coal instead of building scrubbers.

 18 Now many of those utilities are building

 19 scrubbers in response to the Clean Air Interstate rule,

 20 and as a result, they're switching back to using their

 21 closest coal supplies, which for utilities in Indiana,

 22 Ohio, Pennsylvania, and Illinois is not Central

 23 Appalachia. As a result, demand is falling, which means

 24 the supply is adequate to be supplying its natural

 25 market, which is the southeast United States, including

 539

 1 plants in Florida. That's why that coal is expected to

 2 be a low cost coal for a plant located in Florida.

 3 Q. Isn't it true that the FGPP plant design

 4 cannot make use of most of the coals available in the

 5 U.S.?

 6 A. That's not true at all. They can use -- FGPP

 7 could use any of the coals in Appalachia, including

 8 Northern Appalachia and Southern Appalachia, as well as

 9 Central Appalachia. It's just not under current

 10 projections expected to be the lowest cost supply. FGPP

 11 can also use any of the bituminous coals in the western

 12 United States, but again, it's not expected to be lower

 13 cost compared to the least cost fuels, which would be

 14 from Central Appalachia or imported coal with a blend of

 15 petroleum coke.

 16 FGPP is limited in its ability to use Illinois

 17 Basin coal to the extent the coals are higher chlorine,

 18 but there are lower chlorine coals in the Illinois Basin

 19 that could be part of the fuel supply mix. But again,

 20 Illinois is a lot farther away than eastern Kentucky is,

 21 so it's not expected under our projections that that

 22 would be the most economic source.

 23 Q. And FGPP, as you stated earlier, can only use

 24 a maximum of 20 percent petcoke; correct?

 25 A. That's correct. That's my understanding.

 540

 1 Q. IGCC plants, on the other hand, can use

 2 100 percent petcoke; is that correct?

 3 A. If designed for it, yes. Plants like the Polk

 4 plant are limited and I think are blending approximately

 5 60 to 70 percent petroleum coke, with the rest being

 6 imported coal.

 7 Q. It's true, is it not, that IGCC plants can

 8 make use of more U.S. supplies of coal than the proposed

 9 FGPP plant?

 10 A. No, I wouldn't say that's true. It all

 11 depends how you design the plant. FGPP is being

 12 designed for the least cost fuel. It could use other

 13 fuels as well. And an IGCC will have to be designed for

 14 a fuel also. Any plant can be designed for anything,

 15 but once designed, its limitations are based upon what

 16 its design is.

 17 Q. Well, IGCC plants can make use of more foreign

 18 coals than the proposed FGPP plant; correct?

 19 A. I don't think that's true at all. I think

 20 FGPP could use any foreign coal available in the market

 21 today.

 22 Q. IGCC plants can be operated on natural gas and

 23 distillate oils; is that correct?

 24 A. That I don't know. I suppose it's possible.

 25 I really haven't looked.

 541

 1 Q. IGCC plants can be fueled by biomass and waste

 2 materials; correct?

 3 A. No. Again, you can design any plant to do

 4 anything, but you could put biomass and waste in FGPP

 5 also. But I don't think there's any real prospect that

 6 an IGCC plant is being built for biomass, certainly not

 7 anywhere in this country.

 8 Q. IGCC plants provide more fuel flexibility and

 9 many more opportunities for fuel cost savings than the

 10 proposed Glades plant; correct?

 11 A. I wouldn't agree with that, no.

 12 Q. Your Exhibit SS-18 shows Gulf Coast petcoke

 13 prices from 2002 to 2006 ranging from $7 a ton to $42

 14 a ton and averaging about $17 a ton; correct?

 15 A. I haven't prepared an average, but, yes, it's

 16 correct that it ranges from 7 to about $42 per ton.

 17 Q. And this chart also shows the significant

 18 variability in petcoke prices; correct?

 19 A. Yes, it does.

 20 Q. What is important is the long-term average

 21 fuel cost differential, is it not?

 22 A. I'm not sure I understand your question.

 23 Q. In terms of fuel cost savings, the long-term

 24 average fuel cost differential is what's most important?

 25 A. Differential between what and what? I'm still

 542

 1 not sure I understand your question.

 2 Q. Excuse me just one second.

 3 The differential between petcoke and coal.

 4 A. That's certainly one thing they're considering

 5 at FGPP, but I think probably more important is the

 6 long-term differential between solid fuel and natural

 7 gas. That's where I thought maybe you were headed. I'm

 8 not sure what you mean about coal and petcoke, the

 9 differential being important. Certainly that's part of

 10 what's taken into account in the design and purchasing

 11 decisions.

 12 Q. Referring to Exhibit SS-19, titled "FPL Medium

 13 Case Forecast of Delivered Coal Prices," that exhibit

 14 shows the projected fuel cost savings between coal and

 15 petcoke, does it not?

 16 A. Not savings, no. It shows the medium case

 17 projected delivered prices in dollars per million Btu,

 18 including the two sources of coal and petroleum coke

 19 that are the most likely supply for FGPP.

 20 Q. Well, this FPL forecast shows that the fuel

 21 cost savings between coal and petcoke increases from

 22 about $1 per million Btu's in 2013 when the FGPP starts

 23 operating to $1.60 per million Btu's in 2024; is that

 24 correct?

 25 A. I'm not sure I can read with precision 2024,

 543

 1 but, yes, it does -- it does show the price of coal

 2 being about 50 percent higher than the price of

 3 petroleum coke on a delivered price base, and that

 4 differential stays constant in percentage terms roughly

 5 through the life of the forecast. It's growing because

 6 of the effect of inflation over time.

 7 Q. This demonstrates by FPL's own estimates the

 8 increase in fuel savings that can be provided by a plant

 9 that can use multiple fuels, including 100 percent

 10 petcoke; correct?

 11 A. No, I don't think that's what it demonstrates.

 12 It is the base case -- you know, the medium case

 13 forecast of delivered prices of the different fuels, and

 14 the plant has been designed to take that into account.

 15 Q. At page 12, lines 22 through 23 of your

 16 rebuttal testimony, you state, "As a petroleum coke-only

 17 supplied IGCC, FGPP would require in excess of 4 million

 18 tons of petroleum coke per year." Is this correct?

 19 A. Yes, it is.

 20 Q. On page line 28, lines -- excuse me. On page

 21 28, lines 14 through 19 --

 22 MS. SMITH: I'm sorry. Is this of --

 23 BY MR. GROSS:

 24 Q. This is of your direct. I'm jumping back and

 25 forth a little. You were asked the question, "what is

 544

 1 the outlook for petroleum coke supply?" And your

 2 response included the following statement: "To satisfy

 3 demand growth, production increases are expected. As

 4 the incremental crude oil supply is expected to come

 5 from heavier and sourer crude oil, coking capacity is

 6 expected to be added and petroleum coke production will

 7 increase. Some forecasters expect annual petroleum coke

 8 production to exceed 120 million tons by 2010 and over

 9 165 million tons by 2025." Is this correct?

 10 A. Yes. That's the entire world petroleum coke

 11 supply, taking into account, you know, all of Europe,

 12 Asia, et cetera.

 13 Q. Therefore, the 4 million tons per year needed

 14 by FGPP would only represent 3 percent of total petcoke

 15 production in 2010 and 2 percent of total production in

 16 2025, based on world production?

 17 A. Of total world production, yes. But that's

 18 not necessarily accessible to the U.S. markets and

 19 obviously has other demand for that product as well. I

 20 mean, to put that in context, compared to coal, world

 21 coal production is 5 billion tons per year, of which

 22 FGPP then would be .1 percent, not 4 percent. It's a

 23 pretty big difference, especially if you're looking at

 24 what's available here in the U.S. As you can see from

 25 the price volatility, petroleum coke markets are what we

 545

 1 would call a thin market. It's not that large in supply

 2 and demand, and so therefore, large swings can make a

 3 big impact on prices.

 4 Q. I just have a few questions, and I'm about to

 5 wrap up. On page 27, line 24, you state -- of your

 6 direct testimony -- let me make sure. Global 2005

 7 production was about 85 million tons; is that correct?

 8 A. That's correct.

 9 Q. And Exhibit SS-30 to your direct testimony --

 10 MS. SMITH: Actually, I think that may be

 11 rebuttal.

 12 BY MR. GROSS:

 13 Q. Excuse me. That's on your rebuttal testimony.

 14 Have you found that?

 15 A. Yes.

 16 Q. Okay. It shows that U.S. 2005 marketable

 17 production was about 43 million tons; correct?

 18 A. That's correct.

 19 Q. And Exhibit SS-30 shows that Gulf Coast 2005

 20 marketable production was about 24 million tons;

 21 correct?

 22 A. Yes, it was.

 23 Q. Therefore, the Gulf Coast production of

 24 petcoke represents more than half of U.S. production; is

 25 that correct?

 546

 1 A. Yes. Many of the U.S. refineries are located

 2 in the Gulf Coast.

 3 Q. And U.S. production represents more than half

 4 of the world's production of petcoke; correct?

 5 A. Yes, it does, or approximately half. I

 6 wouldn't say more than half. It's right about half.

 7 Q. So it appears that Florida has a unique

 8 opportunity to use this low cost fuel in a method, IGCC

 9 plants, that will significantly reduce the present

 10 environmental emissions created by the export of

 11 petcoke; correct?

 12 A. No, I wouldn't say Florida has some unique

 13 opportunity to use this fuel. Yes, the larger share of

 14 U.S. petcoke production is in the Gulf Coast. There's

 15 also a lot of demand for it. And as you can see, the

 16 available exports of petcoke today are 16 million tons

 17 per year. Nobody is going out and building a

 18 2,000-megawatt plant to use petroleum coke like the size

 19 of FGPP just depending on market supplies for petroleum

 20 coke. Any of the larger projects -- and nobody is

 21 building a project anywhere close to FGPP on petcoke,

 22 but even the 300-megawatt projects are trying to be

 23 designed next to or within a refinery in order to assure

 24 a committed supply.

 25 MR. GROSS: Just one moment. I think I'm

 547

 1 done.

 2 That concludes my questioning. Thank you,

 3 Mr. Schwartz.

 4 CHAIRMAN EDGAR: Mr. Krasowski, do you have

 5 questions for this witness?

 6 MR. KRASOWSKI: Yes, ma'am.

 7 CROSS-EXAMINATION

 8 BY MR. KRASOWSKI:

 9 Q. Good afternoon, Mr. Schwartz.

 10 A. Good afternoon.

 11 Q. Mr. Schwartz, regarding your testimony in

 12 regards to IGCC, when do you believe IGCC might be

 13 available at a size of even half the size of the FGPP

 14 plant in commercial dependable operational, 90 percent,

 15 80 percent?

 16 A. I don't have a specific date to give you. You

 17 know, I would say it's not available at the present

 18 time. I don't have a date that I'm projecting when it

 19 would be available.

 20 Q. Now, in your analysis, did you consider the

 21 availability of sequestration technology along with IGCC

 22 in comparison to the Glades Power Park capability to

 23 sequester, if and when that ever happens?

