BEFORE THE

 FLORIDA PUBLIC SERVICE COMMISSION

 DOCKET NO. 060635-EU

 In the Matter of

 PETITION FOR DETERMINATION OF NEED FOR

 ELECTRICAL POWER PLANT IN TAYLOR COUNTY

 BY FLORIDA MUNICIPAL POWER AGENCY, JEA,

 REEDY CREEK IMPROVEMENT DISTRICT, AND

 CITY OF TALLAHASSEE.

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 VOLUME 9

 Pages 886 through 1149

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 PROCEEDINGS: HEARING

 BEFORE: CHAIRMAN LISA POLAK EDGAR

 COMMISSIONER MATTHEW M. CARTER, II

 COMMISSIONER KATRINA J. TEW

 DATE: Friday, January 12, 2007

 TIME: Commenced at 4:20 p.m.

 Concluded at 7:58 p.m.

 PLACE: Betty Easley Conference Center

 Room 148

 4075 Esplanade Way

 Tallahassee, Florida

 REPORTED BY: LORI DEZELL, RPR, CCR

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 APPEARANCES: (As heretofore noted.)

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 36 MP-1 1067

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 41 TEC-1 1067

 42 MP-1R 1067

 52 CK-1 1101

 53 CK-2 1101

 54 TEC-1 1101

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

 2 CHAIRMAN EDGAR: Okay. We -- I know we had

 3 had some agreement about continuing to take some

 4 witnesses out of order. So let's see. Are we at

 5 Mr. -- and I'm not going to even get the names

 6 right. So why don't you tell me who you would

 7 propose that we call for the next witness.

 8 MR. PERKO: I believe we agreed to take

 9 Hale Powell next.

 10 MR. JACOBS: Yes, I believe we did.

 11 CHAIRMAN EDGAR: Okay. Okay. Mr. Jacobs,

 12 that is your witness?

 13 MR. JACOBS: Yes, Madam Chair.

 14 HALE POWELL

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

 16 having been duly sworn, testifies as follows:

 17 DIRECT EXAMINATION

 18 BY MR. JACOBS:

 19 Q Good afternoon, Mr. Powell. You've been

 20 previously sworn, correct?

 21 A Correct.

 22 Q Would you state your name and business address

 23 for the record?

 24 A Hale Powell, 20 Acton Road, Westford,

 25 Massachusetts.

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 1 Q And, Mr. Powell, did you cause to be prefiled

 2 in this docket testimony under your authorship?

 3 A Yes, I did.

 4 Q And if I were to ask you those same questions

 5 today, would your responses be the same?

 6 A Yes, they would.

 7 Q And did you identify exhibits that were

 8 attached to that testimony?

 9 A Yes, I did.

 10 Q And are those the exhibits that are marked in

 11 this proceeding as HP-1, the excerpt of the 2005 annual

 12 report of National Grid USA DSM programs; HP-3, your

 13 resume; HP-4, resolutions of the National Association of

 14 Regulatory Utility Commissioners; and HP-5, report of

 15 the American Council for an Energy Efficient Economy?

 16 A Correct.

 17 MR. JACOBS: Without objection, Madam Chair, I

 18 would ask that the prefiled testimony of Mr. Powell

 19 be entered into the record as though read.

 20 CHAIRMAN EDGAR: The prefiled testimony of the

 21 witness will be entered into the record as though

 22 read.

 23 MR. JACOBS: Thank you.

 24

 25

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 1 BY MR. JACOBS:

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

 3 testimony?

 4 A Yes, I do.

 5 Q You may proceed.

 6 A My name is Hale Powell. After many years of

 7 working as a full-time DSM professional for a large and

 8 aggressive electric utility DSM program, I am now a

 9 private consultant. Like all other utility resources,

 10 effective DSM assessment, program design and

 11 implementation requires careful research, strong

 12 analytic skills and appropriate and specialized

 13 expertise. Developing a strong DSM resource is not

 14 unlike designing a large power plant. Success in

 15 developing both resources requires a logical,

 16 systematic, step-by-step and sometimes prolonged

 17 process.

 18 The Sierra Club has asked me to examine the

 19 DSM analyses of the four TEC applicants to determine

 20 whether the applicants have provided clear evidence that

 21 DSM resources in their individual service territories

 22 have been exhausted. I find the following shortcomings

 23 in the applicant's assessments of the availability of

 24 DSM resources to potentially displace or defer the need

 25 for TEC capacity.

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 1 One, while Tallahassee has made a laudable

 2 first effort, Reedy Creek has produced no quantified or

 3 documented evidence in respect to the availability of

 4 potential DSM resources within its customer base.

 5 Similarly, FMPA has provided no evidence that DSM is

 6 exhausted within the specific service territories of its

 7 member municipal utilities.

 8 Two, at its most basic, a DSM assessment

 9 requires three elements: Thorough research; two,

 10 localized analysis and ultimately, finally, cost

 11 effectiveness screening. While FMPA and JEA have

 12 conducted a screening process, they have largely failed

 13 to complete the preliminary steps that are required to

 14 produce a credible cost effectiveness analysis.

 15 Three, the DSM resources screen do not include

 16 many of the highly cost-effectiveness effective

 17 technologies successfully used in other DSM utility

 18 programs. It appears that the list of measures screened

 19 may not have been fully updated to reflect successful

 20 new technologies produced by the dynamic DSM market in

 21 other regions of the country.

 22 Four, the potential DSM savings of important

 23 market sectors and customer classes have been excluded

 24 from the analysis. These sectors have been the source

 25 of significant DSM resources in other venues. The

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 1 industrial market is one, only one, conspicuous example

 2 of this omission.

 3 Five, the accuracy of cross effectiveness

 4 results depends on well-documented, current and credible

 5 assumptions about savings, costs and other parameters

 6 associated with specific DSM measures. Without the

 7 opportunity to review the sources and validity of these

 8 numerous, numerous assumptions, I cannot ascertain

 9 whether cost effect resources have been inappropriately

 10 eliminated.

 11 In sum, given my professional experience as a

 12 utility employee and a private consultant, do I believe

 13 there are available DSM resources in the service

 14 territories of the TEC applicants sufficient to defer or

 15 displays all or part of the TEC capacity? I reserve

 16 judgment on this issue.

 17 However, I do believe that a great deal more

 18 effort, data, scrutiny and expertise is required before

 19 the PSC can conclusively determine that significant DSM

 20 resources have been exhausted in the individual service

 21 territories of the TEC applicants. Thank you.

 22 Q Does that conclude your summary?

 23 A Yes, it does.

 24 MR. JACOBS: Thank you. Tender the witness

 25 for cross.

 918

 1 CHAIRMAN EDGAR: Thank you.

 2 Ms. Brownless?

 3 MS. BROWNLESS: I believe Mr. Simms has

 4 questions, but I do not, Your Honor.

 5 CHAIRMAN EDGAR: Mr. Paben, do you have

 6 questions?

 7 MR. PABEN: Not at this time.

 8 CHAIRMAN EDGAR: Mr. Simms, do you have

 9 limited questions for this witness?

 10 MR. SIMMS: I do. I apologize. I had to get

 11 Dr. Lashof off on his flight.

 12 CROSS-EXAMINATION

 13 BY MR. SIMMS:

 14 Q I wanted to ask one question about issues

 15 pertaining to risk associated with customer

 16 nonparticipation in DSM measures. Are there ways to

 17 design and/or implement DSM measures so as to minimize

 18 this risk?

 19 A There are a variety of risks associated with

 20 DSM as there are a variety of risks associated with

 21 supply resources. One of the risks as you mentioned is

 22 that participation rates, penetration rates, to use the

 23 technical term, will not be -- will not meet forecast

 24 levels. That's an issue of program design. And I think

 25 an important issue is to assess the successful program

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 1 strategies and other utility DSM programs and to

 2 structure incentives, technical assistance and other

 3 interventions to anticipate and encourage customer

 4 participation. I've been very involved in this

 5 particular issue.

 6 Q Thank you. I have one more question and that

 7 will be it.

 8 Are there DSM measures that are not

 9 susceptible to this kind of risk?

 10 A Are there DSM measures not susceptible to what

 11 risk?

 12 Q To the customer nonparticipation type of risk.

 13 And I speak specifically of this sort of not -- you

 14 know, taking the lightbulbs out after a week instead

 15 of --

 16 A Well, that's not really participation. The

 17 technical term is persistence. A participation is --

 18 is -- would be deemed to be initial signing up and

 19 installation of a measure, participation in a training

 20 program or a loan program or whatever. There are risks

 21 with persistence issues such that somebody unscrews a

 22 lightbulb or a business goes out of operation.

 23 To address this issue, I was involved in the

 24 national grid's measurement and evaluation effort for

 25 six years, and we spent a lot of effort doing specific

 920

 1 analysis with the persistence of measures and these

 2 sorts of analyses involve surveys and metering of

 3 equipment and factors of persistence can be built into

 4 that, the estimate in calculation of savings either on

 5 an individual or an aggregate basis.

 6 So basically to give you a very brief answer,

 7 yes, risks can be anticipated and they also can be

 8 measured and included in the estimation of net resource

 9 value of the DSM measures.

 10 MR. SIMMS: Thank you for clarifying those.

 11 Those are all of my questions.

 12 CHAIRMAN EDGAR: Thank you.

 13 Mr. Paben, you had said not at this time.

 14 This is your chance. No questions?

 15 Okay. Thank you very much.

 16 Ms. Raepple?

 17 CROSS-EXAMINATION

 18 BY MS. RAEPPLE:

 19 Q Good afternoon, Mr. Powell.

 20 A Hi.

 21 Q At your deposition, we spoke briefly about the

 22 FIRE model. And the FIRE model is the model that the

 23 Florida Public Service Commission has historically

 24 recognized as appropriate for determining cost

 25 effectiveness of DSM.

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 1 Isn't it true that you defer to this

 2 Commission as to whether that's an adequate and

 3 appropriate model for the Florida setting?

 4 A I defer in the sense that they have made --

 5 appear to have made the ruling historically that that's

 6 the appropriate model. I don't necessarily agree from a

 7 perspective -- a professional standpoint. However, I do

 8 emphasize, as I said in my summary of my testimony and

 9 in my testimony itself, the cost effectiveness screening

 10 is only a very small and final element of a DSM

 11 assessment process. That research and analysis are

 12 essential in order to produce an appropriate result.

 13 Q With regard to a successful DSM program,

 14 wouldn't you agree that attaining a 4 percent reduction

 15 of annual sales would constitute a very successful DSM

 16 program?

 17 A A -- I'm not sure what your -- what the intent

 18 of your question is. Typically utilities in DSM

 19 programs are able to obtain on a yearly basis --

 20 obviously there's a range of attainment -- but between

 21 4.4 and, say, .8 percent of reductions in sales on an

 22 annual basis.

 23 A 4 percent savings would be successful;

 24 however, it would depend on the time period over which

 25 that was attained. It was attained over a period of

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 1 20 years, I would say well, that would not be a

 2 successful effort. If it was attained over a period of

 3 two years, I would say that would be a highly successful

 4 effort.

 5 Q Okay. And when you talk of annual sales in

 6 that regard, is that the same as reduction in energy as

 7 opposed to reduction in capacity?

 8 A Annual sales, I am specifically referring to

 9 kWh or megawatt hour sales in that respect.

 10 Q And that's energy, correct?

 11 A Correct.

 12 MS. RAEPPLE: Thank you. I have no further

 13 questions.

 14 CHAIRMAN EDGAR: Thank you.

 15 Are there questions from staff?

 16 MS. HOLLEY: Staff has no questions.

 17 CHAIRMAN EDGAR: Mr. Jacobs, redirect?

 18 MR. JACOBS: No questions. We'd move the

 19 exhibits.

 20 CHAIRMAN EDGAR: Okay. Let's see. 71, 72, 73

 21 and 74.

 22 MR. JACOBS: Yes, yes.

 23 CHAIRMAN EDGAR: Any objections? None?

 24 Okay. Exhibits 71 through --

 25 MS. RAEPPLE: I'm sorry, Madam Chairman. We

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 1 do want to preserve our objection as to hearsay as

 2 to Exhibit 71 and Exhibit 74, please.

 3 CHAIRMAN EDGAR: Okay. I'm sorry, I couldn't

 4 find my list -- I'm sorry. Could you -- while I

 5 was looking for my list, repeat that -- I know it's

 6 on the record -- so I hear it and it sticks?

 7 MS. RAEPPLE: Yes. I would like to preserve

 8 our objection as to hearsay on Exhibit 71 and 74.

 9 CHAIRMAN EDGAR: Okay. Thank you. Is there a

 10 remaining objection?

 11 MS. RAEPPLE: There is one other objection,

 12 and that is related to Exhibit 71. And that is we

 13 object on grounds of relevancy because there's been

 14 no showing that there are any DSM measures

 15 available and cost effective for any of the

 16 applicants, and there's no showing that an avoided

 17 unit is analogous.

 18 CHAIRMAN EDGAR: Mr. Jacobs?

 19 MR. JACOBS: Well, the first response is that

 20 there's been filed or ruled -- I think this was in

 21 the original objections and they were ruled on at

 22 prehearing. But of course, we would argue that

 23 these are absolutely appropriate benchmarks for --

 24 that would apply in Florida and particularly apply

 25 in circumstances where the companies haven't even

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 1 looked at the range of measures that are included

 2 in this report. How can you say they're not

 3 relevant when they haven't looked at them?

 4 CHAIRMAN EDGAR: Again, the objection is noted

 5 for the record. I am going to allow, again, for

 6 the weight they are deemed to be due, all exhibits,

 7 71, 72, 73 and 74 to be entered.

 8 (Exhibits Nos. 71, 72, 73 and 74 admitted into

 9 the record.)

 10 MR. JACOBS: Thank you, ma'am.

 11 CHAIRMAN EDGAR: Okay. Thank you. And the

 12 witness is excused.

 13 THE WITNESS: Thank you very much.

 14 CHAIRMAN EDGAR: Thank you.

 15 Okay. Are we back to order? We are. Okay.

 16 Then, Ms. Raepple, your witness?

 17 MS. RAEPPLE: It will actually be

 18 Mrs. Dailey's witness.

 19 MS. DAILEY: And the applicants would like to

 20 call Paul Arsuaga.

 21 PAUL ARSUAGA

 22 was called as a witness on behalf of the Applicant, and

 23 having been duly sworn, testifies as follows:

 24 DIRECT EXAMINATION

 25 BY MS. DAILEY:

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 1 Q Can you please state your name and business

 2 address.

 3 A Paul Arsuaga, A-R-S-U-A-G-A. I'm at 1000

 4 Legion Place, Orlando, Florida, 32801.

 5 Q And have you been sworn in this proceeding?

 6 A Yes.

 7 Q And did you submit prefiled testimony on

 8 September 19th, 2006, in this proceeding consisting of

 9 seven pages?

 10 A Yes, I did.

 11 Q And do you have any changes to that testimony?

 12 A I do have one change. On -- on page 7 of

 13 that -- page 4, I'm sorry, of the testimony, it says

 14 that the notice for the request for proposal was

 15 published in seven major newspapers around the country.

 16 That should read it was submitted to six industry

 17 publications.

 18 The reason for that was the -- my

 19 understanding is that the applicants chose to use the

 20 industry publications because that gave them a better

 21 target audience that would include more potential

 22 bidders that would bid on this type of a project.

 23 Q Thank you.

 24 If I were to ask you the same questions set

 25 forth in your testimony today, would your answers be the

 926

 1 same?

 2 A Yes.

 3 Q And are you sponsoring any exhibits to your

 4 testimony?

 5 A Yes.

 6 Q And is that the exhibit that's been marked as

 7 Exhibit 21, your resume?

 8 A Yes.

 9 Q Do you have any changes to that exhibit?

 10 A No.

 11 Q Are you also sponsoring any sections of the

 12 Need for Power Application that have been designated as

 13 Exhibit 22 as updated by the errata sheet, Exhibit 3?

 14 A Yes.

 15 Q And those are as listed in your testimony?

 16 A Yes.

 17 Q Do you have any changes to the sections of the

 18 Need for Power Application that you are sponsoring?

 19 A Yes. There's a similar change that I just

 20 mentioned as in my direct testimony on page A.7-3.

 21 MS. DAILEY: Madam Chairman, I request that

 22 Mr. Arsuaga's testimony be admitted into the record

 23 as though read.

 24 CHAIRMAN EDGAR: The prefiled testimony of the

 25 witness will be entered into the record as though

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 1 read with the changes as noted in his testimony.

 2 MS. DAILEY: Thank you.

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 1 BY MS. DAILEY:

 2 Q Mr. Arsuaga, did you prepare a summary of that

 3 testimony?

 4 A Yes, I did.

 5 Q Would you please present that now?

 6 A The purpose of my testimony is to discuss the

 7 request for proposal process, the evaluation of

 8 proposals and the results of that evaluation.

 9 On November 28th, 2005, the applicants issued

 10 a request for power supply proposals which is presented

 11 in Appendix A.1 of the application. The RFP served as

 12 an invitation for qualified companies to submit

 13 proposals for the supply of capacity and energy to meet

 14 a portion of the projected power requirements of the

 15 applicants beginning in June 1, 2012, continuing over a

 16 period of at least ten years.

 17 The RFP was distributed to numerous potential

 18 bidders and several Internet industry publications and

 19 Websites. And on March 7, 2006, two bids were received

 20 both from Southern Power Company. The first proposal

 21 was for a 797-megawatt net supercritical pulverized coal

 22 unit to be constructed at the same site as proposed for

 23 the Taylor Energy Center. The second proposal was for a

 24 natural gas fueled 784-megawatt net 2x1 501G combined

 25 cycle unit to be constructed in St. Lucie County,

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 1 Florida.

 2 I conducted a multistage evaluation of the RFP

 3 responses and concluded that the Taylor Energy Center is

 4 projected to have a lower delivered cost to the

 5 applicants than either of Southern's proposed

 6 alternatives over a range of evaluation scenarios.

 7 MS. DAILEY: Madam Chairman, we tender the

 8 witness for cross-examination.

 9 CHAIRMAN EDGAR: Thank you.

 10 Ms. Brownless?

 11 CROSS-EXAMINATION

 12 BY MS. BROWNLESS:

 13 Q Mr. Arsuaga, just so I get the logistics

 14 down --

 15 CHAIRMAN EDGAR: Ms. Brownless, do you have

 16 your mike on?

 17 MS. BROWNLESS: I'm sorry.

 18 BY MS. BROWNLESS:

 19 Q The request for power supply proposal that was

 20 actually sent, the RFP, is Appendix A to Volume A; is

 21 that correct?

 22 A It's -- it's -- it's Appendix A.1, you're

 23 right, to A.7.

 24 Q Okay. All right. It's basically the back

 25 portion of Volume A?

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 1 A Yes, yes.

 2 Q And let me ask you this question: The basic

 3 RFP indicated that you needed a June 1st, 2002 delivery

 4 date?

 5 A 2012.

 6 Q Oh, I'm sorry.

 7 A Yes.

 8 Q And it asked for a commitment of ten years?

 9 A A commitment of at least ten years.

 10 Q That was the minimum time?

 11 A Yes.

 12 Q Okay. And asked for capacity over that

 13 ten-year period anywhere from 100 megawatts to

 14 750 megawatts?

 15 A Yes.

 16 Q Okay. And it also required that it be firm

 17 first call, nonrecall basis?

 18 A That's correct.

 19 Q Was this RFP limited by fuel type in any way?

 20 A It was not. It says on -- I believe it's

 21 page 7 of the RFP, let's see, that the utilities would

 22 prefer solid fuel and prefer mature technologies but the

 23 utilities will consider other fuel types and

 24 technologies if the evaluations show these to be

 25 superior to solid fuel alternatives on the basis of

 938

 1 price and nonprice criteria.

 2 Q And just so I understand the terminology, is

 3 natural gas considered a solid fuel alternative?

 4 A No.

 5 Q So what you're saying in layman's terms is you

 6 would consider natural gas as well as coal?

 7 A That's correct. And we did receive a proposal

 8 for natural gas.

 9 Q Okay. I understand you had a prebid

 10 conference on December 20th of 2005; is that right?

 11 A That's correct.

 12 Q And that seven companies attended that

 13 conference?

 14 A That's correct.

 15 Q And two companies filed a notice of intent to

 16 bid subsequent to that; is that right?

 17 A That's correct.

 18 Q Who were those two companies?

 19 A One company was Southern Power Company. I'm

 20 sorry, I do not recall the other company right now.

 21 Q Okay. But your March 7th date was the final

 22 date to submit a bid; is that correct?

 23 A That's correct.

 24 Q And only the Southern Power Company submitted

 25 a bid at that time?

 939

 1 A Yes.

 2 Q Okay. Do you have the staff interrogatories

 3 No. 17 in front of you, sir -- 14 through 17, first set

 4 of interrogatories? I guess it's the second set of

 5 interrogatories. I think you prepared --

 6 A I have 14 and 15, which are the ones I

 7 sponsored.

 8 Q All right. My understanding is that some

 9 additional costs were added to the Southern Power

 10 Company bid in order to make it what you deemed to be

 11 comparable to the TEC unit; is that correct?

 12 A That's correct. But we also -- we added costs

 13 to the self-build also. There were adjustments to both

 14 self-build and the Southern Company bids to make them

 15 all consistent.

 16 Q Okay. And I understand that you added the

 17 cost of the land to the Southern Company bids; is that

 18 right?

 19 A That's correct.

 20 Q Did you add the entire 3,000 acres to the

 21 Southern Company bid?

 22 A I added the amount of land that was included

 23 in the cost of the -- of the self-build, because that's

 24 the -- what the cost of the self-build was -- I

 25 understood was based on.

 940

 1 Q Okay. And is it your understanding that the

 2 self-build includes approximately 3,000 acres of land?

 3 A I'm not sure that the -- I talked to

 4 Mr. Hoornaert and I asked him what amount of dollars was

 5 included in the plant cost that his proposal was based

 6 on, and that was the amount. The amount that he gave me

 7 was the exact amount that I added to the Southern

 8 Company proposal.

 9 Q Okay. We've discussed chart A.3-5 which is

 10 the revised cost for the TEC plant. Do you know whether

 11 the amount shown for land on that cost is what was added

 12 to the bid?

 13 A What -- I don't know what --

 14 Q I can show you Mr. Hoornaert's --

 15 A I recall the amount was $20 million is what I

 16 included. If that's the amount, then that --

 17 Q Thank you.

 18 Now, I assume that the Southern Power Company

 19 proposal -- that, for example, they only were proposing

 20 to bid one 797-megawatt supercritical pulverized coal

 21 plant on the site, correct?

 22 A Yes.

 23 Q And they were only proposing one 784-megawatt

 24 natural gas plant, right?

 25 A That's correct.

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 1 Q You indicated, I think, in response to Staff

 2 Interrogatory No. 14 that you did a busbar analysis; is

 3 that right?

 4 A Yes.

 5 Q And is that analysis basically a

 6 dollar-per-megawatt hour analysis?

 7 A Yes, it is.

 8 Q Do you remember what the TEC dollar per

 9 megawatt hour figure was that you used for comparison?

 10 A The -- I believe the TEC number came out to be

 11 around $62 per megawatt hour. That was on a levelized

 12 basis over a 20-year period, which was the same period

 13 as the -- as the offer from Southern.

 14 Q Okay. And was that the cost at -- at the time

 15 that your evaluation of the bids was done, you were

 16 using the original cost estimates for TEC; is that

 17 correct? Because this was being done in -- what time

 18 did you do these evaluations?

 19 A The evaluation was done between when we

 20 received the bids, March 7th, and around April 11th.

 21 Q Of '06?

 22 A Yes.

 23 Q So that would have been prior to revising the

 24 construction costs for this unit?

 25 A That's correct.

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 1 Q Have you done any subsequent analysis with

 2 regard to the cost effectiveness of either of these bids

 3 using the new numbers for the TEC unit?

 4 A Yes, I did. I did -- I got the -- an updated

 5 number from Mr. Kushner. And I recalculated the

 6 comparison and it did not change the decision.

 7 Q Okay. And did you make a 20 percent increase

 8 in the cost of the Southern Company's bids as well?

 9 A No. No, that was -- I just -- I assumed that

 10 the Southern Company cost would -- would remain fixed.

 11 I just increased the cost of the self-build. Although

 12 the Southern bid was what they call an indicative bid

 13 which could have been increased by them within 45 days.

 14 Q Did you have any CO2 allowance included in the

 15 TEC busbar analysis you've just described?

 16 A I did a -- I did a base case and I did some

 17 sensitivity cases. I did a sensitivity case including

 18 CO2 allowances.

 19 Q Can you tell us how much the cost per ton for

 20 CO2 was that you used?

 21 A I used an assumption of -- a value of

 22 around $7 in 2012 per ton escalating at inflation.

 23 Q And that would be what rate, sir?

 24 A I'm sorry? Oh, two-and-a-half percent is what

 25 I said.

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 1 Q Two-and-a-half percent a year?

 2 A Per year, yes.

 3 Q There's different types of RFPs when it comes

 4 to power plants, and I want to make sure I understand

 5 the kind of RFP this was. Sometimes you put out an RFP,

 6 and then the recipient of the RFP determines that

 7 they'll further negotiate terms. Was that the type of

 8 bid this was or was this a flat nonnegotiated bid; in

 9 other words, whatever they put on their bid was what you

 10 had to stick with?

 11 A Well, we asked for a -- it was -- we were

 12 always hopeful to get a firm price, but the -- I guess

 13 the offer that we got was we had a firm price on one of

 14 them, which was the combined cycle offer, but we got

 15 indicative offer on the -- on the coal offer -- on the

 16 coal proposal. An indicative offer means that it's --

 17 the way they stated was once we -- they were short

 18 listed, they would have had 45 days to firm up their

 19 price.

 20 Q In other words, to modify the price they bid?

 21 A Yes.

 22 Q Did you make any attempt to contact them to

 23 see if they would further modify their price?

 24 A Well, what we did was an initial screening to

 25 see if they were within a proximity of the self-build

 944

 1 proposal which they were not. So it didn't -- it didn't

 2 seem like they were -- well, we presented those results

 3 in our report, that they were not close to the

 4 self-build offer.

 5 Q So you didn't approach the Southern Company

 6 again; is that correct?

 7 A To reduce their price?

 8 Q Yes.

 9 A No. Well, I -- we -- I expected by them

 10 giving the indicative offer, that it was more likely

 11 that it would go in the other direction.

 12 Q But you had no basis for that speculation?

 13 A No.

 14 Q I have only one other question which has to do

 15 with the transmission interconnection and upgrade cost

 16 which you reference on page 6 of your testimony.

 17 A I'm sorry, could you repeat that?

 18 Q On page 6 of your testimony, you talk about

 19 transmission interconnection and upgrade costs.

 20 A Yes.

 21 Q And can you tell me what adjustments were made

 22 regarding those costs?

 23 A On page 6 of my testimony?

 24 Q Yes, sir. You see down here on lines --

 25 starts on -- the question -- the answer starts on line

 945

 1 18, goes through page 20. "Inconsistencies among

 2 relative to transmission, interconnection and upgrade

 3 costs."

 4 A Okay. The proposal indicated that they had

 5 done a study and had indicated that there were -- that

 6 there were $125 million in upgrades required, but they

 7 didn't include it in their proposal. What I did was I

 8 added that 125 million to their proposal, but I also

 9 added the same amount to the self-build proposal.

 10 Q Okay.

 11 A And I -- the self-build proposal had a -- had

 12 a, I think, $12 million estimate in there, 11.7. I

 13 subtracted that out and added the 125 million, so that

 14 both of them would have the same amount of upgrades in

 15 their costs. And I made an adjustment for that.

 16 Q Okay. Did you do any analysis to see the

 17 nature of that transmission they were talking about?

 18 And let me tell you why I ask that question.

 19 We've heard testimony today that some types of

 20 transmission upgrades might be considered network

 21 improvements, and therefore, costs that would eventually

 22 be rebated back to a project and some might be

 23 transmission upgrades purely and directly associated

 24 with that project. Did you attempt to parse any of that

 25 out?

 946

 1 A No, I did not. I was -- I was assuming I

 2 would suppose a worst case scenario. And just assuming

 3 that, there was no credit back for either party.

 4 Q With -- and one other question, and I truly am

 5 done. With regard to the 784-megawatt bid, that was to

 6 be built in St. Lucie County, correct?

 7 A Yes.

 8 Q Did you add any land component for that bid?

 9 A A land component? No. They did not -- in --

 10 in the case of the coal unit, the proposal actually said

 11 it did not include site costs. And that they didn't say

 12 that in the combined cycle bid. So I did not add any

 13 additional site costs.

 14 MS. BROWNLESS: Thank you so much. I'm done.

 15 CHAIRMAN EDGAR: Ms. Paben?

 16 MS. PABEN: Just a few questions.

 17 CROSS-EXAMINATION

 18 BY MS. PABEN:

 19 Q Good afternoon, Mr. Arsuaga. How are you

 20 doing?

 21 A Good afternoon.

 22 Q I have just a few questions for you. In the

 23 RFP, was there a fee associated with making a bid for

 24 this proposal?

 25 A Yes.

 947

 1 Q And can you tell me what that fee was?

 2 A It was $5,000 per proposal.

 3 Q Okay. Would you consider that fee typical for

 4 a project of this size?

 5 A I've seen -- I've seen a range of fees from no

 6 fee to $10,000. You know, it's a large project. I

 7 don't think -- that's not an unusual fee.

 8 Q In other RFPs that you've been part of, have

 9 you had $5,000 bid for a similarly sized facility?

 10 A I've been involved with -- I have been

 11 involved with an RFP where there was a $10,000 fee for a

 12 smaller project.

 13 Q And what type of project was that?

 14 A It was a combined cycle project, a -- I can't

 15 recall the exact amount of megawatts, but I believe it

 16 was in the 500-megawatt range.

 17 Q Okay. At the prebid conference, you indicated

 18 that there were seven participants. Can you identify

 19 those seven participants?

 20 A I don't have that -- I don't have that -- I

 21 don't -- I could get those, the people, but I don't have

 22 that in front of me now.

 23 Q Is there anything that's included in the

 24 record here that would have that information for it?

 25 A I don't think so.

 948

 1 Q If it would be possible, could you provide

 2 that as a late-filed exhibit at a later time?

 3 MS. DAILEY: Madam Chairman, I'd like to

 4 object on the relevance of that request. There's

 5 no relevance to the issues in this proceeding, the

 6 identity of the attendees at that meeting.