 24 MS. SMITH: Madam Chairman, I think these

 25 questions may be better addressed, or at least this one,

 548

 1 better addressed to other FPL witness, perhaps

 2 Mr. Jenkins and Mr. Kosky.

 3 MR. KRASOWSKI: This is included in the

 4 gentleman's testimony, but if that would be better, I'll

 5 defer to Mr. Jenkins if he's here.

 6 MS. SMITH: Well, if the witness can answer.

 7 CHAIRMAN EDGAR: The witness can answer if the

 8 witness can answer.

 9 MR. KRASOWSKI: Excuse me.

 10 A. I'm sorry. That wasn't an area that I've

 11 looked at, no.

 12 Q. The sequestration?

 13 A. The sequestration, no.

 14 Q. Okay. Fine. You did look at transportation?

 15 A. Yes.

 16 Q. Okay. Did you analyze the condition of the

 17 train tracks that go to and run along the proposed site?

 18 It's my understanding they're in very poor condition and

 19 can't handle the weight of it. So if you have analyzed

 20 it -- have you analyzed it?

 21 A. No. The condition of the tracks is not

 22 something that was personally under my area. I was

 23 dealing with the long haul rail costs. I understand

 24 that there is upgrading the project will do and the

 25 local supplying railroad, the South Central Florida

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 1 Express, will do as part of this project. I suspect

 2 Mr. Hicks is probably the right person to ask about

 3 that.

 4 MR. KRASOWSKI: Okay. Thank you. I'll do

 5 that. And that concludes my questions of Mr. Schwartz.

 6 Thank you.

 7 CHAIRMAN EDGAR: Thank you. Commissioners?

 8 Are there questions from staff?

 9 MS. BRUBAKER: Staff has none.

 10 CHAIRMAN EDGAR: Okay. Redirect?

 11 MS. SMITH: No redirect.

 12 CHAIRMAN EDGAR: Okay. Then seeing no

 13 objections we will enter Exhibits 73 through 92 and 135

 14 through 146 into the record.

 15 (Exhibits 73 through 92 and 135 through 146

 16 admitted into the record.)

 17 CHAIRMAN EDGAR: The witness is excused.

 18 THE WITNESS: Thank you.

 19 CHAIRMAN EDGAR: Thank you. Mr. Gross, I

 20 believe that what we had agreed to earlier is that you

 21 would call your witness next.

 22 MR. GROSS: Yes. Thank you.

 23 MR. KRASOWSKI: Excuse me, Madam Chair.

 24 CHAIRMAN EDGAR: Mr. Krasowski.

 25 MR. KRASOWSKI: Maybe I'm a bit confused, but

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 1 Mr. Brandt is not going next, but someone else is?

 2 CHAIRMAN EDGAR: We are going to take up

 3 Mr. Schlissel. And I am so sorry that with my lisp I

 4 can't get that out correctly.

 5 MR. KRASOWSKI: That sounds good. And then

 6 will we go to Mr. Brandt if there's time?

 7 CHAIRMAN EDGAR: If there's time today.

 8 MR. KRASOWSKI: Okay. And we're closing at

 9 5:30?

 10 CHAIRMAN EDGAR: Between 5:00 and 5:30 is my

 11 goal.

 12 MR. KRASOWSKI: Okay.

 13 MR. GROSS: Madam Chair, if you recall, we

 14 mentioned yesterday that Mr. Schlissel was making some

 15 corrections to his supplemental direct, and at this time

 16 we would like to pass out copies that were filed this

 17 morning and the errata sheet that goes with it.

 18 CHAIRMAN EDGAR: Okay. Yes, please.

 19 MS. BRUBAKER: Madam Chairman.

 20 CHAIRMAN EDGAR: Ms. Brubaker.

 21 MS. BRUBAKER: If I've missed this, my

 22 apologies, but has this been identified already?

 23 CHAIRMAN EDGAR: This has not been identified.

 24 Do we need to do that?

 25 MS. BRUBAKER: I would suggest in order to be

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 1 consistent with FPL's errata sheet that it be so. But

 2 I'll leave that to Mr. Gross.

 3 CHAIRMAN EDGAR: Well, once again, we strive

 4 for clarity, so let me get there.

 5 So we will need to, as you said, for

 6 consistency, mark the errata sheet. And what about the

 7 corrected supplemental testimony? Does that travel

 8 together as one, or has this been prefiled?

 9 Mr. Litchfield, can you help me?

 10 MR. LITCHFIELD: Madam Chairman, my

 11 recommendation is just to mark and then enter the errata

 12 sheet. The supplemental testimony that has already been

 13 filed I think can be entered in conjunction with the

 14 errata into the record as though read.

 15 CHAIRMAN EDGAR: Does that work for you,

 16 Mr. Gross?

 17 MR. GROSS: That's works.

 18 CHAIRMAN EDGAR: Ms. Brubaker?

 19 MS. BRUBAKER: Yes. Thank you.

 20 CHAIRMAN EDGAR: So I am on 162.

 21 (Exhibit 162 marked for identification.)

 22 MR. GROSS: I just want to make sure that

 23 Mr. Schlissel has copies of the errata sheet --

 24 THE WITNESS: No, I don't have the errata

 25 sheet.

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 1 MR. GROSS: -- and the corrected --

 2 CHAIRMAN EDGAR: Are we out of copies?

 3 MR. GROSS: We came up one copy short.

 4 CHAIRMAN EDGAR: I'll bet our staff can share.

 5 MR. GROSS: Thank you.

 6 THE WITNESS: I don't really need them. I

 7 wrote them.

 8 CHAIRMAN EDGAR: It would be best if you have

 9 it in front you of you, but I appreciate that.

 10 THE WITNESS: Thank you very much.

 11 CHAIRMAN EDGAR: Okay. Mr. Gross, I think

 12 we're ready.

 13 Thereupon,

 14 DAVID A. SCHLISSEL

 15 was called as a witness on behalf of Sierra Club, Save

 16 Our Creeks, Florida Wildlife Federation, Environmental

 17 Confederation of Southwest Florida, and Ellen Peterson,

 18 and having been duly sworn, testified as follows:

 19 DIRECT EXAMINATION

 20 BY MR. GROSS:

 21 Q. Mr. Schlissel, please state your full name and

 22 business address.

 23 A. My name is David A. Schlissel,

 24 S-c-h-l-i-s-s-e-l. My business address is Synapse

 25 Energy Economics, 22 Pearl Street, Cambridge,

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 1 Massachusetts, ZIP, 02139.

 2 Q. Okay. Mr. Schlissel, did you cause to be

 3 filed on March 16, 2007, corrected direct testimony and

 4 exhibits consisting -- well, the testimony consisting of

 5 23 pages?

 6 A. Yes.

 7 Q. And did you sponsor Exhibits DAS-1 through 4?

 8 A. Yes.

 9 Q. Did ou file corrected supplemental direct on

 10 April 17th, 2007?

 11 A. Yes.

 12 Q. Consisting of 15 pages?

 13 A. Yes.

 14 Q. Do you have any corrections or revisions to

 15 your corrected direct testimony or your corrected

 16 supplemental direct testimony?

 17 A. I'm sorry. I'm confused. The version of the

 18 corrected supplemental testimony I prepared had bold and

 19 underlining for each of the corrections. The version

 20 that I have in front me does not have that. I guess

 21 it's on the errata.

 22 Q. Right. The changes are on the errata.

 23 A. Those are the changes. I don't have any

 24 additional changes, no.

 25 Q. Okay. Thank you. If you were asked the same

 554

 1 questions today that you were asked in preparing your

 2 direct, original direct testimony and your supplemental

 3 direct testimony, would your answers be the same.

 4 A. Yes.

 5 MR. GROSS: I would move that Mr. Schlissel's

 6 corrected direct testimony dated March 16, 2007, with

 7 Exhibits DAS-1 through DAS-4 and his corrected

 8 supplemental direct testimony consisting of 15 pages and

 9 dated April 17th, 2007, be inserted into the record as

 10 though read.

 11 CHAIRMAN EDGAR: Any objection?

 12 MR. LITCHFIELD: Maybe just a clarification.

 13 I thought I understood him to suggest that the exhibits

 14 be inserted into the record as though read.

 15 CHAIRMAN EDGAR: He did, which would be

 16 Exhibits 126 through 129, plus then the just-marked

 17 errata sheets. I think what we can do is go ahead and,

 18 if there is no objection, Mr. Litchfield, enter the

 19 prefiled direct testimony into the record with the

 20 corrections that have been noted, and then just per as

 21 we have been doing, we will take up the exhibits at the

 22 end of the testimony.

 23

 24

 25

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 1 BY MR. GROSS:

 2 Q. Mr. Schlissel, do you have a summary of your

 3 testimony?

 4 A. Yes, I do.

 5 Q. Would you go ahead and present that.

 6 A. Good afternoon. Thank you for accommodating

 7 me to be able to go home tonight, I hope.

 8 I'm a senior consultant at Synapse Energy

 9 Economics. Synapse is a research and consulting firm

 10 specializing in energy and environmental issues,

 11 including electric generation, transmission, and

 12 distribution system planning and reliability, global

 13 climate change, portfolio management, and integrated

 14 resource planning among our fields of expertise.

 15 Synapse's clients have included the U.S. Department of

 16 Justice, the Environmental Protection Agency, state

 17 regulatory commissions and their staffs, state

 18 environmental agencies, utilities, state consumer

 19 advocates, state attorneys general, and environmental

 20 organizations.

 21 I personally have more than 33 years of

 22 experience working as an expert on energy resource

 23 planning and reliability issues. My work has included

 24 evaluations of the need for and economics of new

 25 generating facilities. I would note in a number of

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 1 projects, my work has supported the acquisition of new

 2 peaking or base load capacity by utilities or

 3 independent power plant producers -- power plant owners,

 4 excuse me. My findings on resource planning issues have

 5 been accepted, in whole or in part, by regulatory

 6 commissions in a number of states, including Arizona,

 7 Texas, Indiana, Arkansas, New Mexico, Maine, and North

 8 Carolina.

 9 Synapse was asked by our clients in this case

 10 to evaluate FPL's proposed Glades Park Units 1 and 2

 11 based on the information provided in FPL's petition and

 12 supporting testimony. We also reviewed other publicly

 13 available information, such as FPL's ten-year plans and

 14 the regional reliability documents prepared by the

 15 Florida Regional Coordinating Council.

 16 Unfortunately, the very abbreviated schedule

 17 in this proceeding did not permit us the time to do what

 18 we typically do before we file testimony in cases like

 19 this, which is to conduct discovery and prepare

 20 independent economic analyses comparing the proposed

 21 project to other technically and economically feasible

 22 alternatives.