 7 CHAIRMAN EDGAR: Ms. Dailey?

 8 MS. PABEN: Yes. I would argue that it's --

 9 CHAIRMAN EDGAR: I'm sorry, I apologize.

 10 MS. PABEN: That's okay. I didn't even notice

 11 you called me by a different name. I answer to

 12 just about anything with all of my siblings.

 13 I think it is relevant to the proceedings.

 14 One of the issues that the PSC has to take into

 15 consideration is whether or not it's the most cost

 16 effective. And obviously to have the full amount

 17 of information related to what other types of

 18 facilities may have been proposed is part of making

 19 those evaluations.

 20 CHAIRMAN EDGAR: And tell me again, if you

 21 would, the document that you are requesting.

 22 MS. PABEN: Simply asking for a list of those

 23 that participated in the prebid conference as

 24 referenced in their documents they've submitted

 25 before you.

 949

 1 MS. DAILEY: Madam Chairman, those are people

 2 who did not actually submit bids. So they did not

 3 have bids that were compared to other bids in this

 4 proceeding -- in this project.

 5 CHAIRMAN EDGAR: Okay.

 6 MS. PABEN: But they expressed an interest in

 7 the RFP originally. And part of determining

 8 whether or not the process was competitive in the

 9 way that it should be is determining whether or not

 10 there may have been any factors leading to a less

 11 than competitive arrangement to look at

 12 alternatives. And so I think that having that

 13 information could lend to that knowledge.

 14 CHAIRMAN EDGAR: And expression of potential

 15 interest to me seems to be a reach to get to

 16 competitive viability, quite frankly, if I'm being

 17 clear. If I'm not, I apologize. So I'm going to

 18 uphold the objection.

 19 MS. PABEN: I just have a couple of more

 20 questions.

 21 BY MS. PABEN:

 22 Q Can you tell me in the RFP process whether or

 23 not you put specific limitations on the type of power or

 24 fuel source associated with the proposed bids?

 25 A No. I think as I said on page 7 of the RFP,

 950

 1 it says, "The utilities prefer solid fuel and prefer

 2 mature technologies but the utilities will consider

 3 other fuel types and technologies if the evaluation

 4 shows these to be superior to solid fuel alternatives on

 5 the basis of the price and nonprice criteria."

 6 So it was very clear that other types of fuel

 7 were -- although they were not -- not as preferred as

 8 solid fuel, they were -- they would be considered.

 9 Q But also in the terms you just read, I would

 10 consider those some conditions, correct? It wasn't

 11 limitless?

 12 A It said, "will consider other fuel types and

 13 technologies."

 14 Q But within certain parameters, correct?

 15 MS. DAILEY: Madam Chairman, I would just like

 16 to object again. She's asking him to read from the

 17 document and the document really speaks for itself.

 18 It is in the record.

 19 CHAIRMAN EDGAR: Ms. Paben, your question?

 20 MS. PABEN: I'm just asking him to clarify

 21 because there are different portions of the

 22 document that can be read together. And so I'm

 23 just asking him from his perception as putting

 24 together the RFP what he --

 25 CHAIRMAN EDGAR: Why don't you pose the

 951

 1 question as a question again.

 2 BY MS. PABEN:

 3 Q I was just trying to clarify your response to

 4 the last question, which was just whether or not there

 5 was any limitations regarding the types of power or fuel

 6 sources associated with the facility. And if I

 7 understand your answer correctly, and please correct me

 8 if I misstate, you indicated you had a preference for

 9 solid fuel but would consider other power types. But I

 10 thought that in the sentence that you read, there were

 11 other -- some type of qualifiers that might not open the

 12 door for any other fuel source. That's all I was trying

 13 to clarify.

 14 A No, that's not correct. It wasn't a

 15 qualifier. It just said if -- if they were deemed

 16 superior based on price and nonprice criteria which is

 17 everything we're looking at associated with the

 18 alternative. Everything would fall into that category,

 19 price or nonprice.

 20 MS. PABEN: Okay. Thank you very much.

 21 CHAIRMAN EDGAR: Mr. Jacobs?

 22 MR. JACOBS: Thank you, Madam Chair.

 23 CROSS-EXAMINATION

 24 BY MR. JACOBS:

 25 Q Mr. Arsuaga, just two really brief questions.

 952

 1 I'm looking at Interrogatory No. 15 to staff's --

 2 applicant's response to staff's second set, No. 15. And

 3 it indicates in there that the -- the one point is fuel

 4 cost projections, that the fuel cost projections -- that

 5 the vendors use in their RFP responses were derived from

 6 Southern or supplied by Southern?

 7 A No. What it says is that what -- what I'm

 8 saying there is that we used for the Southern proposal

 9 the cost that was provided by Southern, but Southern was

 10 using the fuel forecast that was -- that was attached to

 11 the RFP. We -- we included with the RFP a fuel forecast

 12 for gas and many different types of coal to make sure

 13 that the process -- because fuel -- fuel would be a

 14 pass-through, you know. They weren't fixing the price

 15 of fuel, any proposer. So we wanted to make sure that

 16 fuel was being treated on a consistent basis.

 17 Q I see.

 18 A So we gave them a forecast to use so that we

 19 could make sure there would be a fair evaluation.

 20 Q And that forecast that was used for the RFPs,

 21 was that indeed the projection that was used for the

 22 preparation of the -- of the petition for need?

 23 A Yes, it was. It was the same as what was used

 24 for the base -- basic analysis, is my understanding.

 25 Q And then finally, you indicate here also that

 953

 1 Southern's response proposed Powder -- that the fuel for

 2 this -- their plant would be Powder River Basin?

 3 A Yes.

 4 Q And -- and the self-build was projected for a

 5 blend of 7 percent Latin American, 30 percent petroleum?

 6 A That is correct.

 7 Q Did you reconcile that difference in any way

 8 in evaluating Southern's proposal?

 9 A I did. I was asked by the applicants to do an

 10 analysis, just to see what that differential was. And I

 11 did look at -- I looked at using the Powder River Basin

 12 coal for the -- let's see. No, I used the -- I used the

 13 Latin American coal and the pet coke mix for the

 14 Southern proposal. And it -- it only made a difference

 15 of about $2 per megawatt hour. And it wasn't

 16 significant in the comparison of the two alternatives.

 17 It still gave me the same decision.

 18 Q In your evaluation of Southern's response, was

 19 there any indication of why they chose Powder River

 20 Basin?

 21 A I did -- they did not include a reason for why

 22 they selected that coal.

 23 MR. JACOBS: Thank you. No further questions.

 24 CHAIRMAN EDGAR: Other questions from staff?

 25 MS. BRUBAKER: Staff has no questions.

 954

 1 CHAIRMAN EDGAR: Ms. Dailey?

 2 MS. DAILEY: We have no redirect.

 3 CHAIRMAN EDGAR: Exhibits?

 4 MS. DAILEY: Yes. We would like to enter

 5 Exhibits 21 and 22 into the record.

 6 CHAIRMAN EDGAR: Exhibits 21 and 22 will be

 7 entered into the record.

 8 (Exhibits No. 21 and 22 admitted into the

 9 record.)

 10 Thank you. You are excused.

 11 Are we on Mr. Myers?

 12 MR. PERKO: Yes, Jim Myers, please. Could you

 13 please --

 14 CHAIRMAN EDGAR: I'm sorry, Mr. Perko.

 15 30 seconds. Really, 30 seconds.

 16 (Brief interruption.)

 17 CHAIRMAN EDGAR: Yes. We are going to keep

 18 going for a while. I am -- I am optimist. And I'm

 19 ready to go.

 20 MR. PERKO: Okay.

 21 CHAIRMAN EDGAR: Thank you.

 22 JIM MYERS

 23 was called as a witness on behalf of the Applicant, and

 24 having been duly sworn, testifies as follows:

 25 DIRECT EXAMINATION

 955

 1 BY MR. PERKO:

 2 Q Could you please state your name and business

 3 address for the record.

 4 A My name is Jim Myers, 21 West Church Street,

 5 Jacksonville, Florida, 32202.

 6 Q Mr. Myers, did you submit prefiled direct

 7 testimony consisting of 13 pages on September 19th, 2006

 8 in this proceeding?

 9 A Yes, I did.

 10 Q If I were to -- do you have any changes or

 11 additions to that testimony?

 12 A No.

 13 Q If I were to ask you the same questions today

 14 as set forth in that testimony, would your answers be

 15 the same?

 16 A Yes, they would.

 17 Q Are you sponsoring any exhibits with that

 18 testimony?

 19 A Yes, I am.

 20 Q What are those exhibits?

 21 A JM-1 through 5 --

 22 Q I believe those --

 23 A -- are the numbers that I have.

 24 Q I believe those have been marked as

 25 Exhibits 26 through 30; is that correct?

 956

 1 A That's correct.

 2 Q Are you sponsoring the sections of the

 3 application that have been marked as Exhibit No. 31?

 4 A Yes.

 5 Q Do you have any changes or additions to those

 6 sections other than what appears in the errata sheet

 7 that's been offered into -- or included into evidence as

 8 Exhibit 3?

 9 A No, I do not.

 10 Q Thank you. Have you --

 11 MR. PERKO: At this time, Madam Chair, I'd

 12 move Mr. Myers' prefiled direct testimony into the

 13 record as though read.

 14 CHAIRMAN EDGAR: The prefiled testimony will

 15 be entered into the record as though read.

 16

 17

 18

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 970

 1 BY MR. PERKO:

 2 Q Mr. Myers, have you prepared a summary of your

 3 prefiled testimony?

 4 A Yes, I have.

 5 Q Could you please provide that now.

 6 A Yes. The purpose of my testimony is to

 7 present the fuel strategy for Taylor Energy Center which

 8 was developed by the fuels committee for which I served

 9 as chairman.

 10 Generally, that strategy is to take advantage

 11 of multiple fuel sources and transportation options to

 12 promote supplier competition for both fuel and

 13 transportation over the life of the facility.

 14 A blend of Latin American coal and petroleum

 15 coke is expected to provide the lowest production cost.

 16 Powder River Basin and central Appalachian coals are

 17 also potential competitive options. Petroleum coke and

 18 international coal supplies will be transported by

 19 vessel to one of several U.S. terminals and transloaded

 20 to rail for delivery to Taylor Energy Center. Multiple

 21 rail carriers and routes exist for the reliable

 22 transportation of domestic coal supplies.

 23 Contracts for fuel supply and transportation

 24 will be established in a timely manner prior to unit

 25 operation. The combination of abundant supply options

 971

 1 and multiple transportation sources will allow Taylor

 2 Energy Center to be reliably supplied with competitively

 3 priced fuel. The Taylor Energy Center fuels committee

 4 oversaw the development of reasonable delivered fuel

 5 price forecasts that include all appropriate cost

 6 components for use in the overall project evaluation.

 7 This concludes my summary.

 8 MR. PERKO: We tender the witness for

 9 cross-examination.

 10 CHAIRMAN EDGAR: Thank you.

 11 Ms. Brownless?

 12 MS. BROWNLESS: Yes.

 13 CROSS-EXAMINATION

 14 BY MS. BROWNLESS:

 15 Q Hi, Mr. Myers.

 16 A Hello.

 17 Q Are you in charge of TEC fuels, the group

 18 comprised of the four utility members?

 19 A I serve as chairman of that committee.

 20 Q Okay. And this is the group that developed,

 21 delivered fuel prices for TEC for the various types of

 22 coal, pet coke, natural gas, residual fuel oil and

 23 diesel?

 24 A Yes.

 25 Q And are those various prices set out in I

 972

 1 think what's been marked staff exhibits or Exhibits 27

 2 through 30 and those are your JM-2 through JM-5?

 3 A Yes.

 4 Q Okay. And just so I kind of understand the

 5 process, did you start out with Mr. Preston's fuel

 6 numbers and then adjust them according to your group's

 7 actual experience?

 8 A No. Mr. Preston provided commodity priced

 9 forecasts transportation rates, and we converted -- and

 10 that was in 2005 dollars. So it was in real dollars.

 11 We converted the numbers to dollars per MMBtu on a

 12 current year basis.

 13 Q Okay. And I guess -- so these are

 14 Mr. Preston's numbers that have been converted on a

 15 MMBtu basis. There were not any changes other than that

 16 between Mr. Preston's numbers and your numbers?

 17 A Well, we did add a transloading cost to make

 18 sure we accounted for that component for delivering fuel

 19 from -- taking it from vessel to a railcar. And we also

 20 added variable cost components for natural gas.

 21 Q Okay. So is it fair to say that this is your

 22 group's best estimate of what the actual delivered costs

 23 will be at TEC?

 24 A Yes.

 25 Q Including all the costs?

 973

 1 A Yes.

 2 Q Now, were these the prices that were used in

 3 Mr. Kushner's IRP analyses the ones that you developed?

 4 A The prices in Mr. Kushner's analysis for the

 5 overall project were these prices, yes.

 6 Q Okay. Now, I'm looking at the very first

 7 chart which is Exhibit 27, current year dollars per

 8 MMBtu delivered base case. Have you got that one?

 9 A Let me get there.

 10 MR. PERKO: I believe for the witness that's

 11 Exhibit JM-2.

 12 MS. BROWNLESS: I'm sorry.

 13 BY MS. BROWNLESS:

 14 Q It's the very first chart.

 15 A Got it.

 16 Q I'm looking down here where it says natural

 17 gas. The first line says, "commodity." And the second

 18 like says, "commodity and variable charges." Are the

 19 variable charges what you just discussed?

 20 A Yes.

 21 Q So the commodity would be the price provided

 22 by Mr. Preston?

 23 A Yes.

 24 Q Now, it looks to me as a layman that the

 25 natural -- in your base case, natural gas prices

 974

 1 decrease until 2011 and then increase after that date;

 2 is that correct?

 3 A Yes, that's correct.

 4 Q Okay. And is that also true for the gas

 5 prices in the other sensitivities which are your JM-3,

 6 JM-4 and JM-5?

 7 A Yes, that's correct.

 8 Q Do you know whether the availability of

 9 natural gas would increase after the year 2016?

 10 A 2016 is -- is -- when you talk about 2016,

 11 you're getting pretty far out there, and I would

 12 hesitate to speculate on the availability of gas at that

 13 point in time.

 14 Q Is it fair to say that most fuel price

 15 forecasts are fairly accurate within a year or two, and

 16 longer than that, the longer out you get, the more

 17 inaccurate they become?

 18 A Actually there's times when the near term

 19 forecast could be even more inaccurate because there's

 20 some volatility that moves prices around quite a bit

 21 especially in the natural gas market. I noticed natural

 22 gas dropped -- the futures dropped, I believe, 46 cents

 23 per MMBtu from yesterday's close. So it's -- but what

 24 we're dealing with in the long-term is expectations,

 25 and, you know, there's some underlying assumptions that

 975

 1 go into this. So we may not be totally accurate in a

 2 given year, but the numbers are based on a reasonable

 3 set of expectations for what may occur in the future.

 4 Q Okay. And I'm just trying to nail this one

 5 specific thing down. Is one of those assumptions for

 6 the year 2016 and thereafter that natural gas

 7 availability will increase?

 8 MR. PERKO: Objection. Madam --

 9 MS. BROWNLESS: If he knows, he knows. If he

 10 doesn't, he doesn't. We'll move on.