 23 The issue I addressed in my direct testimony

 24 was the potential for federal regulation of greenhouse

 25 gas emissions and the impact that that regulation would

 595

 1 likely have on the relative economics of the Glades

 2 project. My findings on this issue were as follows:

 3 First, it is prudent to expect that a policy

 4 to address climate change will be implemented in the

 5 U.S. in a way that should be of concern to utilities

 6 building new coal plants. The question is not whether

 7 the U.S. will develop a national policy addressing

 8 climate change, but when and how. Of course, there are

 9 important details to be worked out, but there will be

 10 regulation of greenhouse gases, and the potential costs

 11 related to that regulation should be considered by

 12 utilities and commissions in resource planning

 13 decisions.

 14 Second, if the Glades Power project is built,

 15 it is not reasonable to expect that carbon regulation is

 16 an issue that could be reasonably dealt with in the

 17 future once the timing and the stringency of the federal

 18 regulations are known. At a minimum, it will be

 19 expensive to back-fit carbon capture and sequestration

 20 equipment and capability when and if it becomes

 21 commercially cost-effective.

 22 A number of state commissions require

 23 utilities to reflect CO2 emission allowance prices in

 24 their resource planning. FPL is to be commended for

 25 reflecting CO2 prices in its planning studies. However,

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 1 the range of possible CO2 allowance prices that FPL has

 2 considered in its studies of the Glades project is too

 3 narrow, and the high end of the range of CO2 prices

 4 considered by FPL in its analysis is too low.

 5 In the spring of 2006, Synapse developed a set

 6 of projected CO2 emission allowance prices that we

 7 believe utilities and other companies should use in

 8 their planning. These CO2 price forecasts are

 9 comparable to other forecasts we have seen. Our

 10 forecasts were based on analyses of the proposals that

 11 were then being discussed in Congress up to roughly a

 12 year ago. These are price forecasts presented in Figure

 13 1 on page 21 of my corrected direct testimony. And I

 14 would note -- I guess the companies can use that in

 15 their cross. That is our forecast. It's not all -- the

 16 background squares and triangles, I'm sure counsel for

 17 the company will discuss it. That's not ours, but the

 18 lines are ours.

 19 Since May of 2006, a number of new bills have

 20 been submitted in Congress that propose significantly

 21 larger reductions in CO2 emissions by the middle of this

 22 century than were proposed in any of the measures that

 23 we considered when we developed our price forecasts. It

 24 is reasonable to believe that these new bills with their

 25 larger reductions will lead to even higher CO2 emission

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 1 allowance prices than those that we forecast last year.

 2 Thus, our CO2 price forecasts should now be considered

 3 very conservative.

 4 At a projected 92 percent capacity factor, the

 5 Glades project will emit more than 14-1/2 million tons

 6 of CO2 each year for what can be expected to be a

 7 60-year operating life. The additional costs that FPL's

 8 ratepayers may have to pay for these 14 million tons of

 9 annual CO2 emissions could range from roughly 120 to

 10 more than $400 million each year based on our price

 11 forecasts.

 12 My supplemental direct testimony then

 13 addressed several other critical issues. First, fuel

 14 diversity -- I agree with the company. Fuel diversity

 15 is certainly an important and desirable objective.

 16 However, principles of least cost, least risk planning

 17 should compel FPL to justify the Glades project on an

 18 economic basis. I would ask the Commission to very

 19 carefully consider whether building a 1,980-megawatt

 20 coal plant is an appropriate hedge against natural gas

 21 prices if the economics do not otherwise justify the

 22 building of the plant. Additional demand-side

 23 management and conservation efforts and the building of

 24 renewable technologies also provide fuel diversity,

 25 perhaps at a lower cost.

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 1 Second, FPL considered the economics of only a

 2 very limited range of base load fossil options in its

 3 need study. In fact, it focuses mainly on a plan with

 4 coal versus a plan without coal, that is, a plan that

 5 has natural gas. I am testifying here today that you

 6 should require FPL to build a new combined cycle natural

 7 gas plant in place of its proposed Glades project.

 8 Having said that, it's clear that FPL's own economic

 9 studies do not justify the building of the Glades

 10 project.

 11 FPL examined the coal and non-coal plans in 16

 12 scenarios, which looked at four separate CO2 price or

 13 environmental compliance cases and four separate fuel

 14 price forecasts. The results of FPL's analysis through

 15 these scenarios are shown in Table 1 on page 2 of my

 16 corrected supplemental testimony. The first four

 17 scenarios examined by FPL I believe can be discounted,

 18 because they assumed there would be no CO2 costs

 19 because, I guess, there would be no federal action on

 20 greenhouse gases. As the evidence about the threat

 21 posed by global climate change mounts daily, and as I

 22 believe FPL would agree, this is not a reasonable

 23 assumption.

 24 The second set of four scenarios examined by

 25 FPL in its need study –-

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 1 CHAIRMAN EDGAR: Ms. Schlissel, I'm sorry.

 2 I'm going to have to interrupt. In the interest of

 3 time, we are way over the five minutes allowed for

 4 summary. So I'm going to need you to conclude your

 5 summary so we can turn it over to cross.

 6 THE WITNESS: Okay. If I'm out of time, I

 7 guess I'm concluded. Okay.

 8 CHAIRMAN EDGAR: Okay. Thank you.

 9 Okay. Mr. Beck, do you have questions?

 10 MR. BECK: Yes. Thank you, Madam Chairman.

 11 CROSS-EXAMINATION

 12 BY MR. BECK:

 13 Q. Good afternoon, Mr. Schlissel.

 14 A. Good afternoon.

 15 Q. Mr. Schlissel, I would like to ask you a few

 16 questions about your forecasts for carbon allowance

 17 taxes.

 18 A. Yes, sir.

 19 Q. Exhibit 3 to your direct testimony.

 20 A. Yes.

 21 Q. Could you turn to page 52 of 62 of that

 22 exhibit?

 23 A. Yes.

 24 Q. At page 52 of your Exhibit 3, there's a table

 25 which shows three different forecasts for carbon dioxide

 600

 1 allowances. Do you see that?

 2 A. Yes.

 3 Q. You have a low case, a mid case, and a high

 4 case; is that right?

 5 A. Yes.

 6 Q. And at various places in your testimony, you

 7 also have charts or line graphs showing those, for

 8 example, on the previous page.

 9 A. Yes.

 10 Q. And as I understand it, the graphs simply

 11 connect the points that would be shown from your table

 12 on page 52; is that correct?

 13 A. That's correct. We just did the forecast for

 14 the three years, 2010, 2020, and 2030, and then the

 15 lines -- well, if you'll look in the company's chart

 16 over there, you'll see the lines just connect the

 17 points, in your language.

 18 Q. Okay. Let me ask you about your low case.

 19 Could you explain the basis for your low case scenario

 20 for carbon taxes?

 21 A. The basis for our low case is essentially that

 22 there would -- the allowance forecast would begin in

 23 2010 at a zero price, that there would be no allowance

 24 price in 2010, and that it would increase rather slowly

 25 over time as the political will to act increased and the

 601

 1 evidence mounted. It was based on several studies that

 2 essentially examined a proposal to increase the carbon

 3 inten -- to regulate carbon intensity. Carbon intensity

 4 means the pounds or tons of carbon emitted per

 5 megawatt-hour of generation, or actually I've seen it

 6 also in terms of percentage of gross domestic product.

 7 The proposal to regulate carbon intensity and

 8 require reductions in carbon intensity also has a safety

 9 valve, which means that if the price of an allowance

 10 gets above 8 or $9, that's where it would stop. The

 11 safety valve would come into effect.

 12 Q. Maybe I'm not clear. How did you develop

 13 those particular numbers for your low case, and then I

 14 want to contrast that with the mid case and the high

 15 case. What forms the basis for those specific

 16 recommendations or forecasts?

 17 A. Well, we spent a lot of time -- and by we, I

 18 meant there was a team of us, eight of us, roughly, at

 19 Synapse who developed the forecast. We looked at five

 20 or six studies, and they're listed in the upper

 21 left-hand box of that graph. If you look on page 52 of

 22 63 of my Exhibit DAS-3, you'll see there are 10

 23 different studies or 10 different alternatives that we

 24 looked at.

 25 And the basis for the low forecast again was

 602

 1 that we didn't think that this allows for the fact that

 2 there would not be immediate action on CO2 prices, and

 3 that essentially the action that would be taken by

 4 Congress to set up a program would focus on reducing

 5 carbon intensity with some form of safety valve in the

 6 short term.

 7 Q. Okay. How did you develop the high case?

 8 What is the basis for that?

 9 A. The high case was based on our view of the

 10 midpoint of the various -- you'll see there are roughly

 11 eight different -- eight or nine studies that had

 12 predicted carbon prices, carbon allowance prices for

 13 2010. And for our high case, we just said the midpoint

 14 would be $10 per ton. Our reason for selecting $10 per

 15 ton was that we believed that a higher number in the

 16 short term would create economic dislocations or fear of

 17 economic dislocations that would discourage Congress

 18 from setting a higher price for 2010.

 19 If you look on my Figure 6.3, which is

 20 different than the company's chart, you'll see that by

 21 the time we got to 2020, we predicted that the high

 22 price would be roughly $40 per ton, which I believe was

 23 take from an MIT study of the original McCain-Lieberman

 24 bill, Senate Bill 139. And thereafter, we believe that

 25 technology, technological improvements would lead to

 603

 1 Congress -- I'm sorry, would lead to decreases in

 2 allowance prices over time, less of an increase in

 3 carbon allowance prices over time.

 4 Q. Do you see any of your three forecasts being

 5 more likely than the others?

 6 A. Well, I think it will -- our guess is that it

 7 will probably be somewhere in the middle. We have not

 8 assigned probabilities to the forecasts. It's likely to

 9 be somewhere in the middle, perhaps our mid forecast or

 10 lower. But the whole point of doing a range of

 11 forecasts is because of the great uncertainty. You need

 12 to look at a range of possible forecasts, because nobody

 13 can predict the future, certainly not with regards to

 14 carbon allowance prices.

 15 Q. Could you turn in your supplemental direct

 16 testimony to your Figure 2, which is on page 8 of your

 17 supplemental.

 18 A. Yes.

 19 Q. And basically, I want to compare your

 20 forecasts to those provided by Florida Power & Light.

 21 How does your low and medium forecast compare to Florida

 22 Power & Light's various forecasts, if you could describe

 23 that?

 24 A. FPL's forecasts, there -- this is a confusing

 25 chart because of the various lines. It's better in

 604

 1 color.

 2 Q. Okay. Well, let me ask this. FPL's medium

 3 forecast, that's above your low forecast, is it not?

 4 A. That's correct.

 5 Q. And it's also beneath your medium forecast; is

 6 that right?

 7 A. That's correct.

 8 MR. BECK: Mr. Schlissel, thank you. That's

 9 all I have.

 10 CHAIRMAN EDGAR: Mr. Krasowski, do you have

 11 questions for this witness?

 12 MR. KRASOWSKI: We don't have any questions at

 13 this time. Thank you.

 14 CHAIRMAN EDGAR: Okay. Thank you.

 15 Mr. Litchfield.

 16 MR. LITCHFIELD: Thank you, Madam Chairman. I

 17 have a few questions.

 18 CROSS-EXAMINATION

 19 BY MR. LITCHFIELD:

 20 Q. Good afternoon, Mr. Schlissel.

 21 A. Good afternoon. I need my distance glasses.

 22 Q. Yes. We were much closer in Iowa.

 23 A. No. Actually, I think we were about the same

 24 distance, but the witness chair was elevated, which gave

 25 a closer sense of intimacy.

 605

 1 Q. Glad you felt that way.

 2 All right. I would like you first to turn to

 3 Figure 1 on page 21 of your direct testimony and tell me

 4 if that is the figure reflected on the white board up

 5 behind you to your right.

 6 A. No, it isn't.

 7 Q. It's not?

 8 A. No. There are some -- I'm sorry. I

 9 apologize. It is.

 10 Q. Okay. Now, I want you to focus --

 11 Commissioners, do you have the color version of the

 12 exhibit in front of you?

 13 CHAIRMAN EDGAR: No. We have black and white.

 14 You have black and white?

 15 MR. LITCHFIELD: I would like to distribute

 16 color versions if that would be --

 17 CHAIRMAN EDGAR: We all have black and while.

 18 We'll be glad to have color.

 19 MR. LITCHFIELD: I would definitely prefer you

 20 to have color.

 21 I apologize for the delay. I think it

 22 actually will speed things up if you're looking at a

 23 color version. I just assumed that you would have it.

 24 BY MR. LITCHFIELD:

 25 Q. Okay. Mr. Schlissel, you have that in front

 606

 1 of you. Would you focus for the purpose of my next few

 2 questions strictly on the solid blue line and the two

 3 dashed lines indicated at Synapse's high, mid, and low

 4 cases, respectively? Do you see those?

 5 A. Sure.

 6 Q. So temporarily, let's just ignore the other

 7 data points shown in different shapes and colors on this

 8 graph. Okay?

 9 A. Okay.

 10 Q. Now, you didn't generate these three lines

 11 through any independent modeling. That's correct, is it

 12 not?

 13 A. We didn't do modeling of our own; that is

 14 correct. It's based on modeling of others and the

 15 various studies that are indicated by the triangles,

 16 squares, and diamond shapes.

 17 Q. Right. And essentially, there is -- in other

 18 words, there is no model per se that underlies these

 19 three lines; correct?

 20 A. No. Again, the model -- there are a number of

 21 models that underlie these lines. We did not calculate

 22 these three lines by means of a separate model, but our

 23 analysis is based on the modeling done by others.

 24 Q. Right. I think you may have answered this

 25 question with Mr. Beck earlier, but you essentially

 607

 1 connected the three points that Synapse decided

 2 represented the high, medium, and low cases respectively

 3 in each of those three years; correct?

 4 A. What we did was, we made a high, low, and mid

 5 projection in 2010, '20, and '30. The lines merely

 6 connect each of those points.

 7 Q. That's a yes. Thank you. That was my

 8 question. And you didn't try to predict values for each

 9 year, did you?

 10 A. No, not at all. That would be extremely

 11 difficult and probably foolish to try to get that

 12 specific.

 13 Q. All right. So you looked at the results of

 14 the various scenarios plotted here on this graphic from

 15 the studies that you examined, and you concluded that

 16 based on the range of data points -- that based on the

 17 range of data points, the range of likely costs in 2010

 18 was from zero to something like below 10; correct?

 19 A. Yes.

 20 Q. And so you plotted zero as your low, 10 as

 21 your high, and you split the difference to get your mid

 22 case of 5; correct.

 23 A. I believe that's correct, yes.

 24 Q. And just to confirm, these lines weren't

 25 generated as a result of any type of regression

 608

 1 analysis; correct?

 2 A. That's correct. The lines merely connect the

 3 three points in each -- you know, the low connects the

 4 low forecast in 2010 and the low in 2020 and the low in

 5 2030.

 6 Q. Okay. Now I would like you to focus on the

 7 colored and shaped data points reflected on Figure 1.

 8 Can you do that?

 9 A. Yes.

 10 Q. Now, so that we understand what these various

 11 shapes and colors represent, I'm going to ask you a few

 12 clarifying questions similar to those that I asked you

 13 at your deposition. Okay?

 14 A. Okay.

 15 Q. Now, data points of the same color represent

 16 certain CO2 cost scenarios based on the same proposal or

 17 piece of draft legislation; correct?

 18 A. Correct.

 19 Q. So, for example, each blue point is based on a

 20 particular scenario from a study that was undertaken to

 21 attempt to model potential CO2 costs of a proposal

 22 reflected in Senate Bill 139; correct?

 23 A. Yes. That was the original McCain-Lieberman

 24 proposal.

 25 Q. And we see that indicated in the legend here

 609

 1 at the top left of Figure 1; right?

 2 A. Yes.

 3 Q. All right. And then each violet data point

 4 reflects a scenario from a study undertaken to model

 5 potential CO2 costs of a proposal reflected in Senate

 6 Bill 843; correct?

 7 A. Yes. I believe that was Senator Carper's

 8 Clean Air Act, Clean Air Power Act, something like that.

 9 Q. All right. And that's also indicated in the

 10 legend in the top left of the graphic; correct?

 11 A. Yes.

 12 Q. Now, when you have two or more dots of the

 13 same color, they are intended to represent two or more

 14 scenarios selected by Synapse from among multiple

 15 scenarios run by the folks that actually did run the

 16 model; correct?

 17 A. That's correct. The MIT study that you see

 18 listed of Senate Bill 139, the original

 19 McCain-Lieberman, I believe they had 12 to 14 different

 20 scenarios that modeled different credits, percentage of

 21 credits that were allowed and things like that.

 22 Q. And Tellus and EPA and MIT and the other

 23 entities indicated in this legend at the top left of the

 24 graph, they're the ones who did the model, they're the

 25 ones who chose the assumptions, gathered the data,

 610

 1 interpreted the bill being evaluated, and actually ran

 2 the model; correct?

 3 A. Yes, I think that's fair to say.

 4 Q. Then they published their output; right?

 5 A. Yes.

 6 Q. All right. Synapse then took studies, read

 7 them, eliminated certain scenarios based on whether or

 8 not Synapse believed they most closely approximated the

 9 bill, and then reflected the results of that review on

 10 Figure 1; correct?

 11 A. That's partially true. I thought we discussed

 12 this during my deposition, but I was ill that day, and

 13 if I missed it, I apologize. We also wanted to have a

 14 wide range of possible scenarios so that we didn't miss

 15 any --

 16 Q. Well, I'm pretty sure you were at your depo.

 17 A. Excuse me?

 18 Q. I think you were at your depo, weren't you?

 19 A. No, no. I may have missed saying that. It

 20 wasn't only that we picked the scenarios that were

 21 closest to the bill. It was also that we wanted to have

 22 a range of possible scenarios to look at, given the

 23 great uncertainty inherent in evaluating these costs.

 24 Q. You just wanted to supplement the answer that

 25 you gave me at your deposition. Is that what I'm

 611

 1 understanding?

 2 A. No. What I said was I don't remember whether

 3 I said that at my deposition. If I didn't, I apologize,

 4 because I was ill that day. So I'm not supplementing.

 5 I believe I'm repeating it, but if I'm not, I apologize.

 6 Q. Well, I'll take a minute and just look back at

 7 your depo. Do you have a copy of your depo in front of

 8 you?

 9 A. No.

 10 Q. Let me get you one if your counsel doesn't

 11 have one.

 12 A. Thank you.

 13 Q. Let me ask, were there any particular

 14 scenarios that you felt -- that you dismissed, that

 15 Synapse dismissed and therefore did not reflect on the

 16 graph here, any that you recall?

 17 A. No. As I said, the MIT study had a number of

 18 scenarios. Some of the others had advanced technology

 19 scenarios that were compared to advanced technology

 20 reference cases. We didn't include those. We stayed

 21 with the base reference case in each study and then

 22 looked at the sensitivity scenarios and how emissions

 23 changed and the emission allowance prices under those

 24 sensitivity cases compared to the base case scenarios.

 25 But beyond that, there were a lot of studies, a lot of

 612

 1 scenarios we examined as a group. If you have any in

 2 particular you want to talk about, I would be happy to

 3 try to. I brought the studies with me in case you

 4 wanted to.

 5 Q. Actually, I think we may look at some of those

 6 studies. There isn't anything in your testimony,

 7 however, is there, to indicate how Synapse made a

 8 selection, if you will, of the various studies or the

 9 various scenarios that were modeled by these entities

 10 reflected or identified on Figure 1, is there?

 11 A. In my testimony, no. I don't recall whether

 12 it's mentioned in Exhibit DAS-3, but --

 13 Q. All right. Let's look back at page 21 of your

 14 direct testimony.

 15 A. Okay.

 16 Q. Now, recall that we established earlier that

 17 data points of the same color represent certain CO2 cost

 18 scenarios based on the same proposal or piece of draft

 19 legislation; agreed?

 20 A. Yes, sir.

 21 Q. Okay. So we looked at the blue points and the

 22 violet points and agreed that those originated from

 23 studies conducted relative to Senate Bill 139 and Senate

 24 Bill 843 respectively; agreed?

 25 A. That's correct.

 613

 1 Q. All right. Will you turn to page 10 of your

 2 testimony and look at Table 1?

 3 A. Okay.

 4 Q. All right. You see starting on page 10,

 5 there's Table 1, Summary of Mandatory Emissions Targets

 6 in Proposals Discussed in Congress?

 7 A. Yes.

 8 Q. And it carries over onto page 11?

 9 A. Yes.

 10 Q. Now, there are 17 bills or proposals

 11 identified in Table 1. Would you agree with me?

 12 A. I haven't added them, but I trust your math.

 13 Q. Subject to check?

 14 A. I probably won't even check it. I trust it.

 15 Q. Fair enough. Now, of the total 17, the first

 16 11 are not current at all, are they?

 17 A. That's correct. They -- I guess the term is

 18 "expired," when that particular Congress left office.

 19 Q. Now, if one wanted to limit oneself to

 20 consideration of only current proposals, then one could

 21 literally or figuratively draw a line through everything

 22 up to the Feinstein-Carper Senate 317 bill on page 11;

 23 correct?

 24 A. That is correct. And in fact, we are in the

 25 process of attempting to do that re-evaluation within

 614

 1 the next month or two to look at what are the likely CO2

 2 emission allowance prices given the new and what we

 3 believe more stringent legislation being considered in

 4 Congress.

 5 Q. Okay. But none of that is in the record, and

 6 none of that is in your prefiled testimony. You agree

 7 with me on that; right?

 8 A. Well, the bills are in the record to the

 9 extent they're mentioned on this table, and I believe I

 10 mentioned in the testimony that in fact, the numbers in

 11 our forecasts may be conservative because of the new

 12 bills in Congress. But beyond that, there's nothing in

 13 the record.