 11 MR. PERKO: I think we're going beyond the

 12 witness's testimony. She's talking about the total

 13 gas -- delivered prices of fuels. We have another

 14 witness to address --

 15 MS. BROWNLESS: We're just talking about

 16 natural gas. That's it.

 17 THE WITNESS: We're talking about

 18 availability?

 19 BY MS. BROWNLESS:

 20 Q Yes, sir.

 21 A I can't answer that question in 2016, to be

 22 honest.

 23 Q Thank you, sir.

 24 Did Mr. Preston use these numbers in his

 25 CO2 sensitivity analysis which was his MP-5 and I think

 976

 1 the Commission's Exhibit 40?

 2 A He ran a CO2 sensitivity and it had a set of

 3 assumptions in developing that, and I would defer to

 4 Mr. Preston on how that was developed.

 5 Q Okay. So you don't know whether he used your

 6 fuel numbers or his own?

 7 A Well, he used -- you know, he developed the

 8 commodity price forecast in all cases.

 9 Q I understand that, but -- I understand that.

 10 I'll follow it up with Mr. Preston.

 11 MS. BROWNLESS: That's all we have. Thank

 12 you.

 13 CHAIRMAN EDGAR: Mr. Paben?

 14 MR. PABEN: No questions. Thank you.

 15 CHAIRMAN EDGAR: Thank you.

 16 Mr. Jacobs?

 17 MR. JACOBS: Thank you. Very briefly.

 18 CROSS-EXAMINATION

 19 BY MR. JACOBS:

 20 Q Mr. Myers, you are -- in your -- the scope of

 21 your work with the fuels committee, I'm sure you

 22 explored many of the circumstances in the coal commodity

 23 markets and fuel delivery markets at this point in time?

 24 A I would consider myself familiar with those

 25 areas, yes.

 977

 1 Q Did you provide the benefit of your analysis

 2 to -- to Mr. Kushner in support of his cost projections,

 3 or did he develop his own assessment of how those

 4 factors affected the coal prices?

 5 A I'm not sure I understand which factors of

 6 Mr. Kushner you're referring to.

 7 Q What I'm speaking are -- well, let me ask the

 8 question this way: Are you aware if Mr. Kushner

 9 integrated variables in his projections that address the

 10 volatility issues that are occurring in coal markets --

 11 commodity markets and coal fuel delivery markets?

 12 A I'm aware that Mr. Kushner in the running of

 13 his models and development of projections made

 14 assumptions concerning factors that need to go into the

 15 model to run the model, but I'm not aware of the -- the

 16 assumptions that you're speaking of.

 17 Q Okay. There -- there is an issue outstanding

 18 of whether or not the owners of TEC should purchase

 19 railcars. Are you familiar with that issue?

 20 A Yes, I am.

 21 Q Can you just explain for us what the basis of

 22 that issue is?

 23 A That's an issue for determination in the

 24 future. In the analysis that we have here, railcar

 25 leasing costs have been assumed. So we have the cost of

 978

 1 railcars covered in these numbers. From time to time a

 2 utility may lease cars, they may purchase cars for the

 3 long-term, and we will be making that decision. There's

 4 some considerations that will need to be made based on

 5 the ultimate route selected for delivery of fuel.

 6 If we do go forward with Latin American coal

 7 and petroleum coke, both of those would arrive by water

 8 to a terminal location, and that would have different

 9 mileage considerations than if we were bringing fuel

 10 from the Powder River Basin over 2,000 miles. And those

 11 types of considerations would impact the decision that

 12 we make on purchasing or leasing railcars.

 13 Q And finally, I note that in your analysis and

 14 we've heard prior testimony, that the primary fuel

 15 strategy for Taylor Energy is that it would use Latin

 16 American coal supplemented by pet coke with the option

 17 of using Powder River Basin.

 18 Is there a -- is that scenario analysis of

 19 when that -- or why or when that choice would occur?

 20 A The fuels committee has not put down a

 21 detailed schedule of when that would need to be made.

 22 But backing up, I see that that decision would probably

 23 be made by mid-2009 at the latest.

 24 Q And if -- when made, I'm assuming that it

 25 would be made in sufficient time to acquire any

 979

 1 additional infrastructure that you described previous

 2 that would be needed to --

 3 A That's correct.

 4 MR. JACOBS: Thank you very much.

 5 CHAIRMAN EDGAR: Questions from staff?

 6 MS. HOLLEY: No questions.

 7 CHAIRMAN EDGAR: Just a moment. Commissioner

 8 Carter?

 9 COMMISSIONER CARTER: I guess there's no

 10 secret to anybody that I'm intrigued with the

 11 railcars.

 12 THE WITNESS: Okay.

 13 COMMISSIONER CARTER: In your anticipation of

 14 the purchase of these cars or the lease of these

 15 cars, did that -- what impact did that have on the

 16 price of getting the fuel from point A to point B?

 17 You were probably here yesterday when we had that

 18 discussion.

 19 THE WITNESS: Yes. That component in our

 20 assumptions is two mills per ton mile. Basically

 21 that's .002 dollars per ton mile per year. And

 22 depending on how -- how many railcars we need, how

 23 many miles we're actually moving the product, that

 24 would vary, the actual dollars that are involved.

 25 But if we're using a short haul from -- that ended

 980

 1 up being Jacksonville --

 2 COMMISSION CARTER: For 100 cars.

 3 THE WITNESS: For around there, yeah. We're

 4 probably talking about $700,000 a year. And that's

 5 included in the delivery costs from the

 6 Hellerworx -- from Matt Preston subbed out to

 7 Hellerworx. Hellerworx actually developed those

 8 projections.

 9 COMMISSION CARTER: Thank you, Madam Chair. I

 10 don't want to belabor the point. Whenever I hear

 11 the trains, the bells and the whistles go off. And

 12 maybe we'll find someone that can ask further

 13 details later on about this. Thank you.

 14 CHAIRMAN EDGAR: Mr. Perko?

 15 MR. PERKO: We do have a little bit of

 16 redirect.

 17 But, Commissioner Carter, I think this

 18 probably would be the witness if you have

 19 additional questions about the rail traffic and the

 20 cost.

 21 COMMISSION CARTER: With your indulgence,

 22 Madam Chair.

 23 CHAIRMAN EDGAR: Yes, sir.

 24 COMMISSION CARTER: Yeah. I would like to

 25 know how this purchasing the cars versus leasing

 981

 1 the cars, the impact that it has upon the cost of

 2 transportation as well as the cost of operating. I

 3 would think we got into this discourse about

 4 maintenance and operation for the plant. I mean,

 5 is this -- we're talking about a need

 6 determination. Does this increase the price or

 7 decrease the price?

 8 THE WITNESS: Well, we're going to have to

 9 have railcars one way or the other because, you

 10 know, definitely we're -- whether we're utilizing

 11 water delivery, it's only to a certain point. So

 12 we are going to have railcars.

 13 And then there's a matter of is it going to be

 14 more cost effective to lease or to buy. And

 15 there -- there -- there are instances where

 16 municipal utilities have found that buying cars may

 17 be cheaper because of the tax exempt status of a

 18 municipal utility. And those are the things that

 19 we're going to be evaluating.

 20 But we have reasonable cost in there for the

 21 railcars. And that's -- you know, typically a

 22 railcar costs between -- you know, the price like

 23 any commodity fluctuates, but the price of a

 24 railcar could range from $400 per month to, say,

 25 $650 per month. That might be a typical range.

 982

 1 COMMISSION CARTER: I probably should have

 2 asked our last witness this question, but the

 3 railcar got my -- Madam Chairman, with your

 4 indulgence.

 5 But the railcar got my attention. In your

 6 cost projections or financial analysis, do you guys

 7 look at the -- I know that we're talking about fuel

 8 diversity. So let's assume, for example, that's

 9 not part of what I'm asking you. Let's -- there's

 10 a system of gas pipelines that goes throughout the

 11 state of Florida. And I think there was a

 12 discussion about 750-megawatt gas plant down in

 13 St. Lucie. Were you here when they were talking

 14 about that?

 15 THE WITNESS: I'm not sure I heard that, but

 16 I'm familiar with the gas industry as well.

 17 COMMISSIONER CARTER: Okay. Thank you then.

 18 Well, my question would be, then, is that the cost

 19 of that -- I know we say that natural gas -- the

 20 price fluctuates. I know we said the City of

 21 Tallahassee is 90 percent on gas. But in the

 22 context of determining what is the best possible

 23 alternative, what would be the cost of buying gas

 24 on the pipeline setting up the 750-megawatt gas

 25 plant down in St. Lucie versus building a coal

 983

 1 plant in Taylor County?

 2 Was that part of -- I know that you were not

 3 the guy that handled the RFP. I probably should

 4 have asked it earlier. I'm just trying to find --

 5 I know sometimes when you ask questions like this,

 6 people say you're mixing apples and grapefruits.

 7 I'm really trying to find out what's the real

 8 number here.

 9 THE WITNESS: I think I can comment on that.

 10 From a fuel standpoint, natural gas is more

 11 expensive than solid fuel, coal and petroleum coke.

 12 However, typically the capital cost of a gas-fired

 13 plant would be lower on a dollar per kW basis. So

 14 you really need to match the existing mix of a

 15 utility and the load curve in the projections going

 16 forward to determine the type of unit that is

 17 needed. Where a solid fuel unit typically meets

 18 base load requirements and you would want to have a

 19 coal and petroleum coke unit run on a continual

 20 basis, a combined cycle unit, for example, can go

 21 up and down on a daily basis.

 22 So again, getting back to the fuel diversity,

 23 there's a -- it's helpful when a utility has a mix

 24 of generating resources. And one thing I can say,

 25 and it probably has already been said, but when I

 984

 1 came to work at JEA, that's been a little over

 2 25 years ago, we were -- I remember my boss telling

 3 me, you know, when you go to work, just -- or when

 4 you go to a store and they ask for your ID, just

 5 tell them you work for the city because they didn't

 6 like us too well. We had very high rates.

 7 Now, if we're not No. 1, we're No. 2 in the

 8 state of Florida. And a lot of that has to do with

 9 the fact we've brought in petroleum coke; we've

 10 brought in natural gas when all we had was oil.

 11 We've brought coal by wire. We've -- we used

 12 Powder River Basin coal with a unit that we owned

 13 with Florida Power & Light near Macon, Georgia.

 14 We've used central Appalachian coal, and we've used

 15 Latin American coal. In fact, with our CFBs that

 16 we have at JEA, we're now using a blend of

 17 petroleum coke from St. Croix and the Gulf coast

 18 with Latin American coal from Columbia. And just

 19 putting all of these pieces together has -- has

 20 been effective. That's on the supply side.

 21 And we're doing what we believe to be the

 22 right things on the demand side as well because

 23 there's definitely the components on the demand

 24 side and with renewables.

 25 COMMISSION CARTER: And just one final

 985

 1 statement. This is not really a question. Just

 2 one final statement, Madam Chairman. The reason I

 3 was saying that is that the -- in the -- I applaud

 4 your DSM efforts, by the way. I think I said that

 5 earlier today and as well as with Mayor Marks when

 6 he was here for the City of Tallahassee, is that it

 7 just seems to me that -- and I'm just kind of

 8 thinking aloud -- is that it may be cheaper in the

 9 short run, but you don't have trains with the gas.

 10 You just tap in.

 11 Of course, in addition to that, you say well,

 12 there's no -- you would have to tap into the

 13 pipeline but you could also have a storage

 14 facility.

 15 That's probably a different discussion for a

 16 different day. It's just interesting to me that

 17 today was the first time I've heard about this gas

 18 in this context. Because when the trains go off,

 19 you know, then my brain starts clicking.

 20 THE WITNESS: There's -- if I can add this:

 21 There is transportation associated with natural gas

 22 too that has to be paid for. We take a portion of

 23 our gas on the Florida gas transmission pipeline.

 24 They have a couple of rate schedules, FTS-1 and

 25 FTS-2. And I don't have the exact numbers here,

 986

 1 but on FTS-1, which is the cheaper reservation

 2 charge, just to move gas in the pipe to have firm

 3 transportation, we pay about 38 cents per MMBtu of

 4 gas capacity. And we have -- overall we have

 5 54,000 MMBtu a day of gas transportation. Fourteen

 6 thousand of that is FTS-2. And that's close to

 7 80 cents an MMBtu.

 8 So to reserve with the right to move gas on

 9 the pipeline on a firm basis, there's a significant

 10 cost there as well. So I know what the IRP study

 11 does, is that it takes into account all of the

 12 costs associated with natural gas and coal and

 13 including the railcars which are a piece of that

 14 cost as well. And our IRP study has shown that

 15 Taylor Energy Center is the right decision for this

 16 unit.

 17 COMMISSION CARTER: Thank you, Madam Chair.

 18 MR. PERKO: Just a little on redirect,

 19 Madam Chair, if I could.

 20 REDIRECT EXAMINATION

 21 BY MR. PERKO:

 22 Q Mr. Myers, just so it's clear, you mentioned

 23 that you developed -- you essentially developed the

 24 delivered cost of the fuel based on the prices that

 25 Mr. Preston gave you; is that correct?

 987

 1 A Yes.

 2 Q Now, I wanted to make sure, I believe you said

 3 that those costs that you included, included

 4 transloading costs?

 5 A Yes.

 6 Q And also included other costs like rail

 7 vessel, is that --

 8 A That's correct.

 9 Q Now, how did you account for rail costs?

 10 A Excuse me. Well, with rail costs in the

 11 forecast that was provided by Mr. Preston, we had

 12 forecasted rates for each of the -- each of the coal

 13 regions. For example, we considered central Appalachian

 14 coal, so we had a price for transportation coming from

 15 the central Appalachian region to the Taylor Energy

 16 Center. We also had a price coming from the Powder

 17 River Basin. And as you can probably expect, the price

 18 for moving coal from the Powder River Basin to Taylor

 19 Energy Center was greater, because there's a greater

 20 distance to move that.

 21 We also had the cost to move coal from one of

 22 the terminals or the various terminals that we may

 23 access for fuel coming by water. So we added that cost

 24 onto the commodity cost. Then we also added the -- for

 25 fuels coming by water, we added the transloading cost as

 988

 1 well and arrived at an overall delivered cost.

 2 Now, the cost there for the rail delivery

 3 included that railcar cost as well and the maintenance

 4 on the railcars.

 5 Q Did your delivered cost estimates also include

 6 pipeline transportation costs for natural gas?

 7 A They included the variable charges but did not

 8 include the reservation charges.

 9 Q Now, I understand that you -- if -- correct me

 10 if I'm wrong, but I believe your testimony was that you

 11 included the cost of railcars for leasing as part of the

 12 cost?

 13 A That's correct.

 14 Q And when would you -- why would you decide to

 15 go with owning cars instead of leasing? Was it because

 16 it's more cost effective?

 17 A That's right. If we get a better rate, we

 18 would -- we would purchase cars and we expected to use

 19 that same number of cars. If there was any question,

 20 you know, perhaps if we went to Powder River Basin, one

 21 of the beauty of -- of our fuel plan here is there's --

 22 you know, the unit is being built to use various types

 23 of fuel from different basins.

 24 If we needed to switch to Powder River Basin

 25 for a period of time, and we may not continue to use

 989

 1 those cars over the long-term, we may lease an

 2 additional amount of cars to allow us to bring coal a

 3 longer distance.