 14 Q. And there's no analysis to support that

 15 contention either, is there?

 16 A. Well, the contention that we're going to

 17 re-evaluate it?

 18 Q. No, the contention that current bills may

 19 result in higher CO2 forecasts. There's no analysis in

 20 your testimony to support that particular contention, is

 21 there?

 22 A. That's correct. The evidence is, I believe,

 23 in the table you and I are looking at that the bills are

 24 more stringent. But in fact, we will have to see as the

 25 analyses of the bills come out what impact or what

 615

 1 projected emission allowance prices they have.

 2 Q. So in fact, looking back to Figure 1 on page

 3 21, and this is the colorful exhibit that we've been

 4 looking at, all of the data points in fact on this graph

 5 represent selected scenarios from studies of bills that

 6 are not currently before Congress. Would you agree?

 7 A. No. I can agree with a lot of what you say,

 8 but they're not all selective. Some of the studies were

 9 only one scenario, so we used that scenario.

 10 Q. They were -- I'm sorry.

 11 A. They were bills that were before Congress.

 12 Some of them were bills before Congress at the time we

 13 prepared this analysis. But other than that, I would

 14 agree with your statement.

 15 Q. So with that qualification, you otherwise

 16 agree?

 17 A. Yes.

 18 Q. Take a look at the line representing your high

 19 case. And that's the dashed line -- and it's difficult

 20 in this lighting, but -- it looks a little violet to me.

 21 A. I wouldn't dare to suggest what color it is.

 22 Q. Fair enough. It's the highest dashed line on

 23 the graph.

 24 A. Yes, the top dashed line, why don't we call

 25 it.

 616

 1 Q. Okay. If I were to count all the data points

 2 that are either above that line or just touch it, would

 3 you agree with me that that number is 11?

 4 A. Yes. I actually think there's probably -- the

 5 number is probably nine, but that's okay.

 6 Q. Okay, nine.

 7 Now, would you agree that if we looked at the

 8 highest blue and green figures or data points reflected

 9 on this graph that those all represent bills that were

 10 before Congress in 2003? In other words, I'm looking

 11 back at your Table 1, the McCain-Lieberman, Senate 139

 12 and Senate Amendment 2028. All of the green and the

 13 blue data points on this graph relate back to studies

 14 based on those two proposals in 2003; agreed?

 15 A. Yes, if I could, with a caveat that the

 16 McCain-Lieberman bill in the form of 2028 was

 17 resubmitted in 2005 and was alive again in 2006. So

 18 that bill, I think exactly the same provisions, was

 19 alive in 2005 and '6.

 20 Q. In 2005 and '6 with no changes?

 21 A. I might be wrong, but I think that it

 22 certainly had the same emission caps in 2028. The

 23 change was from -- Senate Bill 139 had a two-step

 24 process that from 2010 to 2015, emission limits would be

 25 set at the year 2000 emissions, and that in 2016 and

 617

 1 going forward, it would be at 1990 year emission levels.

 2 That bill was then amended to become 2028 by eliminating

 3 the second half of the -- the second step so that it

 4 only contained the 2000 year level cap, emissions cap.

 5 Q. Okay. But regardless of whether the amended

 6 version, 2028, whether it was or was not changed through

 7 the '04-05 time period, which you're not certain today,

 8 but regardless of that fact, you would agree with me

 9 that that bill is not the one that was modeled by these

 10 particular entities and not the results of which are

 11 reflected in your testimony and on this Figure 1? You

 12 agree with me on that?

 13 A. No. The question -- I'm sorry. Maybe it's

 14 because I didn't have my glasses on, but the question

 15 contained too many clauses in there.

 16 Q. I'm rephrase it.

 17 A. I don't know what I'm agreeing to and

 18 disagreeing with.

 19 Q. Fair enough. I'm rephrase it, Mr. Schlissel.

 20 What I really wanted to confirm is that what you've

 21 modeled -- no, excuse me. Let me rephrase that. What

 22 you reflect on Figure 1 in the form of the blue and

 23 green data points relate to scenarios from studies that

 24 were based upon proposals before Congress in 2003?

 25 A. And the answer is yes, with the caveat that

 618

 1 the same emission limits that were in the bill, 2028,

 2 were also before Congress in 2005 and '6.

 3 Q. And is it your testimony that nothing changed

 4 between 2003 and 2005?

 5 A. Actually, the only thing that -- no, I'm not

 6 sure. I know that certainly with regards to the

 7 relevant matters, the bill didn't change. There was a

 8 change in regard to credits to nuclear power plants at

 9 some point between Senate Bill 139 to 2028, but I don't

 10 recall exactly the year when that change occurred.

 11 Q. And what was the name of that bill?

 12 A. It still -- it was all McCain-Lieberman.

 13 Q. I know, but it obviously had a new number,

 14 right, if it existed past 2003?

 15 A. Yes. I'm sorry. I don't recall the number of

 16 it, but I know Senator Lieberman reintroduced it, I

 17 believe, sometime in 2005 or '6.

 18 Q. Okay. And I guess this will be simple,

 19 because whatever the number of that bill is, it's not

 20 reflected on Figure 1, is it?

 21 A. That's correct, but its provisions may be,

 22 because they were similar to 2028.

 23 Q. May be.

 24 A. No. My testimony is, I can't remember all of

 25 the details of the bill, the reintroduced bill, but in

 619

 1 the germane issue of emission allowance limits, it was

 2 the same.

 3 Q. All right. Well, assume with me for the sake

 4 of discussion that the Commission did not want to base

 5 its impression of future CO2 scenarios on a model that

 6 comes from proposals in Congress that date back as far

 7 as 2003. Can you make that assumption for my next

 8 question?

 9 A. Okay.

 10 Q. Okay. Would Figure 1 simply look the same as

 11 it does today with the exception of all of the blue and

 12 green data points being eliminated?

 13 MR. GROSS: I'm going to object to the form of

 14 that question. I agree that hypothetical -- I'm sorry.

 15 It is proper to ask hypothetical questions of experts,

 16 but there must be some either existing basis in the

 17 record, or it's a proffer that in good nature will be

 18 put into the record. So you would have to put into the

 19 record the assumption -- if it's not already in the

 20 record, it would have to be put into the record before

 21 this hearing is over that the Commission would not want

 22 to consider that material. Otherwise, I think it's an

 23 improper -- it assumes a fact that's not in evidence or

 24 will never be in evidence.

 25 MR. LITCHFIELD: But I haven't proposed to

 620

 1 offer an exhibit yet. I've simply asked the witness --

 2 I'm sorry, Madam Chairman. I've simply asked the

 3 witness --

 4 CHAIRMAN EDGAR: Actually, Mr. Litchfield,

 5 I've forgotten the question.

 6 MR. LITCHFIELD: I've simply asked the witness

 7 as a hypothetical to assume for me that if the

 8 Commission chose to ignore data based on 2003 bills, in

 9 other words, looking for something a little more

 10 contemporary, what would Figure 1 look like. It's his

 11 figure, and I think he's in a position to answer it. He

 12 has already indicated to me that Senate Bill 139 and

 13 Senate Amended Bill 2028 date to 2003, and that the blue

 14 and the green points relate back to those bills. So

 15 it's a conceptual question, and I think it's a fair one.

 16 CHAIRMAN EDGAR: I agree with the statement

 17 that it's a conceptual question. And with that, I'll

 18 allow, but I will ask you to restate it to the witness.

 19 BY MR. LITCHFIELD:

 20 Q. Mr. Schlissel, if the Commission were not

 21 inclined to base its impression of future CO2 prices on

 22 scenarios modeled on the basis of proposals or bills

 23 that were before Congress in 2003, then would Figure 1

 24 redone with that constraint look as it does, with the

 25 exception of eliminating the blue and the green dots?

 621

 1 A. Well, I mean, conceptually, of course it

 2 would. If you took out some of the bills, you would

 3 remove some of the dots. But if we're going to do that

 4 conceptually, this would look different if we didn't

 5 include the dots related to the EIA cap and trade and

 6 the National Commission on Energy Policy proposal, which

 7 was never introduced in Congress. So, yes, of course

 8 you can take out bills and take out dots or triangles or

 9 whatever.

 10 Q. And I'm distributing, Mr. Schlissel, an

 11 exhibit that I would like you to take a look at.

 12 A. Thank you.

 13 MR. LITCHFIELD: And, Madam Chairman, I would

 14 ask to have it marked, and I believe the next number is

 15 161. Is that right?

 16 CHAIRMAN EDGAR: Hold on. Let me get there.

 17 MR. LITCHFIELD: 163?

 18 CHAIRMAN EDGAR: I am at 163. But before we

 19 do that, let me ask Ms. Brubaker. The prior document in

 20 color that you passed out that we had in black and white

 21 but is in color, I realize that it's already in the

 22 record before us in black and white, so that we do not

 23 need to mark or re-enter, or should we, since it is

 24 slightly different than what we have?

 25 MS. BRUBAKER: It is slightly different.

 622

 1 Perhaps in an abundance of caution, it might be

 2 appropriate to identify it.

 3 CHAIRMAN EDGAR: Okay. Mr. Litchfield, does

 4 that work for you?

 5 MR. LITCHFIELD: That we mark it for

 6 identification?

 7 CHAIRMAN EDGAR: Yes.

 8 MR. LITCHFIELD: I'm fine with that. So it

 9 would be 163, and that is Figure 1 from Mr. Schlissel's

 10 direct testimony on page 21.

 11 CHAIRMAN EDGAR: Yes.

 12 MR. LITCHFIELD: And 164 would be

 13 Mr. Schlissel's Figure 1 on page 21 absent blue and

 14 green data points.

 15 CHAIRMAN EDGAR: Okay.

 16 (Exhibits 163 and 164 marked for

 17 identification.)

 18 BY MR. LITCHFIELD:

 19 Q. Mr. Schlissel, would you agree that this is in

 20 fact how Figure 1 would look if the blue and the green

 21 data points were eliminated?

 22 A. I trust that you've left the other points in

 23 the right spot. Sure.

 24 Q. Now, you indicated earlier that the

 25 McCain-Lieberman bill was amended, and that became SA

 623

 1 2028; correct?

 2 A. Yes.

 3 Q. And that reflects the -- the green dots

 4 reflect 2028; correct?

 5 A. Yes.

 6 Q. Or green data points?

 7 A. Yes.

 8 Q. And the blue reflect the earlier version of

 9 the McCain-Lieberman bill; correct?

 10 A. Yes.

 11 Q. Is it fair to say, based on the blue and green

 12 data points -- and I'm referring back to your Figure 1

 13 on page 21, Exhibit 163 for hearing purposes, that in

 14 fact the amended version of the McCain-Lieberman bill

 15 apparently resulted in lower CO2 costs than the original

 16 proposed bill? Would you agree with that?

 17 A. Right. As I explained before, instead of a

 18 two-step process, it was a one-step process. But just

 19 so the record is clear, the new McCain-Lieberman bill is

 20 back to the two-step process, and then it has further

 21 reductions after 2020. So if we're going to take out

 22 the blue and green dots because the data is too old, you

 23 need to insert new dots, because the new current bill

 24 that's before Congress, as I said, includes the same two

 25 steps as the original Senate 139, and then has further

 624

 1 reductions in subsequent years, if you look on Table 1

 2 on page -- the portion on page 11 of my testimony that

 3 you and I discussed before.

 4 Q. Now, the McCain-Lieberman bill as it's

 5 currently proposed, though, includes 100 percent more

 6 offsets than the prior version, i.e., SA 2028. Would

 7 you agree with me on that?

 8 A. Do you have evidence? I don't recall. I

 9 mean, sitting here today, I don't recall every provision

 10 of every bill. If you've got some evidence of it, I

 11 will look at it.

 12 Q. We'll be happy to put that in front of you.

 13 But it's not your recollection that the offsets for

 14 compliance were increased from 15 to 30 percent? That's

 15 not your recollection?

 16 A. No. Actually, the original bill had a

 17 declining set of offsets. The offsets declined over

 18 time. Again, I don't recall every provision of every

 19 bill before Congress on this subject. I'm sorry.

 20 MR. LITCHFIELD: Madam Chairman, I can pull it

 21 out. In the interest of time, if we could take

 22 administrative notice of the current McCain-Lieberman

 23 bill, and I can get you the bill number for that.

 24 CHAIRMAN EDGAR: Ms. Brubaker?

 25 MS. BRUBAKER: Give me just one moment. The

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 1 only concern I have as far as official recognition is

 2 that I believe it's enacted acts of Congress. I don't

 3 know that a draft would qualify as that. Certainly we

 4 have no objection to entering the draft as an exhibit or

 5 what have you, but I don't think it would be probably

 6 appropriate for official recognition, but I'll be happy

 7 to pull those rules and look at them real briefly.

 8 MR. LITCHFIELD: In fact, we would be fine

 9 with submitting it as a late-filed exhibit, if that's --

 10 CHAIRMAN EDGAR: Late-filed exhibit?

 11 MR. LITCHFIELD: -- if that's acceptable to --

 12 CHAIRMAN EDGAR: Filed as a late-filed

 13 exhibit. Mr. Gross, does that --

 14 MR. GROSS: I'm sorry. What is it that you're

 15 proposing to file?

 16 MR. LITCHFIELD: It's S 280. It's Senate Bill

 17 280.

 18 CHAIRMAN EDGAR: Okay. So, Mr. Gross, the

 19 matter that we have before us is a request to file a

 20 late-filed exhibit, which would be a copy of a filed,

 21 not passed, but filed congressional legislation. And

 22 we're going to allow Ms. Brubaker to look at the rule.

 23 Mr. Gross. Mr. Gross, make sure your mike is on, if you

 24 would, for me, please. Thank you.

 25 MR. GROSS: Thank you. You know, it's

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 1 self-evident that testimony is filed at a certain point

 2 in time and hearings are started and concluded at a

 3 certain point in time, and things change.

 4 CHAIRMAN EDGAR: Including the order of

 5 witnesses.

 6 MR. GROSS: Yes. And if this late-filed

 7 exhibit is to go into evidence, then I think we should

 8 have an opportunity to present late-filed exhibits that

 9 also bring this matter up to date as of today. There

 10 may be other bills that also are in effect today that

 11 were not in effect on the day that this testimony was

 12 filed. And if we're going to update everything right up

 13 to today, then we think in the interest of fairness --

 14 if this witness feels that there should be other bills

 15 or similarly relevant evidence that would be relevant to

 16 this table, then we should have the right to file those

 17 exhibits as late-filed exhibits as well.

 18 MR. LITCHFIELD: Madam Chairman, in principle,

 19 I don't think we're opposed to having all of the current

 20 bills included as late-filed exhibits, but I think -- it

 21 sounds like it will be easier just to have the bill

 22 printed, which we're doing right now, and we can put it

 23 in front of Mr. Schlissel and have him corroborate the

 24 fact that offsets had increased from 15 to 30 percent.

 25 CHAIRMAN EDGAR: Ms. Brubaker.

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 1 MS. BRUBAKER: Madam Chairman, having looked

 2 at the relevant portions from Chapter 90, there does not

 3 appear to be any provision that would allow us to take

 4 official recognition of the draft. However, again, as a

 5 late-filed draft, staff certainly has no objection.

 6 CHAIRMAN EDGAR: Okay. Mr. Gross, do you

 7 understand the alternative suggestion that

 8 Mr. Litchfield has offered, and if so, do you have a

 9 comment?

 10 MR. GROSS: Okay. Would you repeat it again,

 11 Mr. Litchfield?

 12 MR. LITCHFIELD: We'll simply get the bill and

 13 put it in front of Mr. Schlissel.

 14 MR. GROSS: Well, I still think there's a

 15 fairness issue here. If you're permitted to do this,

 16 then we should be able to introduce late-filed bills

 17 well -- bills as late-filed exhibits as well.

 18 MR. LITCHFIELD: That's not what I'm proposing

 19 at this point, Madam Chairman. I think it's becoming

 20 much complicated than it needs to be.

 21 CHAIRMAN EDGAR: My understanding,

 22 Mr. Litchfield, is that you have withdrawn your request

 23 for a late-filed exhibit; is that correct?

 24 MR. LITCHFIELD: Yes.

 25 CHAIRMAN EDGAR: Okay.

 628

 1 BY MR. LITCHFIELD:

 2 Q. Would you agree with me, Mr. Schlissel, that

 3 offsets affect the cost of CO2 compliance to a great

 4 degree? Would you agree with that?

 5 A. They certainly will affect it. I don't know

 6 what you mean by great. They certainly affect the cost

 7 of the emission allowances for the years that the

 8 offsets are in effect. If you look at McCain-Lieberman

 9 Senate Bill 280 on page 11, you'll see that the first

 10 step is a 2004 level in 2012, which is a higher emission

 11 cap than the original McCain-Lieberman bill had in the

 12 year -- had for 2010 to 2015. So there were certainly

 13 changes between the original bill and the bill in

 14 Congress now that will affect --

 15 MR. LITCHFIELD: Madam Chairman, this is

 16 completely unresponsive to my question.

 17 CHAIRMAN EDGAR: Are we all keeping track of

 18 the time? I know I am. Let's proceed.

 19 BY MR. LITCHFIELD:

 20 Q. Mr. Schlissel, I simply asked you whether

 21 offsets contributed greatly to the ultimate compliance

 22 cost of any particular CO2 regime, and I think you

 23 agreed with me. If that's not correct, then --

 24 A. No. I said that I would agree they would

 25 affect the price. I don't know what you mean by

 629

 1 greatly, so I can't agree with a vague term like

 2 "greatly." It certainly affects the price of the

 3 emissions allowance for the period during which the

 4 offsets are in effect.

 5 Q. Are offsets a less expensive way to achieve

 6 compliance?

 7 A. Generally they are believed to be a lesser

 8 cost alternative, yes.

 9 Q. Therefore, it's expected that offsets would be

 10 fully utilized by any company that was subject to CO2

 11 regulation. Would you agree with that?

 12 A. When you say is expected, it's reasonable to

 13 expect that companies will consider using offsets. It

 14 may be for some companies, they don't need to, they

 15 don't want to for some reason. But you would expect

 16 them to use the lower cost alternative, sure.

 17 Q. Okay. All right. What do the black triangles

 18 mean around the yellow triangles on Figure 1? This is

 19 Exhibit 164.

 20 A. It's a second -- there were two scenarios from

 21 the EIA's review of the NCEP proposal, I believe.

 22 Q. Do you recall what the difference in the

 23 scenario was?

 24 A. No. I mean, I have the documents with me. We

 25 could go through them.

 630

 1 Q. Would you be willing to accept subject to

 2 check that the black outline around the triangle in each

 3 of the two cases there represents a scenario with no

 4 safety valve?

 5 A. Correct. And the triangles without the

 6 black -- I'm sorry. The yellow triangles without the

 7 black border represents the safety valve. Yes, that's

 8 correct.

 9 Q. Okay. And a safety valve is what?

 10 A. A safety valve is the price at which --

 11 basically, a cap on the emission allowance price.

 12 Q. Okay. And a safety valve is something that

 13 Congress might implement in the event that they felt

 14 that above a certain economic impact, there would be too

 15 much detriment to the economy, and they might therefore

 16 institute a safety valve price. Is that your

 17 understanding?

 18 A. Yes. This one was for the National Commission

 19 on Energy Policy proposal.

 20 Q. And if there is no safety valve, then prices

 21 would be free to rise?

 22 A. Supply and demand, yes.

 23 Q. Now, look at the orange triangles on either

 24 Exhibit 163 or 164. We're still on Figure 1. Do you

 25 see those on the far right in the year 2030?

 631

 1 A. Yes.

 2 Q. Those are both safety valve prices, aren't

 3 they?

 4 A. I believe so.

 5 Q. So a safety valve price effectively is a

 6 ceiling price. It's not an expected price. It's a

 7 ceiling price; correct?

 8 A. Correct.

 9 Q. Do you have the EIA analysis of Senate 139

 10 with you?

 11 A. Yes. The June 2003?

 12 Q. I believe that's correct, but I'll confirm

 13 that momentarily. Yes.

 14 A. Okay.

 15 Q. And I'll ask Ms. Cona to distribute copies.

 16 And I'm looking at page 10 of that document. Do you

 17 have that?

 18 MR. LITCHFIELD: And, Madam Chairman, I would

 19 like to have this marked. I'm just distributing the

 20 cover page and then page number 10 in the interest of

 21 efficiency.

 22 CHAIRMAN EDGAR: Okay. So we are at 165.

 23 Will you label for me?

 24 MR. LITCHFIELD: Analysis of Senate 139,

 25 June 2003, page 10.

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 1 CHAIRMAN EDGAR: Thank you.

 2 MR. LITCHFIELD: I guess I should note --

 3 Madam Chairman, I'm sorry. It's EIA analysis of Senate

 4 139 dated June 2003, page 10.

 5 (Exhibit 165 marked for identification.)

 6 BY MR. LITCHFIELD:

 7 Q. Okay. On page 10, you see Figure S-1, the

 8 graph?

 9 A. I'm sorry. Page 10?

 10 Q. Page 10.

 11 A. I must be in the wrong document, because my

 12 page 10 analysis of S. 139 has a table.

 13 Q. Yes. I want you to look at that table.

 14 Ms. Cona will hand you a copy of Exhibit 165. Let's

 15 make sure we're looking at the same thing.

 16 A. Okay. Okay. I have the -- your exhibit.

 17 Q. Okay. And you see in the year 2025 a price of

 18 $60 in terms of the allowance price?

 19 A. Yes.

 20 Q. And you see an offset price of $15; correct?

 21 A. Correct.

 22 Q. So that would suggest that in fact the offset

 23 price is one-quarter the price of compliance under this

 24 scenario; correct?