 4 MR. PERKO: Thank you. No further questions.

 5 CHAIRMAN EDGAR: Exhibits?

 6 MR. PERKO: Yes. If we can move Exhibits 26

 7 through 31 in the record, please.

 8 CHAIRMAN EDGAR: Seeing no objection,

 9 Exhibits 26 through 31 will be moved into the

 10 record.

 11 (Exhibits No. 26, 27, 28, 29, 30 and 31

 12 admitted into the record.)

 13 And the witness can be excused, thank you.

 14 That brings us to Mr. Preston.

 15 MR. PERKO: Let's call Matt Preston to

 16 the stand, please.

 17 CHAIRMAN EDGAR: Let's take a few. We'll come

 18 back at 5 minutes to.

 19 MR. PERKO: Thank you.

 20 (Break taken.)

 21 CHAIRMAN EDGAR: Okay. We are back on the

 22 record. It is by my clock about 10 after 6:00. I

 23 was very, very hopeful that we could get done

 24 tonight. I would still be very pleased if we can

 25 get done tonight and I'm interested in trying to do

 990

 1 that.

 2 However, it is my understanding that we have a

 3 number of conflicts late this evening. And

 4 recognizing that it is Friday night and that it

 5 is -- has been a very long week, I think, for

 6 everybody, I'm thinking that we can go to about

 7 8:00-ish depending on, you know, if there's a

 8 natural break right around there.

 9 And then as I mentioned earlier in the week,

 10 whatever day that was, that we've been able to

 11 clear some time for Thursday. Looks like we

 12 could -- we do have some business first thing in

 13 the morning, but then -- in the 10:30 range. So

 14 think on that. And right now we'll go till again

 15 about 8:00. If we do not finish, whatever we need

 16 to do legally to notice and all of that,

 17 Ms. Brubaker --

 18 MS. BRUBAKER: All we have to do is announce

 19 it before we adjourn for the day.

 20 CHAIRMAN EDGAR: Okay. Then we will plan to

 21 come back Thursday and begin our business then to

 22 conclude Thursday after the already-scheduled

 23 appointment that we have. So that will be about

 24 10:30.

 25 Okay. Any questions about any of that?

 991

 1 Okay. Then the next witness.

 2 MR. PERKO: Matthew Preston.

 3 MATTHEW PRESTON

 4 was called as a witness on behalf of the Applicant, and

 5 having been duly sworn, testifies as follows:

 6 DIRECT EXAMINATION

 7 BY MR. PERKO:

 8 Q Could you please state your name and business

 9 address for the record.

 10 A Matthew Preston, 222 Severn Avenue,

 11 Annapolis, Maryland.

 12 Q Mr. Preston, have you been sworn?

 13 A Yes, I have.

 14 Q And, Mr. Preston, did you file or submit

 15 prefiled testimony consisting of 22 pages on

 16 September 19th, 2006 in this proceeding?

 17 A Yes, I have.

 18 Q Do you have any changes or additions to that

 19 testimony?

 20 A No.

 21 Q If I were to ask you the same questions in

 22 that testimony today, would your answers be the same?

 23 A Yes.

 24 Q Are you sponsoring any exhibits with that

 25 testimony, specifically Exhibits 36 through 40 as

 992

 1 indicated on the staff's comprehensive exhibit list?

 2 A Yes.

 3 Q Do you have any changes or additions to

 4 that --

 5 A No, I do not.

 6 Q -- two exhibits?

 7 Are you also sponsoring sections of the cases

 8 listed on Exhibit No. 41 in the staff's comprehensive

 9 exhibit list?

 10 A Yes.

 11 Q Do you have any changes or additions to those

 12 sections of the application?

 13 A No, I don't.

 14 Q Now, Mr. Preston, did you also submit rebuttal

 15 testimony consisting of eight pages on November 21st,

 16 2006?

 17 A Yes, I did.

 18 Q Do you have any changes or additions to that

 19 testimony?

 20 A No, I don't.

 21 Q If I were to ask you the same questions today,

 22 would your answers be the same?

 23 A Yes, they would.

 24 Q And are you sponsoring Exhibit 42-R with that

 25 rebuttal testimony?

 993

 1 A Yes.

 2 Q Do you have any changes or additions to that

 3 exhibit?

 4 A No, I don't.

 5 MR. PERKO: With that, Madam Chairman, we

 6 would move Mr. Preston's prefiled direct testimony

 7 and rebuttal testimony into the record as if read.

 8 CHAIRMAN EDGAR: The prefiled direct and

 9 rebuttal testimony will be entered into the record

 10 as though read.

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 1024

 1 BY MR. PERKO:

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

 3 your prefiled direct testimony?

 4 A Yes, I have.

 5 Q Could you please provide that now.

 6 A The purpose of my testimony is to describe the

 7 forecast of coal, pet coke and emission allowance prices

 8 that are provided for the Taylor Energy Center. The

 9 underpinning of my analysis is Hill & Associates

 10 proprietary PRISMTM model. PRISMTM is a linear program

 11 designed to optimize the cost of meeting the electric

 12 demand of U.S. and Canada while meeting all

 13 environmental constraints. The output of the model

 14 provides a long-term outlook on coal prices and emission

 15 allowance prices.

 16 In my analysis, Florida was assumed to

 17 participate in the EPA's natural care around CAMR

 18 programs. In addition to the base case, I provided a

 19 high case and a low case forecast and a CO2 case

 20 sensitivity analysis. All the coal basin studied are

 21 projected to have sufficient reserves and mining

 22 capacity to meet the potential requirements of Taylor

 23 Energy Center.

 24 By coal, pet coke, emission allowance price

 25 forecasts were developed in an integrated fashion

 1025

 1 reflecting worldwide market forces. This concludes my

 2 summary.

 3 Q Mr. Preston, did you also prepare a summary of

 4 your rebuttal testimony?

 5 A Yes, I have.

 6 Q Could you please provide that now.

 7 A The purpose of my testimony is to rebut

 8 Ms. Deevey's criticisms of the assumptions underlying

 9 Hill & Associates' CO2 allowance forecast. Hill &

 10 Associates' CO2 allowance price forecast is an output of

 11 the PRISMTM model. Because PRISMTM includes the

 12 influence of many factors, emission price forecasts

 13 produced by the model can fluctuate. Historically

 14 emission allowance prices have also fluctuated in

 15 response to changes in the fundamentals of supply and

 16 demand. As there is no existing nationwide scenario

 17 regarding the limiting of greenhouse gas emissions and

 18 there are many competing proposals, I had to develop a

 19 plausible future scenario limiting CO2 emissions.

 20 Considering the long lead time to make large

 21 scale changes in the demand, supply and distribution of

 22 electricity and the potential shock to electric rates

 23 and availability that a restrictive CO2 cap would

 24 engender, the functional limit for CO2 emissions from

 25 power plants was increased 10 percent beyond the year

 1026

 1 2000 emission level.

 2 I reduced the growth rate of electrical demand

 3 to no more than 1 percent per year assuming that states

 4 would support demand side management programs and

 5 efficiency standards and individuals might limit

 6 electricity requirements if for no other reason then

 7 electricity prices may or wouldn't be higher.

 8 I also assumed that states would more

 9 generally stipulate renewable standards as many have

 10 already done. Although state programs would likely vary

 11 widely, I applied 12 percent generically for the purpose

 12 of developing the CO2 case. Any CO2 emissions

 13 associated with electricity requirements for uranium

 14 enrichment for new nuclear capacity is accounted for in

 15 PRISMTM.

 16 I assumed that CO2 allowances from other

 17 industries would be available for generating unit

 18 compliance in the interest of maintaining affordable

 19 electricity rates. I also believe it is unlikely that

 20 owner/operators of power plants will profit from

 21 receiving offsets from other sectors of the economy.

 22 This concludes my rebuttal testimony.

 23 MR. PERKO: And we tender the witness for

 24 cross-examination.

 25 CHAIRMAN EDGAR: Thank you.

 1027

 1 Ms. Brownless?

 2 CROSS-EXAMINATION

 3 BY MS. BROWNLESS:

 4 Q Good evening, Mr. Preston.

 5 A Good evening.

 6 Q To start off with, Mr. Preston, did you

 7 sponsor answer No. 2 through 13, 15 and 17 of NRDC's

 8 first set of interrogatories, and that's Exhibit

 9 No. 108?

 10 A Which are those numbers again, please.

 11 Q The numbers are 2 through 13, 15 through 17.

 12 A And that's the NRDC's --

 13 Q Yes, sir. NRDC's first set of

 14 interrogatories, Nos. 1 through 26. And I got that off

 15 of page 22, Mr. Preston. There's a list of the

 16 interrogatories there that you sponsored.

 17 A Okay. Here we go. Now I'm getting there.

 18 Okay. So 2 --

 19 Q Two through 13.

 20 A Yes.

 21 Q And 15 through 17.

 22 A Yes, I did.

 23 Q Okay. Thank you.

 24 And are those true and correct to the best of

 25 your knowledge and belief?

 1028

 1 A Yes.

 2 Q And I'm going to try to go through this real

 3 quick because it's real late. But your PRISMTM model is

 4 a program that forecasts fuel costs and it forecasts

 5 fuel costs for pet coke and coal; is that correct?

 6 A It -- for coal, that is correct. For -- it

 7 produces a -- a -- an observation, I guess you would

 8 call it, of pet coke, but that is not the forecast that

 9 was actually used in this proceeding because pet coke

 10 has its own fundamentals that must be addressed.

 11 Q Okay. As I understand it, if I'm looking at

 12 your Exhibit No. 40, which is MP-5 which is the

 13 CO2 sensitivity study --

 14 A Okay.

 15 Q Okay. Pace global did the natural gas and the

 16 distillate oil forecast here?

 17 A Yes, they did.

 18 Q And all transportation cost for coal, pet

 19 coke, natural gas were done by some other entity,

 20 correct?

 21 A For the purposes of developing the TEC RFP,

 22 yes. Those were performed by -- the rail transportation

 23 was performed by Hellerworx, the overseas transportation

 24 was performed by Simpson, Spence & Young.

 25 Q Okay. As I understand it, the PRISMTM model

 1029

 1 covers the entire United States and Canada because it's

 2 an interconnected grid; is that right?

 3 A That's right.

 4 Q And the database, your basic database, is

 5 every electric generating unit and most industrial units

 6 that produce over 25 megawatts of power; is that right?

 7 A There are probably some that aren't in there

 8 that have just been developed or come on line in the

 9 last year or two. But to the greatest extent that we

 10 can identify, that's true.

 11 Q Okay. And you get all that information off

 12 energy information forms 860 and 861?

 13 A Yes, that's true.

 14 Q Okay. And then you also model transmission

 15 flows using a hub and spoke system?

 16 A That's correct.

 17 Q And that also takes into account all of the

 18 electric control areas in the United States and Canada?

 19 A Yes.

 20 Q Okay. Now, as I understand the inputs into

 21 your computer model, they are electricity demand inputs

 22 as forecasted by the energy information agency --

 23 A The electricity demand --

 24 Q Yes, sir.

 25 A -- that's right.

 1030

 1 Q And then you have hub gas price forecast,

 2 published hub gas price lists that are a data input?

 3 A Yeah. The Henry hub price which is sort of

 4 the seed price for natural gas, it's the marker price

 5 used in the United States to identify the commodity

 6 price of gas was provided by Pace Global. The basis or

 7 the transportation cost of that gas to various parts of

 8 the country was developed from periodicals available in

 9 the industry.

 10 Q Okay. And that's your hub and spoke idea for

 11 gas?

 12 A Well --

 13 Q I'm sorry, strike that. We'll move on.

 14 You also modeled the operational details of

 15 each plant which would include the heat rate, the

 16 variable O&M, what type of emissions control equipment

 17 were on those plants; is that correct?

 18 A Right. The plant's model included that piece

 19 of information, yeah.

 20 Q And also the emission limits for the plants,

 21 correct?

 22 A That's correct.

 23 Q And all of that information is from various

 24 EIA forms?

 25 A Yes, and any anecdotal that we have come

 1031

 1 across in the process of working for clients.

 2 Q Now, you have estimates as an input also of

 3 all the production costs for every coal mine in the

 4 United States and Latin America; is that right?

 5 A Yes, that's true.

 6 Q And that also includes transmission costs

 7 between control areas if this is included as an input

 8 for electricity?

 9 A For the hub and spoke, yes. We estimate the

 10 cost of -- transmission cost between control areas, yes.

 11 Q The assumptions with regard to CAMR and CAIR,

 12 the regulations for SO2, NOx and mercury are federal

 13 standards; is that right?

 14 A That's generally how we applied it, yes.

 15 Q And was that used in this case?

 16 A Yes.

 17 Q And the final input or one final major input

 18 is the cost for emission control equipment; is that

 19 correct?

 20 A Yes, it is.

 21 Q And for IGCC units, does that include the

 22 ability to partially sequester carbon, CO2?

 23 A Yes. We assume that -- we provided to the

 24 model the option to build IGC units that would

 25 partially -- could partially sequester CO2.

 1032

 1 Q Okay. Now, those are the major inputs into

 2 the model, the data that you input.

 3 The major outputs of this model are the coal

 4 price forecasts that we see on Exhibit No. 40; is that

 5 right?

 6 A Yes.

 7 Q Okay. And you can also use this model to

 8 output the bulk power market prices in dollars per

 9 megawatt hour?

 10 A Yes.

 11 Q And emission prices as are listed on this

 12 exhibit which is SO2, NOx, mercury and CO2?

 13 A That's correct.

 14 Q Okay. Now, every time you run this model, do

 15 you get the outputs for each category listed on Exhibit

 16 No. 40? In other words, does the cost number fall out

 17 for each one of these identified things?

 18 A Yes, that's true.

 19 Q So every time you run it, you get a

 20 CO2 emission offset price?

 21 A Only if we've instructed -- if we've provided

 22 a constraint in the model, which this is how the model

 23 works in an optimization model, we give it a cap on its

 24 CO2 emission allowance prices. If that cap exists, it

 25 will throw a CO2 price. And it will only throw a

 1033

 1 price -- it will only give us a price if the cap is

 2 limiting the operation of the -- the solution of the

 3 model.

 4 Q Okay. So, for example, when I look on Exhibit

 5 No. 40, for the years like up to 2011, I think that is,

 6 that there's just little lines, that means that the

 7 model did not think that CO2 emissions exceeded the cap?

 8 A Well, there was no cap placed on the model up

 9 until 2010 and then -- in that year, the cap was not

 10 exceeded or it was not met. It's not allowed to exceed

 11 the cap.

 12 Q Okay. It was not met, and so therefore, you

 13 did not get a number?

 14 A It was not met.

 15 Q For Exhibits 37 through 39, which is the base

 16 case and the high fuel and low fuel forecasts, was the

 17 CO2 emission price given or produced for those forecasts

 18 at the time you ran them?

 19 A No, they were not.

 20 Q And why was that?

 21 A These weren't the CO2 sensitivity cases and

 22 CO2 was not -- it was not built into the constraints in

 23 the model.

 24 Q Okay. The assumptions you used in putting

 25 together the constraints on your model for the

 1034

 1 CO2 sensitivity study, those were based on the

 2 McCain-Lieberman Climate Stewardship Act of 2005, Senate

 3 Bill 342?

 4 A I believe in my prefiled testimony I say

 5 generally analogous to. It -- with important

 6 modifications, it's based on that.

 7 Q That's where you started?

 8 A Right. It had some provisions I thought were

 9 appropriate. Other provisions I modified to match what

 10 I believe.

 11 Now, assuming, again, this is a very uncertain

 12 thing that anything is going to be done, but assuming

 13 that there would be some legislation, I made

 14 modifications along the lines of what I thought could

 15 possibly happen or plausibly happen.

 16 Q A set of assumptions about -- that you placed

 17 into your model, and those assumptions acted as

 18 constraints on the model or parameters within which the

 19 model worked?

 20 A That's right.

 21 Q Okay. Now, am I correct that you capped

 22 CO2 at 2000 levels and that there was no further

 23 reduction in the amount of CO2, that was one of the

 24 constraints?

 25 A That's not correct.

 1035

 1 Q Please explain.

 2 A I -- one of the important modifications I

 3 made, and again, this is to form what could be -- given

 4 the complete uncertainty that any of this is going to

 5 happen --

 6 Q Sure.

 7 A -- but given that I had to produce a

 8 CO2 case, my estimate of a plausible cap was year 2000

 9 plus 10 percent. So roughly the year 2000 emissions for

 10 power plants was about 2.45 billion tons. I increased

 11 that cap to about somewhere around 2.7 billion tons by

 12 adding 10 percent to it.

 13 Q I guess I didn't ask my question very well.

 14 Your model does not assume that the amount of

 15 CO2 will be decreased over time, does it?

 16 A No. Again, that's one of the important

 17 modifications I made of -- I believe that one of the --

 18 one of the things that really has to be studied when

 19 you're looking at the CO2 cases, there's a whole host of

 20 unintended consequences that can occur and it's

 21 important to integrate those consequences.

 22 One of the consequences of a

 23 CO2 cap could very well be pushing the availability of

 24 natural gas to the point where essentially the lights go

 25 out. Either you have to -- you have to provide more

 1036

 1 emissions allowable for the power plants or the lights

 2 will just plain go out. There won't be enough natural

 3 gas to meet the demand.

 4 Q Okay. So the CO2 limit that you -- the

 5 assumption that you made in your model was that

 6 throughout your study period, the CO2 emissions would

 7 remain constant at the 2000 levels plus 10 percent?

 8 A No, they increase over the -- over the period

 9 that I studied which is only going through 2030, they

 10 increase about half a percent per year.

 11 Q Okay. So I guess the basic question I'm

 12 attempting to ask is: Did you assume the legislation

 13 would require a reduction in the level of CO2 as time

 14 progressed?

 15 A No. I did not feel that was a plausible

 16 scenario to address.

 17 Q Now, the McCain-Lieberman Climate Stewardship

 18 Act applies to all emitters of CO2, does it not?

 19 A It --

 20 Q Meaning electric --

 21 A No, not all. But there -- there have been

 22 several versions. They've had slightly different acts.

 23 But in general, not to belabor the details, it covers

 24 the industrial sector, the transportation sector, the

 25 commercial sector, and the electric power sector.

 1037

 1 Q Okay. And what is the number you put in the

 2 model -- well, let me back up. For the year 2000, what

 3 is the number that you started with for all of these

 4 sectors, the total number?

 5 A The PRISMTM model only addresses the power

 6 plant sector.

 7 Q I understand that. And I guess the question

 8 I'm asking --

 9 A So it wouldn't matter -- what I had to put in

 10 was a functional cap for the power plant sector. So I

 11 put in the power plant emissions from 2000 plus

 12 10 percent was the initial level started from -- in

 13 2010.

 14 Q So this is actual power plant emissions as

 15 reported by who?

 16 A It's reported by the EPA.

 17 Q You made the assumption that CO2 allowances

 18 would be fungible between these sectors, industrial,

 19 transportation and electric; is that correct?

 20 A Yes, I did. And this is important to the

 21 model only in the sense that it provides a mechanism to

 22 fluctuate the functional cap without -- you know, for

 23 instance, it doesn't -- it doesn't necessarily mean that

 24 the McCain-Lieberman bill would not be met from the

 25 other sectors. It just meant since these were fungible,

 1038

 1 that would be a source of allowances that would allow

 2 the power plant emissions to increase, if necessary.

 3 Q And you also assumed there would be a

 4 worldwide trading market for these allowances?

 5 A That's right. Another important source of

 6 potential offsets would be all kinds of efforts

 7 offshore, that in general sort of McCain-Lieberman

 8 said -- gave some general thought that the United States

 9 could participate in those markets.

 10 Q Okay. Is there an international CO2 market at

 11 this time?

 12 A I know that there are the -- there are some

 13 exchanges that have been created that create offsets.

 14 Q Okay. Do you know how extensive those are?

 15 A I don't know the exact numbers.

 16 Q Okay. The European union has a CO2 allowance

 17 market, does it not?

 18 A Yes.

 19 Q Okay. And I think that was referred to in

 20 your rebuttal testimony, correct? You had a chart?

 21 A That's right. In the sense that it shows that

 22 prices are fluctuating in terms of allowance prices.

 23 Q Did you analyze assumptions associated with

 24 any of the other bills? And I won't list them.

 25 A No. What I -- essentially what I was doing

 1039

 1 was creating my own thoughts on what would be a

 2 plausible scenario for the future.

 3 Q Okay. Am I correct that one of your

 4 assumptions was that 12 nuclear power plants would be

 5 built from 2016 to 2020?

 6 A Yes, that's true.

 7 Q Now --

 8 A I was just noting in that -- the letter that

 9 Mr. Paben distributed, that the NRC, Nuclear Regulatory

 10 Commission, noted that they expected to receive 30

 11 applications for nuclear power plants.

 12 Q Okay. But applications don't mean that plants

 13 actually get built; isn't that correct?

 14 A That's right. And that's why -- one of the

 15 reasons why I've only suggested that perhaps 12 would be

 16 built.

 17 Q Okay. Are there possible constraints on the

 18 construction of nuclear power plants; for example, the

 19 disposal of waste?

 20 A Certainly.

 21 Q Is the nuclear power industry -- how many

 22 nuclear power plants have been built in the

 23 United States over the past ten years?

 24 A I -- I can't confirm this. There may be

 25 one -- TVA may actually have one under construction or

 1040

 1 refurbishment, but that's about the only activity that's

 2 taken besides incremental increases at existing power

 3 plants.

 4 Q And such incremental increase would be, for

 5 example, the request of Progress Energy to increase

 6 their existing nuclear plant in Florida; is that

 7 correct?

 8 A I'm not -- I'm not familiar with that

 9 particular situation. But I'm speaking of just capacity

 10 increases, improvements in efficiency at the plant that

 11 would allow for 10, 15, 20, 35 megawatts to be added to

 12 the existing site.

 13 Q Would there also be a problem with the supply

 14 of nuclear fuel, possible constraints on that?

 15 A I -- I don't believe so.

 16 Q Okay. Are there any problems with securing

 17 the actual boilers, reactors, that type of thing, any

 18 constraints on the construction equipment end of it?

 19 A For -- for what -- I mean, it sounds like a

 20 lot. But for a mere 12 units, I don't believe so.

 21 Q Does this take into account other nuclear

 22 units that are being sited and built around the world

 23 that might be competing for those same resources?

 24 A In my opinion, that would not make a

 25 difference.

 1041

 1 Q Now, am I correct that you escalated the

 2 amount of CO2 allowances that would be available in your

 3 sensitivity study over the term of the study?

 4 A That's correct. About a half a percent per

 5 year.

 6 Q I think you also testified that you limited

 7 the growth rate in the control areas in your model to

 8 1 percent annual growth?

 9 A Yes, that's true.

 10 Q Okay. I know you've been here for the --

 11 A Unless -- unless, of course, they were

 12 projected to be less than 1 percent, then I didn't

 13 change them.

 14 Q Right. Okay. I know you've been here to hear

 15 the testimony of the other witnesses. Has Florida

 16 historically exceeded this 1 percent per year growth?

 17 A Well, no. But in developing this case, I'm

 18 assuming a world where the United States has decided to

 19 participate in CO2 restrictions. So I generally assume

 20 that Florida would be -- step up to the plate and make

 21 their contributions just like any other state.

 22 Now, for purposes of the model and purposes of

 23 the forecast either for CO2 or coal or any of the other

 24 things in this forecast, whether Florida was a little

 25 over or a little under wouldn't make a big difference in

 1042

 1 the actual outcome of the forecast.

 2 Q Well, if Florida had a historic growth rate of

 3 greater than 1 percent, and let's assume its

 4 CO2 emissions allowances were allocated at some point in

 5 time by either some federal agency or -- by some federal

 6 agency, then the amount of growth would impact its

 7 ability to run the power plant or it would have to

 8 impact the ability -- its cost of production for that

 9 plant, correct?

 10 A That is totally speculative. The allocation

 11 of allowances is probably one of the most politically

 12 fraught pitfalls of any of these many, many, many

 13 potential bills that have been proposed out there. It's

 14 one of the uncertainties that makes it very difficult to

 15 even think of what could happen. There's going to be so

 16 many competing interests, that there's a likelihood in

 17 my mind there won't even be a federal program. And I'm

 18 not speaking of competing interests in terms of whether

 19 we want to or not. It's just that who is going to take

 20 the brunt of the problems.

 21 Q Okay. Here's my only question: If you were

 22 advocating for allocations, wouldn't one of the

 23 arguments you make be that your state is a high growth

 24 state, and that, therefore, your electric demand could

 25 not be significantly reduced?

 1043

 1 A It -- I mean, there's going to be all kinds of

 2 political reasons for making allocations.

 3 Q Okay. You modeled the 12 percent renewables

 4 up to 20 percent renewables over a period of time; is

 5 that correct?

 6 A That's right.

 7 Q Does Florida have a renewable standard at this

 8 time that requires a certain percentage of renewables?

 9 A Not that I know of. But again, my assumption

 10 is that Florida would step up to the plate and

 11 participate. Now, again, to the -- in terms of the

 12 function of the forecast itself, it doesn't matter if

 13 Florida is at 5 percent and some other state is at

 14 another percent. I just applied it generally across the

 15 states, which by the way are already at 10 percent.

 16 Q The CO2 sensitivity analysis does not assume

 17 any technology is available to remove

 18 CO2 from standard pulverized coal plants, does it?

 19 A No, it does not.

 20 Q In your analysis in the year 2016, and I'm

 21 looking at the numbers that are across the top of the

 22 chart, the emissions is $8.89; is that correct?

 23 A You're speaking of what --

 24 Q MP-5, the last one.

 25 A Right.

 1044

 1 Q Exhibit 40.

 2 A That would be $8.89 constant 2005 dollars.

 3 Q Yes, sir. And then the very next year it

 4 drops to $2.43?

 5 A That's correct.

 6 Q And why do you assume -- what's your

 7 explanation for that drop?

 8 A Well, the model itself is balancing 2 million

 9 separate variables. So there's lots of things going on

 10 in the model. It's balancing all kinds of competing

 11 interest. The increase in the cost of coal due to

 12 exhaustion and reserves, if there is such a thing, in

 13 each individual basin or the demand growth and all of

 14 these interests are competing in the model. And it's

 15 trying to come up with the best solution.

 16 Now, one of the major inputs into the model is

 17 demand -- a gas volume forecast. That was provided by

 18 Pace Global as well as the gas prices. And that

 19 fluctuates year on year. It does grow from the current

 20 volume going forward. And as it's applied in the model,

 21 it's -- there is a possibility. I don't know exactly

 22 why this is, but I would suspect it's because at this

 23 point in time, more gas was made available to the model

 24 based on that forecast.

 25 Q Okay. During your deposition, we asked you if

 1045

 1 you had done any other CO2 studies, and you indicated

 2 you had done two full-blown CO2 emission price

 3 sensitivity studies; is that correct?

 4 A Full blown in that we published numbers or

 5 provided numbers to clients, yes.

 6 Q And I believe you told me one was confidential

 7 and one was not; is that right?

 8 A That's right.

 9 Q For the nonconfidential study, what type of

 10 company requested the study?

 11 A We -- well, we produced that forecast that was

 12 published in our, essentially, public available -- what

 13 we call a multiclient study. It would be a study that

 14 we would sell multiple copies to anybody who wanted to

 15 purchase one. And that --

 16 Q May I stop you? So was that an internally

 17 generated study that no one specifically asked for but

 18 you internally generated yourself?

 19 A That's right. And before we get -- the

 20 purpose of that study was essentially to show that

 21 McCain-Lieberman as proposed would wreck the U.S.

 22 economy, is essentially what it showed.

 23 Q Okay. And obviously in that study different

 24 assumptions were used; is that correct?

 25 A Yes.

 1046

 1 Q Okay. And did it produce CO2 emission

 2 allowance costs that were higher than those produced in

 3 this exhibit?

 4 A After wrecking the U.S. economy, yes, it did.

 5 Q At the deposition, you stated that those

 6 CO2 emission allowance costs were higher by 5 percent at

 7 least; is that correct?

 8 A Yeah. Again, after wrecking the U.S. economy,

 9 yes, it was at least 5 percent higher.

 10 Q Well, can you just tell us today what -- how

 11 much greater that sensitivity study -- I'm sorry, let me

 12 ask this question correctly.

 13 A Well --

 14 Q If I can get my question right. I'm sorry.

 15 A Okay.

 16 Q Can you tell us today how -- what percentage

 17 difference, how much greater the CO2 emission allowance

 18 costs were in that multiclient study than the one you've

 19 done here?

 20 A Well, insomuch as it's a meaningless number

 21 that we couldn't survive it --

 22 Q That's fine. Tell us anyway.

 23 A And I'm trying to -- I'm trying to think what

 24 the numbers were. I don't know. At least -- well,

 25 perhaps 100 percent.

 1047

 1 MS. BROWNLESS: Thank you so much. That's all

 2 we have.

 3 CHAIRMAN EDGAR: Ms. Paben?

 4 MS. PABEN: In the interest of efficiency, if

 5 Mr. Jacobs could go ahead. I'm going to see if I

 6 can deplete a lot of my questions on what

 7 Ms. Brownless covered.

 8 CHAIRMAN EDGAR: Thank you. We can do that.

 9 If you're ready, Mr. Jacobs.

 10 MR. JACOBS: Yes, Madam Chair.

 11 CROSS-EXAMINATION

 12 BY MR. JACOBS:

 13 Q Good evening, Mr. Preston.

 14 A Good evening.

 15 Q In your -- in your testimony, you -- you

 16 reference -- you've done an assessment of each basin

 17 where coal is mined and delivered in the country. And

 18 you -- in the instance of each basin, you identified

 19 various issues and problems that have arisen in that --

 20 in that basin; is that correct?

 21 A Right. In the -- described each basin in the

 22 testimony that -- and the issues associated with that as

 23 well as using the PRISMTM model which gathers all of

 24 those issues and puts them together in an integrated

 25 fashion to provide a -- a coherent forecast that

 1048

 1 includes all of those issues.

 2 Q Now, your conclusion is that presently or in

 3 recent -- recent history, prices of coal have risen to

 4 historic levels?

 5 A Yes.

 6 Q And --

 7 A Well, let me preface it. That was back in

 8 2005. Now we're two years away from that point. So,

 9 yeah, up to 2005 that's where they were. They're not

 10 there now.