 25 A. That's true, to the extent that the offsets

 633

 1 are available.

 2 Q. Now, this particular document served as the

 3 basis for which color dots on Figure 1 on either Exhibit

 4 163 or 4? It's the blue, is it not?

 5 A. I believe, yes.

 6 Q. Okay. So where on Figure 1 in blue for the

 7 year 2025 do you reflect an offset price of $15?

 8 A. Where do we reflect it? In the year 2025, our

 9 high price is not up at the level of the EIA study. The

 10 blue triangle is -- what is it? Ten, $12, something

 11 like that, higher than our high price. So we didn't put

 12 the offset price on there, but we reflected our high

 13 price is lower than the EIA estimated price, in part

 14 because we believed that there would be offsets and that

 15 they would have an impact on the allowance price.

 16 Q. Okay. We're focusing then on this blue

 17 triangle at the height of the graph. In fact, it's the

 18 highest data point in the entire graphic; correct?

 19 A. Correct.

 20 Q. And it appears to me that it reflects maybe

 21 not 60, but 58 or 59. Is that not your read?

 22 A. Sure. Now, the difference could be it's

 23 different year dollars.

 24 Q. Well, is it your representation that this data

 25 point does reflect companies taking full advantage of

 634

 1 offsets at $15 per metric ton --

 2 A. No.

 3 Q. -- in lieu of paying $60 per metric ton?

 4 A. I'm sorry if you didn't understand what I

 5 tried to explain. My point is, our high forecast is not

 6 at this high point. If we did not reflect offsets and

 7 technological changes, then we would have put our point

 8 for 2025 on this point. However, we don't think that

 9 allowances will reach the point that the EIA calculated

 10 in its analysis of Senate Bill 139, and that in part

 11 reflects our belief, the point you're trying to raise

 12 about the impact of the use of offsets.

 13 Q. But it's not reflected in the data point,

 14 that's my question, the offset price of $15. And under

 15 this version of the bill, offsets were available to be

 16 used for purposes of compliance of up to 15 percent of

 17 one's compliance; is that not right?

 18 A. No. In phase 1, they were allowed to be 15

 19 percent. In phase 2, they were limited to 10 percent.

 20 Q. Okay. Ten percent then. But really, my

 21 question is just -- the value or the discount associated

 22 with compliance attributable to the availability of

 23 offsets is not reflected in this data point that we've

 24 been discussing, this blue data point at the top of the

 25 graph?

 635

 1 A. I'm sorry. I don't understand your point.

 2 It's reflected in our analysis, in our forecast, which

 3 is what's important. I would have to look at the work

 4 papers to see whether in fact it's reflected in that

 5 specific data point. But I don't --

 6 Q. So you don't know today?

 7 A. Well, I would like to look at the --

 8 Q. Mr. Schlissel, it's either a yes, a no, or an

 9 "I don't know." I'll accept either one.

 10 A. No, it's not -- right. I guess -- well, give

 11 me a second here to think about this.

 12 I don't recall. I would have to look at the

 13 work papers.

 14 MR. LITCHFIELD: Okay. I think we have Senate

 15 280. I think I just have one copy, though,

 16 unfortunately, so permission to approach the witness.

 17 I'm really just looking for him to confirm that offsets

 18 under S 280 are now 30 percent of one's compliance

 19 obligation as compared to 15 percent.

 20 CHAIRMAN EDGAR: You may. If you would, just

 21 make sure that if you are speaking to the witness or to

 22 us that we can hear you in a microphone for the record.

 23 BY MR. LITCHFIELD:

 24 Q. Okay. This is Senate 280, and I'm asking the

 25 witness to refer to section 144, subsection (a),

 636

 1 alternative means of compliance. And if you would just

 2 read that section there?

 3 A. "Beginning with calendar year 2012, a covered

 4 entity may satisfy up to 30 percent of its total

 5 allowance emission requirement under section 121 by,"

 6 and then it goes on. Yes.

 7 Q. So offsets are eligible for up to 30 percent

 8 of compliance under S 280?

 9 A. It would be under the bill as it's currently

 10 drafted, or -- what's the date of the draft you've got,

 11 just so I'm clear?

 12 Q. January 12, 2007.

 13 A. That's -- I mean, I don't remember the day it

 14 was introduced. I believe it was in February, but I

 15 have no reason to doubt that the provision is in there.

 16 Q. Mr. Schlissel, how much of the nation's

 17 electricity today is generated by coal?

 18 A. I don't recall the number. Sorry.

 19 Q. Do you know roughly the percentage?

 20 A. I don't know. I would guess maybe 20,

 21 30 percent. I'm just guessing. I haven't looked at the

 22 numbers in years.

 23 Q. What if it were 50 percent or roughly

 24 50 percent? Is that a number you've heard before?

 25 A. Again, I haven't looked at that number in

 637

 1 years. If you want to give me a number -- well, I don't

 2 know how I would check it, but --

 3 Q. We might be able to get one in front of you,

 4 but for purposes of the next few questions, assume for

 5 me that it's approximately 50 percent. Do you have any

 6 sense as to how many megawatts that would represent?

 7 A. What the capacity, the generating capacity in

 8 the U.S. is today? No.

 9 Q. Okay.

 10 A. I remember a lot of esoteric facts, but I

 11 don't remember that one.

 12 Q. So then I take it you would not be able to

 13 suggest to me that if all of that coal generation went

 14 away and was replaced by natural gas-fired generation,

 15 by how much this country's demand for natural gas would

 16 rise? You're not in a position to estimate that number

 17 for me, I take it?

 18 A. No. Just a caveat. No one, especially

 19 myself, is sitting here proposing that all of the

 20 generation from coal go away immediately.

 21 Q. Just new coal?

 22 A. Immediately. The plan is to reduce CO2

 23 emissions by 2050 to the 450 to 550 parts per million

 24 levels that are generally believed by scientific

 25 consensus to be required to stabilize temperature

 638

 1 increases in the atmosphere.

 2 Q. Okay. I want to pursue that for a moment, but

 3 I've got a couple of other questions I just want to

 4 close out on that last topic.

 5 A. Okay.

 6 Q. I just want to make sure that you're also not

 7 in a position then to tell me whether the country would

 8 have either (a) the reserves or (b) the infrastructural

 9 capacity to deliver the amount of volume of natural gas

 10 required in order to displace all existing coal-fired

 11 generation. You're not able to tell me that today;

 12 right?

 13 A. Well, I'm not proposing that it happen. No

 14 one credible that I know is proposing that would happen.

 15 So the answer is yes, I can't give you an analysis of

 16 what I don't think is a credible alternative.

 17 Q. If the national policy objective is to reduce

 18 carbon emissions and policymakers also conclude that we

 19 simply cannot displace all of our coal-fired generation,

 20 then they're going to have to make certain policy

 21 decisions, correct, with respect to the type of coal

 22 that they would favor versus the type of coal that they

 23 would disfavor; agreed?

 24 A. No, you're throwing in there if they decide

 25 that they can displace all coal-fired generation.

 639

 1 Again, I don't know that that's anybody's goal or --

 2 Q. No, no. I'm sorry. If they cannot. If the

 3 decision, if the policy decision is made that we cannot

 4 afford to displace all of our coal-fired generation with

 5 natural gas, but we do want to reduce CO2 emissions,

 6 then what I'm asking you is, does Congress or the

 7 policymakers at that point have to decide the type of

 8 coal that they would favor versus the type of the coal

 9 that they would disfavor?

 10 A. I'm sorry. Maybe it's the lateness of the

 11 day. I don't understand the question. It seems to me

 12 that the policy decision is not only replace coal with

 13 natural gas. As I know FPL is aware, there are plans to

 14 build some new nuclear power plants. There are plans

 15 hopefully for energy efficiency, renewable technologies.

 16 So there's a whole portfolio of approaches to reduce

 17 carbon emissions. I have no doubt that coal will be a

 18 part of the U.S. generating capacity for the remainder

 19 of this century. The question is reducing CO2 emissions

 20 to 80 percent or so of 1990 levels.

 21 Q. Well, would you agree that if coal needs to

 22 be, as you say, a part of this country's generating

 23 portfolio at the same time that the country wishes to

 24 undertake a reduction in CO2 emissions, that it should

 25 incent cleaner burning coal plants and disincent dirtier

 640

 1 burning coal plants? Would you agree with that?

 2 A. By dirtier, you mean what?

 3 Q. Higher emissions.

 4 A. Excuse me?

 5 Q. Higher emissions.

 6 A. Again, if I'm interpreting you right, I agree

 7 with you. If I'm not, then I would disagree with you.

 8 Q. Well, you've got to tell me how you interpret

 9 me then.

 10 A. Well, no. Unfortunately, when you're talking

 11 about disincenting cleaner and dirtier burning coal

 12 plants, I mean, if you're talking about incenting new

 13 coal plants to replace older coal plants, it's a

 14 complicated question. If you're talking about incenting

 15 more efficient plants in the future over less efficient

 16 new plants, sure, everybody would want there to be more

 17 efficient new plants than less efficient new plants.

 18 Q. So you would not advocate a regulatory system

 19 that rewards cleaner burning coal even if they are new

 20 facilities over higher emissions coal plants that are

 21 existing facilities. Is that what I'm hearing?

 22 A. No, not at all.

 23 Q. So what would you propose?

 24 A. But it's a complicated question, because if

 25 you're going to replace -- let's suppose you were going

 641

 1 to build a 1,000-megawatt coal plant and retire 1,000

 2 megawatts of 50-year-old coal plants. Well, in the

 3 short term, that's a great idea. I think it benefits.

 4 The problem is, the new plant you're going to

 5 put on line is going to be generating 14-1/2 million

 6 tons or so of CO2 for 60 years, whereas the older plants

 7 that are burning -- or that are higher -- dirtier

 8 plants, to use your term, may have higher emissions in

 9 the short term, but they'll be retired in 10, 15, 20

 10 years. So --

 11 Q. And replaced with what?

 12 A. -- it's a complicated question.

 13 Q. And replaced with what?

 14 A. I'm sorry?

 15 Q. And replaced with what? When those older,

 16 higher-emitting plants are retired, they're replaced

 17 with what under your scenario?

 18 A. Under my scenario? I don't have a scenario.

 19 I've looked at the retirement of plants on a

 20 case-by-case basis. There may be instances where coal

 21 does make sense. There may be instances where natural

 22 gas makes sense. There may be instances where the

 23 company or companies or a state will seek to do energy

 24 efficiency or more renewables. There may be instances

 25 where some nuclear power plants get built. It's a

 642

 1 complicated situation.

 2 Q. Would you agree that the U.S. has for years

 3 been attempting to move to less dependence on foreign

 4 sources of energy?

 5 A. No. I believe that there has been a stated

 6 political goal, but I don't think there's very much

 7 effort in reducing our dependence on foreign oil. And

 8 certainly there's no -- I've seen no evidence -- in

 9 fact, I've seen evidence in the other direction about

 10 increasing our dependence on foreign natural gas and

 11 foreign coal.