 11 Q Do you have an opinion as to how -- how --

 12 what the difference is between 2005 and now?

 13 A Well, I produced this forecast in 2005 when

 14 prices were at this historical level. We projected that

 15 they would come down by 2007. And I was just looking

 16 on -- at some publications in the industry. And the

 17 prices we projected are within pennies of what they

 18 actually are today.

 19 So the prices have come down about 50 percent

 20 for PRB. About -- well, probably about 25 percent or

 21 more, just slightly more, for central Appalachian coal.

 22 They've gone down maybe 20 percent for Latin American

 23 coal.

 24 Q In your testimony, many of the factors that --

 25 that led to those -- to those price increases you

 1049

 1 indicated were short-term in duration. Is it your

 2 experience that the difference in prices that have

 3 occurred is a result of those market imperfections

 4 having been corrected?

 5 A Yes, it is. And those historical prices were

 6 a confluence of -- it's literally the perfect storm of

 7 bad things on both the supply and demand side. It's

 8 unlikely that those events, those particular set of

 9 events, would occur again in concert with each other.

 10 Q Could you give us an idea of, first of all,

 11 the events and then why they wouldn't reoccur?

 12 A Well, there was a -- well, I don't want to

 13 lecture too long about this. I can go on for hours.

 14 But -- well --

 15 Q Let's talk -- please don't talk about -- let's

 16 talk about reduction, the decline in production.

 17 A The decline in production or price?

 18 Q The decline in production.

 19 A Well, beginning in -- throughout the '90s, the

 20 market tended to be over supplied. And because it was

 21 over supplied, prices were depressed. People --

 22 participants in the market started leaving the

 23 marketplace. So you had this sort of natural attrition

 24 on supply; coupled with a series of environmental

 25 disputes in West Virginia that caused a sort of slow

 1050

 1 down in the permitting process of new coal mines which

 2 sort of caused delays in the ability to bring on new

 3 production; coupled with an aging workforce that was --

 4 that was beginning to retire. And coupled -- that,

 5 again, with a sort of change in the lat -- in the

 6 attitude of the Chinese as to whether they were going to

 7 import or export coal. Couple that with a similar sort

 8 of decline in ocean-going vessels.

 9 That, again, they had been over supplied,

 10 attrition and supply had led to a short-term shortage.

 11 Couple that with a -- with sort of mishandling of

 12 transportation, infrastructure issues in Australia.

 13 Again, there's a whole litany of events that all

 14 occurred at one time that caused a shortage in the

 15 market.

 16 So the exports of U.S. coal have been

 17 declining severely for years. All of a sudden because

 18 of issues in China and Australia, there was a demand for

 19 coal from central Appalachian for the export market.

 20 Once that -- that took off, that meant a desire for

 21 increased demand from central Appalachia. They ran up

 22 against the problems of permitting and labor. And those

 23 caused a quick escalation in the cost of coal.

 24 Q Just to be real focused on my point, your --

 25 your conclusion that those -- all of those elements are

 1051

 1 not cyclical, they are -- they are anecdotal and --

 2 A Right, they're anecdotal. And what -- and the

 3 coal industry has this cycle that is very, very long

 4 lived, it's about 25 years, in which the market tends to

 5 be over supplied and low priced for 25 years and then --

 6 then they have this correction in the market. Our model

 7 takes that into account.

 8 If you look closely at these forecasts, you'll

 9 see that towards the end of the forecast, prices begin

 10 to climb in the expectation that, again, supply will

 11 have declined to the point that new investments are

 12 going to be made in order to bring on a new supply of

 13 coal. So the prices begin to climb at the end of the

 14 forecast in real terms, not just in escalation terms.

 15 Q Now, Powder River Basin coal, there is a

 16 reason why it is preferred, is there not?

 17 A I wouldn't say -- well, yeah, it's preferred

 18 because it's less expensive than a lot of other coal for

 19 some people.

 20 Q Is that the only reason?

 21 A Well, each power plant is a -- usually has a

 22 SIP limit. That's the allowable rate of emissions of

 23 sulfur. And Powder River Basin coal is very low in

 24 sulfur. So it allows the plant to burn coal without

 25 installing cleanup equipment like such as a wet

 1052

 1 scrubber.

 2 Q Let me project then. In the event -- and I'll

 3 just cut right to my point. In the event where a

 4 company is faced with an enhanced regulation of

 5 CO2, plus having to respond to SO -- SOX regulation,

 6 isn't it a commonplace resort that they try and look at

 7 PRB coal?

 8 A A plant with a scrubber would not be beholding

 9 the PRB. They would be able to take the cheapest coal

 10 that they would calculate based on its impact on their

 11 operation of their plant.

 12 Q But if the company were in a position where

 13 they had to retrofit, then?

 14 A Yeah. But the TEC plant will be -- it will

 15 have all of the scrubbing equipment.

 16 Q So the likelihood then is very low that TEC

 17 would want to look at PRB coal?

 18 A It would look -- my understanding of their

 19 fuel plant from what I read seems to be excellent,

 20 they're going to have the potential to use PRB coal when

 21 it is the most optimal fuel price wise and whatever

 22 operations, considerations they have.

 23 Q And then my -- my last question is then,

 24 should they -- should that happen, would that -- that

 25 decision will incorporate -- I think I've heard in

 1053

 1 testimony, it will incorporate some infrastructure

 2 issues, not just to coal but will incorporate whether

 3 they have to do some other infrastructure issues and

 4 some operational issues, would it not?

 5 A I believe the preliminary planning -- and

 6 that's the stage we're in -- the preliminary planning of

 7 the plant is going to have design issues. It will be

 8 designed to burn PRB coal if that's what's necessary.

 9 Q Here's the final point: Should -- should

 10 there be a carbon regime, carbon regulated regime, isn't

 11 it more likely that TEC would look to burn Powder River

 12 Basin --

 13 A No.

 14 Q No?

 15 MR. JACOBS: Thank you.

 16 CHAIRMAN EDGAR: Ms. Paben?

 17 MS. PABEN: Madam Chair Person, just a few

 18 questions, if I can get my voice.

 19 CROSS-EXAMINATION

 20 BY MS. PABEN:

 21 Q When you were discussing the model to evaluate

 22 costs that you-all used with Ms. Brownless, you

 23 indicated that that was based on assumption that the

 24 demand growth was limited to 1 percent, correct?

 25 A Yes.

 1054

 1 Q Okay.

 2 A Except for those areas of the country where

 3 it's less.

 4 Q Where it was less, like limited to, not more

 5 than. Thank you.

 6 You also indicated that it was based on

 7 assumption that states without renewable energy

 8 standards including Florida would aggressively shift to

 9 carbon-free energy. And I think your estimates were by

 10 2009 12 percent and moving up to 20 percent pretty

 11 quickly?

 12 A It moves up at about a half a percent a year,

 13 I believe. And again, assuming this theoretical world

 14 of carbon constraint, and, in fact, all the bills that I

 15 have seen already have a strong renewables and demand

 16 side management standards and support in them, I judge

 17 that to be a fair estimate of what could happen.

 18 Q And just to clarify that, so beginning in

 19 2009, those states that have none would be at

 20 12 percent?

 21 A As an average across the country. I applied

 22 it generally across the states. But from the terms

 23 again of how it would impact the forecast, it wouldn't

 24 matter if it was lumpy or not because really what it's

 25 doing is just decreasing the demand for electricity.

 1055

 1 Q But the model assumes 12 percent, correct,

 2 beginning in 2009?

 3 A That's right.

 4 Q Also the model also assumes 12 new nuclear

 5 plants built before 2020, correct?

 6 A Yes.

 7 Q And the model indicates that nonelectric

 8 generating industries would aggressively reduce their

 9 carbon dioxide emissions?

 10 A Well, this is -- this is to give a little more

 11 credence to the McCain-Lieberman bill. It's -- it's --

 12 in the sense that if we wanted to meet a year 2000

 13 limit, the other industries would have to give up

 14 allowances. There's no plausible way the power industry

 15 could survive -- well, let's put it this way: The

 16 lights would start to go out if we didn't change the

 17 functional limit of emission allowances for the power

 18 plants.

 19 Q And the model assumes that, correct?

 20 A Assumes what?

 21 Q Let me clarify. The model assumes that

 22 aggressive reduction by nonelectric generating

 23 industries?

 24 A It only assumes that the functional cap of

 25 emission allowance for power plants is increasing as

 1056

 1 we've discussed. It starts at 10 percent and then

 2 increases by a half a percent a year. It's the

 3 functional limit that the model works against. All of

 4 those other issues about where those limits come from

 5 are a discussion. But from the point of view of the

 6 model, it only matters that the functional limit

 7 increases.

 8 Q It also states in your testimony, to make sure

 9 that I understand this correctly, I'm sorry, that based

 10 on the comments that you made with the questions

 11 Ms. Brownless was talking about, that the electrical

 12 generating utilities would likely get some type of

 13 economic relief as part of any regulatory activity

 14 associated with McCain-Lieberman?

 15 A The question that that was addressed to, I

 16 think that's part of the rebuttal to Ms. Deevey's

 17 interrogatory -- or her questions. She suggested that

 18 if -- that apparently by benefitting from this

 19 reallocation of allowances, there would be some profit

 20 that could be -- you know, we'd be sort of supporting

 21 some kind of nefarious profit motive for the power

 22 plant. And I'm just suggesting that because emitting

 23 CO2 would be a cost, it would be very unlikely that

 24 power plants could profit from the cost.

 25 Q Just to be clear, I'm not talking about a

 1057

 1 profit from the cost. I'm asking in a -- in the model

 2 that you conducted, does that assume any type of relief

 3 for your industry?

 4 A Only in the sense that the functional cap of

 5 emission allowances is as I stated before.

 6 Q Okay. Thank you.

 7 Are you familiar with other types of -- or

 8 other instances of legislation other than

 9 McCain-Lieberman Act that have been in draft form and

 10 circulated regarding carbon dioxide emissions?

 11 A Yes. In fact, the EIA has released -- just

 12 the other day, they released another draft of another

 13 potential bill.

 14 Q Is it fair to articulate that some of the

 15 draft legislation that's been out there has been more

 16 restrictive on the electric utility industry than the

 17 McCain-Lieberman Act, some, not all?

 18 A I can't give those credence. I mean, it's

 19 fair to say that they're Draconian in their efforts to

 20 cap emissions from EGUs. I can't believe that they --

 21 they just -- they'll -- the lights will go out.

 22 Q And last question. The assumptions that you

 23 indicated with Ms. Brownless as well as you did here

 24 with respect to the states increasing renewable energy,

 25 the 12 new nuclear plants, the limitations on growth to

 1058

 1 1 percent, all of those actually have to take place for

 2 the model to evaluate costs that you did, yes or no

 3 answer, to be accurate, correct?

 4 A Yes, or the lights will go out.

 5 MS. PABEN: Thank you.

 6 CHAIRMAN EDGAR: Other questions from staff?

 7 MS. FLEMING: Staff has no questions.

 8 CHAIRMAN EDGAR: Mr. Perko?

 9 MR. PERKO: Thank you, Madam Chairman.

 10 REDIRECT EXAMINATION

 11 BY MR. PERKO:

 12 Q Mr. Preston, Ms. Brownless and again Ms. Paben

 13 asked you a number of questions concerning some of your

 14 exceptions in the CO2 allowance forecast, and you

 15 mentioned that there have been some other forecasts made

 16 by others. Are you aware of any other forecasters --

 17 fuel and allowance forecasters who have created

 18 CO2 allowance forecasts with assumptions of limited

 19 demand growth?

 20 A Yes, I have.

 21 Q And how do those assumptions generally compare

 22 to yours?

 23 A They are very comparable.

 24 Q And likewise, have other forecasters of

 25 CO2 allowance prices made assumptions about increased

 1059

 1 renewable and efficiency efforts?

 2 A Yes, they do.

 3 Q And how have those assumptions generally

 4 compared to your assumptions?

 5 A They're also very comparable.

 6 Q And have CO2 allowance forecasters similarly

 7 assumed that there would be increased -- there would be

 8 an increase in nuclear generation in the fairly

 9 short-term?

 10 A Yes. Most forecasts, notably the EIA, expects

 11 much more nuclear energy to be developed.

 12 Q Now, Ms. Paben asked you some questions

 13 regarding a number of different forecasts developed on

 14 various drafted CO2 legislations. Are those compiled in

 15 a Synapse report that's been attached to Ms. Deevey's

 16 testimony?

 17 A Yes, they have.

 18 Q And does Synapse provide an indication of what

 19 they -- of potential CO2 costs?

 20 A Well, they have gathered the existing

 21 literature. And without -- other than -- other than

 22 sort of a commentary on them, they've grouped them into

 23 categories and sort of come up with a high level of --

 24 MS. PABEN: Excuse me, Madam Chairman.

 25 CHAIRMAN EDGAR: Just a moment. Ms. Paben?

 1060

 1 MS. PABEN: Yes. I'd like to object to the

 2 question. I think it's beyond the scope. He's

 3 actually characterizing a question I did not ask at

 4 all. And I believe he's actually using it to

 5 supplement his testimony. I didn't ask about

 6 forecasts.

 7 MR. PERKO: She asked about the other

 8 legislation. I'm asking about how those were

 9 analyzed.

 10 MS. PABEN: The question was asked

 11 specifically if he's familiar with the legislation

 12 and whether they're more stringent on the

 13 utilities. That's it. He's asked about forecasts

 14 beyond the legislation and indicated that's what I

 15 had asked. And that's a much further

 16 extrapolation, and I was not trying to go down that

 17 road at all, nor did I.

 18 CHAIRMAN EDGAR: Mr. Perko?

 19 MR. PERKO: I'm trying to get the record

 20 straight on these other forecasts that he's

 21 referring to.

 22 MS. PABEN: I never mentioned any forecast in

 23 any of my questions. I simply was --

 24 MR. PERKO: And the legislation that she

 25 mentioned.

 1061

 1 MS. PABEN: I didn't --

 2 CHAIRMAN EDGAR: Okay. Let's -- do you want

 3 to try and rephrase?

 4 BY MR. PERKO:

 5 Q Ms. Paben mentioned a number of different

 6 legislative analyses. Do you recall that questioning?

 7 A Yes.

 8 Q And have various forecasts been made based on

 9 assumptions based on those various legislative

 10 forecasts?

 11 A Yes. The EIA and others have produced

 12 forecasts based on those assumptions.

 13 Q And has a company named Synapse reviewed those

 14 in a report that's attached to Ms. Deevey's testimony?

 15 A Yes, they have.

 16 Q And does Synapse provide a general indication

 17 of what they feel to be potential CO2 allowance prices?

 18 A Again, they grouped them and categorized them

 19 and came up with what they thought was a low case, a mid

 20 case and a high case for allowances.

 21 Q And how do your allowance price forecasts

 22 compare to those presented by Synapse?

 23 A It fell somewhere -- it fell between the mid

 24 case and the low case on a levelized cost basis.

 25 MR. PERKO: Thank you. No further questions.

 1062

 1 MS. BROWNLESS: Your Honor, if we may have

 2 just one brief recross, because this is an area,

 3 the forecast, which Mr. Preston did not address.

 4 CHAIRMAN EDGAR: I'm just not going to go

 5 there. I'm just not. So...

 6 MS. BROWNLESS: I appreciate it. Thank you.

 7 CHAIRMAN EDGAR: Let's do the exhibits -- oh,

 8 excuse me. Commissioner Tew.