 12 Q. Do you support, however, decreasing our

 13 dependence on foreign fossil fuels as an important

 14 policy objective? Is that someone that you endorse?

 15 Irrespective of your views on whether we're actually

 16 accomplishing that, is that a principle or an objective

 17 that you endorse?

 18 A. Would I like to see that for security reasons?

 19 Yes, I would like to see a reduction -- certainly on

 20 foreign oil is number one. On foreign natural gas, I

 21 don't know. On foreign uranium, I'm concerned about the

 22 fact that so much of our uranium in the future will --

 23 it seems that so much of our uranium will be coming from

 24 the former Soviet Union. That gives me concern for

 25 security reasons. With regards to coal, I don't know.

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 1 A lot of the coal comes from Colombia. You never can

 2 tell what's going to happen with the country down there

 3 with the drug trade, et cetera. So I am concerned about

 4 that.

 5 Q. But this country has 200-plus years of

 6 domestic reserves available, does it not, of coal?

 7 A. Yes. But there's also a problem called global

 8 warming and global climate change that has to be

 9 addressed.

 10 Q. Would you agree that supercritical pulverized

 11 coal plants have been identified as clean-burning coal

 12 units under the Energy Policy Act of 2005?

 13 A. Yes, they have been.

 14 Q. And ultra-supercritical pulverized coal plants

 15 are more efficient than supercritical pulverized coal;

 16 would you agree with that?

 17 A. That's what's being claimed for them, yes.

 18 I've not seen the statistics from the Japanese -- I'm

 19 sorry. Yes, Japanese and German plants to confirm that,

 20 but it has been proposed that they would have higher --

 21 I'm sorry, lower burn rates, and therefore be more

 22 efficient -- lower heat rates, excuse me, and be more

 23 efficient.

 24 MR. LITCHFIELD: Madam Chair, I have more to

 25 do, but what I would propose -- I would propose, in the

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 1 interest of time, seeing where we are, to enter

 2 Mr. Schlissel's deposition and have him dismissed.

 3 CHAIRMAN EDGAR: Mr. Gross, we can all stay.

 4 We are trying to work with the schedule parameters that

 5 you had laid out. Mr. Litchfield, I appreciate your

 6 cooperation on that point as well. I think we have two

 7 alternatives, and the first is that we can stay.

 8 Mr. Litchfield, if you were to continue with

 9 cross, do you have a rough estimate as to how much

 10 longer?

 11 MR. LITCHFIELD: My guess -- well, my guess is

 12 about 20 minutes, 30 minutes.

 13 CHAIRMAN EDGAR: Okay. And are there

 14 questions from staff for this witness?

 15 MS. BRUBAKER: Staff has none.

 16 CHAIRMAN EDGAR: Commissioners, do you have

 17 questions for this witness, depending on where we head?

 18 Mr. Gross, I think we have two alternatives,

 19 as I see it. I'm open to a third if you're aware of a

 20 third. The two that I see are that we can continue on

 21 and allow Mr. Litchfield to continue with his cross of

 22 this witness, and if the Commissioners have questions,

 23 give them that opportunity as well, which I'm going to

 24 guesstimate 30 to 45 minutes, being hopefully generous,

 25 which would require, from the information you gave us,

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 1 for the witness, my apologies, to change some of his

 2 scheduling, or as Mr. Litchfield has suggested, to enter

 3 the sworn deposition testimony in lieu of additional

 4 cross. And it is your witness, and so I will look to

 5 you for a recommendation.

 6 Yes, we will take a moment for you to consult

 7 with your witness. And then, Ms. Brubaker, I'll look to

 8 you.

 9 (Off the record briefly.)

 10 CHAIRMAN EDGAR: Mr. Gross.

 11 MR. GROSS: I would still prefer to finish the

 12 cross. If we can't do it today, give us an opportunity

 13 to see if we can under any circumstances get

 14 Mr. Schlissel back here.

 15 CHAIRMAN EDGAR: Okay. So that sounds like a

 16 third option, and I did give you an opportunity to

 17 provide a third option, which would be -- and,

 18 Mr. Litchfield, I will look to you for comment, but to

 19 stop cross at this point, with the opportunity,

 20 Mr. Litchfield, for you to pick up where you were next

 21 week, Wednesday or Thursday.

 22 MS. REIMER: Can we excuse him?

 23 CHAIRMAN EDGAR: Not yet. I'm sorry.

 24 Mr. Litchfield.

 25 MR. LITCHFIELD: I'm happy to do that. I

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 1 would note, however, that I think it was pretty clearly,

 2 pretty firmly indicated that this witness was not

 3 available, and now we're hearing that, oh, well, maybe

 4 we can make him available.

 5 I would point out -- and I think we're

 6 entitled under the Rules of Civil Procedure to enter the

 7 deposition of a party for any purpose permitted by the

 8 Florida Evidence Code. And I'm reading from Rule 1.330,

 9 the Rules of Civil Procedure. That, of course, would

 10 mean that Mr. Gross would be free to object as to

 11 relevance or some other reasonable and legitimate

 12 objection under the Rules of Evidence as to what

 13 portions might not come in. But short of that, I think

 14 we are entitled to put it in, irrespective of whether

 15 Mr. Schlissel is available next week or not.

 16 So I think I would propose that, and then we

 17 could decide whether we needed to pick up with him next

 18 week.

 19 CHAIRMAN EDGAR: I guess that's what I get

 20 when I give the opportunity for additional options. I

 21 am also, Mr. Litchfield, trying to -- again, I

 22 appreciate everybody's cooperation, but also, my

 23 preference would be for the Commissioners to have the

 24 opportunity to ask questions as well, which obviously if

 25 we end now -- and we were holding off, realizing that

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 1 you had expressed a need for cross, and we wanted to

 2 work with you.

 3 So, Ms. Brubaker.

 4 MS. BRUBAKER: Well, if I may, just my

 5 personal opinion, I think that there had been a great

 6 deal of accommodation by the Commission of the

 7 difficulties in scheduling. I don't know for certain

 8 what difficulties there are in rescheduling a flight.

 9 I do have some concerns about whether the

 10 deposition can be entered over objection. I think the

 11 relevant rules make it clear that there is an

 12 opportunity to object for various reasons for

 13 admissibility.

 14 CHAIRMAN EDGAR: All right. Then my request

 15 is that we allow Mr. Schlissel to leave us at this point

 16 in time, with the understanding, Mr. Gross, that we will

 17 be seeing him on Wednesday or Thursday next week and,

 18 Mr. Litchfield, that we will give you latitude in

 19 extending your cross at that point in time.

 20 MR. LITCHFIELD: Thank you, Madam Chairman.

 21 CHAIRMAN EDGAR: Mr. Gross.

 22 MR. GROSS: Madam Chair, first I just want to

 23 thank you for accommodating us and just let you know

 24 that I appreciate that.

 25 CHAIRMAN EDGAR: You are welcome.

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 1 Mr. Schlissel, thank you. You are excused.

 2 THE WITNESS: I greatly appreciate it.

 3 CHAIRMAN EDGAR: However, we look forward to

 4 seeing you next week. We will welcome you back to

 5 Tallahassee at that point.

 6 THE WITNESS: That's great. Is Thursday okay?

 7 CHAIRMAN EDGAR: If you will work with your

 8 counsel, and our staff will work that out, and you can

 9 head out.

 10 THE WITNESS: Okay. Thank you very much.

 11 CHAIRMAN EDGAR: Thank you. Okay. 4:40. You

 12 had one more witness, I think, that you wanted to try to

 13 get in today, did you not, Mr. Litchfield?

 14 MR. LITCHFIELD: We did. We had Mr. Brandt

 15 that we had been hopeful of getting on and off. Of

 16 course, that depends on the kind of cross-examination,

 17 but it would be wonderful if we could accomplish that.

 18 CHAIRMAN EDGAR: Okay. Mr. Gross, and I'm

 19 looking for Mr. Beck. Mr. Beck, can you do your cross

 20 of witness -- I'm sorry, Brandt this afternoon?

 21 MR. BECK: I have no questions.

 22 CHAIRMAN EDGAR: You can. You have no

 23 questions.

 24 Okay. Mr. Gross, are you prepared to work

 25 with us in cross for this witness? We can give you a

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 1 few moments if you need to.

 2 MR. GROSS: Yes. It might just take one

 3 moment.

 4 CHAIRMAN EDGAR: Okay. Let's take five in

 5 order to shuffle papers.

 6 MR. KRASOWSKI: Madam Chair.

 7 CHAIRMAN EDGAR: Mr. Krasowski, yes, sir.

 8 MR. KRASOWSKI: We had quite a bit of

 9 questions for Mr. Brandt, and his testimony and his

 10 issues are pretty much the basis of our interests or

 11 hopes to explain opportunities other than the coal

 12 plant. So I don't know how long it will actually take

 13 us, but I would hate to be pushing you past what you

 14 want to do with the rest of your time for later. So I

 15 don't know -- I think Mr. Brandt is a local person,

 16 and --

 17 CHAIRMAN EDGAR: I appreciate you letting me

 18 know that, and what I'm going to do is, as I said, take

 19 five minutes. During that five minutes, I'm going to

 20 ask our staff to get with Mr. Litchfield, with

 21 Mr. Gross, and with you. And I'm also going to juggle

 22 my schedule here for the next few minutes, and then

 23 we'll come back and see where we are. Okay?

 24 MR. KRASOWSKI: Okay.

 25 MR. LITCHFIELD: And, Madam Chairman, with

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 1 respect to the cross-examination exhibits, did you want

 2 to handle those now, at least the ones that we've

 3 identified so far?

 4 CHAIRMAN EDGAR: My thinking is that if we're

 5 going to have the witness back, that we can take them up

 6 then.

 7 MS. BRUBAKER: I think that would be best.

 8 MR. LITCHFIELD: That's fine. I just --

 9 CHAIRMAN EDGAR: Does that work for the record

 10 and for -- okay.

 11 MR. LITCHFIELD: It works for me. I just

 12 didn't want to lose track.

 13 CHAIRMAN EDGAR: I appreciate that. Okay.

 14 (Short recess.)

 15 (Transcript continues in sequence with

 16 Volume 5.)

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 1 CERTIFICATE OF REPORTER

 2

 3 STATE OF FLORIDA:

 4 COUNTY OF LEON:

 5 I, MARY ALLEN NEEL, Registered Professional

 6 Reporter, do hereby certify that the foregoing

 7 proceedings were taken before me at the time and place

 8 therein designated; that my shorthand notes were

 9 thereafter translated under my supervision; and the

 10 foregoing pages numbered 458 through 650 are a true and

 11 correct record of the aforesaid proceedings.

 12 I FURTHER CERTIFY that I am not a relative,

 13 employee, attorney or counsel of any of the parties, nor

 14 relative or employee of such attorney or counsel, or

 15 financially interested in the foregoing action.

 16 DATED THIS 18th day of April, 2007.

 17

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