 9 COMMISSIONER TEW: Mr. Preston, I have a few

 10 questions with the chairman's indulgence

 11 particularly about wrecking the U.S. economy. Got

 12 my attention a little bit even at this late hour.

 13 I think you indicated given certain CO2

 14 regulations that it could have impacts on the gas

 15 markets such as that the lights could go out; is

 16 that correct?

 17 THE WITNESS: Well, the lights going out is --

 18 well, they literally could. What happens is if you

 19 limit CO2, you're going to shift away from

 20 coal-fired generation to gas-fired generation.

 21 You're going to increase the demand for gas.

 22 There's a limited amount of gas. At some point you

 23 either have to decide whether you're going to burn

 24 gas or you're going to meet the CO2 cap. If you

 25 want to meet the CO2 cap, you stop burning gas,

 1063

 1 there's not enough electricity.

 2 COMMISSIONER TEW: And to follow up on that,

 3 are the impacts on the gas market as a result of

 4 the CO2 regulations that you were talking about, is

 5 that the basis for the statement wrecking the U.S.

 6 economy, or is there more to it than that?

 7 THE WITNESS: Well, that's the biggest piece.

 8 But a legislation like this, this broad reaching is

 9 bound to have unintended consequences. For

 10 instance, just like when we had the oil embargo,

 11 everybody started burning wood. Well, when

 12 everybody start burning wood, now you had pollution

 13 problems of a different sort. This is -- those are

 14 the kinds of things that are going to happen when

 15 this legislation, if -- I mean, again, it's -- I

 16 think there are so many competing interests that

 17 I'm concerned that there's -- that there's even a

 18 possibility it could be done on a national level.

 19 So given -- given all of these unintended

 20 consequences, there could be other things that

 21 will -- that will pop up that could cause, you

 22 know, minor catastrophes.

 23 COMMISSIONER TEW: Is there some certain

 24 version of that bill -- I've heard discussion about

 25 different versions and drafts of these bills and I

 1064

 1 know nothing has been passed. Is there some

 2 certain version you submit would have the effect,

 3 or is it any versions of that same bill?

 4 THE WITNESS: Well, I think of the many

 5 competing versions, the ones that try to revert the

 6 cap from roughly the 2010 level backwards are going

 7 to have the biggest issues. So that would be

 8 anyone that's trying to set the cap at year 2000

 9 levels or 1990 levels or those kinds of issues.

 10 The bills that seem to address this issue best

 11 though are the ones that -- that have a phased-in

 12 approach. They start with a later year in terms of

 13 the cap. They -- they have safety valves and

 14 safety triggers so that they -- so that essentially

 15 the electric utility industry and the lights stay

 16 on more or less. The one released just recently,

 17 the EIA's analysis of it, is a good example of that

 18 particular type of legislation.

 19 COMMISSIONER TEW: I was going to ask you,

 20 were there more reasonable -- in your view, more

 21 reasonable proposals before Congress in respect to

 22 CO2?

 23 THE WITNESS: Yeah. I haven't reviewed all of

 24 it. But the analysis I saw from EIA -- it's called

 25 the Bingaman, Landrieu, Lugar and Murkowski's

 1065

 1 bill -- it seems to give in my mind the most -- be

 2 the most appropriate that I've seen so far because

 3 it addresses many of these issues that -- that --

 4 that I believe are -- are -- would prevent any kind

 5 of legislation.

 6 COMMISSIONER TEW: Okay. And I'm getting

 7 there, Chairman. I have got a couple more.

 8 Can you remind me how the sensitivities you

 9 ran with respect to CO2, including congressional

 10 proposals such as McCain-Lieberman, did it only

 11 include McCain-Lieberman? I think as you've

 12 described, I understand that you sort of adjusted

 13 the McCain-Lieberman proposal.

 14 THE WITNESS: McCain-Lieberman was only used

 15 because it had some of the issues in terms of

 16 trading allowances and such that I thought it was

 17 useful. The modifications are very important that

 18 I made to that in terms of what would be a

 19 plausible future case. And those modifications by

 20 the way are very similar to the modifications

 21 you'll see -- not modifications, but those other

 22 bills I was talking about, the more reasonable

 23 bills.

 24 COMMISSIONER TEW: So would it -- so would it

 25 be correct to say that you used somewhat of a

 1066

 1 middle of the road version of CO2 proposals?

 2 THE WITNESS: Well, I developed this case

 3 based on my best estimate, my professional

 4 estimate, of what the world could look like. It

 5 turned out to be in the middle of the road.

 6 COMMISSIONER TEW: Okay. I have one more,

 7 Chairman.

 8 In some of the questioning, something came up

 9 about renewable standards. In the bills that

 10 you've referred in preparing your analysis, did

 11 those bills also include renewable portfolio

 12 standards or were there some that did and some that

 13 didn't?

 14 THE WITNESS: I can't say for sure whether

 15 they had actual standards that required people.

 16 But I think most -- all of them have some -- they

 17 address it in some issue. They'll either provide

 18 monies to develop renewable standards or to enhance

 19 renewable standards or to provide subsidies to

 20 renewable industries. I don't believe it went so

 21 far as to establish -- well, some of them might. I

 22 don't recall any that went so far as to establish

 23 renewable standards by state or region.

 24 COMMISSIONER TEW: Thank you. That's all.

 25 CHAIRMAN EDGAR: Okay.

 1067

 1 MR. PERKO: At this time, Madam Chairman, we'd

 2 move Exhibits 36 through 42 into the record.

 3 CHAIRMAN EDGAR: Okay. Seeing no objection,

 4 Exhibits 36 through 42 will be entered into the

 5 record and the witness is excused. Thank you.

 6 (Exhibits No. 36, 37, 38, 39, 40, 41 and 42

 7 admitted into the record.)

 8 MR. PERKO: We call Chris Klausner.

 9 CHRISTOPHER KLAUSNER

 10 was called as a witness on behalf of the Applicant, and

 11 having been duly sworn, testifies as follows:

 12 DIRECT EXAMINATION

 13 BY MR. PERKO:

 14 Q Could you please state your name and business

 15 address for the record.

 16 A Chris Klausner. My business address is

 17 11401 Lamar Avenue, Overland Park, Kansas, 66211.

 18 Q Excuse me, while I shovel some paper here.

 19 Mr. Klausner, did you file prefiled direct

 20 testimony on -- consisting of 12 pages on

 21 September 19th, 2006?

 22 A Yes.

 23 Q And do you have any changes or additions to

 24 that testimony?

 25 A No, I do not.

 1068

 1 Q If I were to ask you the questions in that

 2 testimony today, would the answers be the same?

 3 A Yes.

 4 Q Are you sponsoring any sections of the Need

 5 for Power Application that's been identified as

 6 Exhibit -- or in Exhibit 58?

 7 A I'm sponsoring Section A.6.2.

 8 Q Are there any changes or additions to that

 9 section, other than what's revealed on the errata sheet

 10 that's been admitted into evidence? I'm sorry. That

 11 was Exhibit 54 for your Section A.6.2; is that correct?

 12 A Yes. A.6.2 is the one that I'm sponsoring.

 13 Q Other than any changes indicated on the errata

 14 sheet that's been admitted into evidence as Exhibit 3,

 15 are there any additional changes to that section?

 16 A Yes. On Table A.6-37 for the three 1x1 train

 17 IGCC option, the EPC cost should be 1808.2. The owner's

 18 cost should be 542.4. The total cost should be 2350.6,

 19 and the total cost dollars per kW should be 2720.6.

 20 Q Could you please explain why you made those

 21 changes?

 22 A They were just presented in the table

 23 incorrectly.

 24 Q Thank you.

 25 With those additions, are those the only

 1069

 1 additions or changes to your Exhibit A.6.2?

 2 A Yes, other than those identified on the errata

 3 sheet.

 4 Q Now, Mr. Klausner, did you also submit

 5 supplemental testimony consisting of four pages on

 6 December 26, 2006?

 7 A Yes.

 8 Q Do you have any changes or additions to that

 9 testimony?

 10 A No, I do not.

 11 Q If I were to ask you the same questions in

 12 that testimony today, would your answers be the same?

 13 A Yes.

 14 MR. PERKO: At this time, Madam Chairman, I

 15 would move Mr. Klausner's prefiled direct testimony

 16 of September 19, 2006, and his supplemental

 17 testimony of December 26, 2006, into the record as

 18 if read.

 19 CHAIRMAN EDGAR: The prefiled testimony will

 20 be entered into the record as though read.

 21

 22

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 1086

 1 BY MR. PERKO:

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

 3 your prefiled direct and supplemental testimonies?

 4 A Yes.

 5 Q Could you please provide that at this time?

 6 A The purpose of my testimony is to provide an

 7 overview and summary of conventional and emerging

 8 supply-side alternatives that were considered in the

 9 economic analyses for the Taylor Energy Center. The

 10 conventional and emerging supply-side alternatives

 11 included both individual and joint options at both new

 12 and existing sites.

 13 The conventional and emerging supply-side

 14 alternatives represent a wide range of technologies,

 15 plant sizes and fuel types and thus provide a mix of

 16 potential peaking, intermediate and base load generating

 17 alternatives. I developed capital costs, O&M costs,

 18 performance estimates for each alternative.

 19 Consistent with Mr. Hoornaert's supplemental

 20 testimony, my supplemental testimony provides undated

 21 costs for all conventional, emerging supply-side

 22 alternatives. My evaluations included solid fuel, IGCC

 23 and natural gas combined cycle units for each applicant.

 24 Because I considered both joint and individual

 25 supply-side alternatives for each applicant at both new

 1087

 1 and existing sites and a cross-section of technology,

 2 sizes and fuels, a broad range of options were included

 3 in my evaluation.

 4 That concludes my summary.

 5 MR. PERKO: We tender the witness for

 6 cross-examination -- oh, I guess we do. Thank you.

 7 Getting late.

 8 CHAIRMAN EDGAR: Ms. Brownless?

 9 CROSS-EXAMINATION

 10 BY MS. BROWNLESS:

 11 Q Hey, Mr. Klausner, how are you?

 12 A I'm doing well.

 13 Q Did you provide the response to Interrogatory

 14 No. 1 in NRDC's first set of interrogatories No. 1

 15 through 26?

 16 A Yes.

 17 Q And is that true and correct to the best of

 18 your knowledge and belief?

 19 A Is it true and correct to the best of my

 20 knowledge?

 21 Q And belief, yes.

 22 A Yes.

 23 Q Okay.

 24 A With the exception that the three train 1x1 GE

 25 IGCC, those costs as I updated earlier, those may not be

 1088

 1 correct. I don't have those in front of me, but they

 2 would be adjusted based on the testimony I provided

 3 previously.

 4 Q Okay. And because it's late, if you can

 5 just -- that's the table. If you can just tell me which

 6 one you think needs to be adjusted. You don't have to

 7 give me the numbers. Just tell me on this chart where I

 8 look to see what needs to be adjusted.

 9 A Three train 1x1 GE IGCC, the EPC cost through

 10 the total cost, dollars per kW, 2096.9 through 3433.4.

 11 Q Oh, I see.

 12 A I have -- those may potentially need to be

 13 adjusted as well based on my previous comments.

 14 Q And just so I know I'm in the right place,

 15 that's under joint ownership options, the second joint

 16 ownership options?

 17 A Yes.

 18 Q Now, you developed the self-build options as

 19 alternatives to the construction of TEC; is that

 20 correct?

 21 A Yes. Those were prepared under my direct

 22 supervision.

 23 Q Okay. And you developed self-build options

 24 for the individual participants here, some of which

 25 included plants they could construct totally owned by

 1089

 1 themselves and some of which included plants that they

 2 could own jointly with other members?

 3 A That's correct.

 4 Q And IGCC units were considered for

 5 Tallahassee, FMPA and JEA, is that right, either

 6 individually or jointly?

 7 A I believe so. IGCC was considered for all

 8 applicants because it was a joint option.

 9 Q So that also included Reedy Creek?

 10 A That particular option, yes.

 11 Q Okay. Is that the only scenario as a

 12 self-build that IGCC was considered as? In other words,

 13 no individual utility -- did you consider for any single

 14 individual utility an IGCC? Because I thought you did.

 15 I mean, when I looked at your --

 16 A Yes. As shown on that table, there was one

 17 for JEA, there was one for FMPA --

 18 Q Okay.

 19 A -- and there was one for Tallahassee.

 20 Q All right. So you had one IGCC which was a

 21 joint?

 22 A Correct.

 23 Q And one that was individually sited for those

 24 three. And Reedy Creek was not a person for whom there

 25 was an individual IGCC proposed?

 1090

 1 A That's correct.

 2 Q Okay. Thank you.

 3 Now, did you consider an IGCC to be available

 4 only after 2018 or as a self-build option in 2012?

 5 A I believe that's addressed in the application,

 6 but I think the 2018 date is when we consider those

 7 available. Brad Kushner could confirm that.

 8 Q All right. Do IGCC units allow for

 9 CO2 capture and sequestration at this time? Is the

 10 technology currently available?

 11 A Can you repeat the question?

 12 Q Is the technology currently available to allow

 13 IGCC units to capture and sequester CO2?

 14 A The capture of CO2 is an emerging type

 15 technology. It is not demonstrated on any large scale

 16 project, power plant project. That would be IGCC

 17 pulverized coal, gas-fired combined cycle. The capture

 18 of CO2 is -- is often done in process type applications

 19 which are much smaller.

 20 Q Okay. But I guess my question was, so there

 21 is technology currently in use doing this?

 22 A In use doing -- on an IGCC plant?

 23 Q Yes.

 24 A No.

 25 Q There are no projects on an IGCC plant of any

 1091

 1 size that are capturing and sequestering CO2?

 2 A As long as you say IGCC, the answer is no.

 3 Q Okay. In your testimony, you state that --

 4 I'm sorry. Are you aware of capture and sequestration

 5 of CO2 in North Dakota, a gasified unit that's not an

 6 IGCC?

 7 A Yes, I'm aware of that.

 8 Q So there is technology available to capture

 9 and sequester CO2?

 10 A I believe I stated there is technology. It's

 11 not demonstrated on large scale power plant

 12 applications.

 13 Q Thank you.

 14 On page 5 of your testimony, I think you

 15 indicate that new nuclear -- a new nuclear unit has not

 16 come on line in the last 20 years, and that you consider

 17 nuclear units to be, for that reason, an emerging

 18 technology; is that correct?

 19 A The reason that nuclear units are considered

 20 an emerging technology is because although there are

 21 numerous nuclear plants in the United States and around

 22 the world in operation, the next generation of nuclear

 23 plants is going to have -- is currently going through a

 24 permitting and approval process and they'll use new

 25 designs. And so there is some regulatory and approval

 1092

 1 risk with getting those types of plants permitted and

 2 getting new designs approved. So for -- for the

 3 purposes of our study, we considered nuclear and

 4 emerging technology.

 5 Q When will you consider the new generation of

 6 nuclear units to be an established technology with

 7 demonstrated reliability?

 8 A I don't know exactly when nuclear units would

 9 be available. There's a lot of speculation on how --

 10 how long the overall permitting process would take and

 11 the approval process. But probably not before 2020. No

 12 earlier than that, I would say. They probably wouldn't

 13 be available.

 14 Q Mr. Preston estimated, as we've just heard him

 15 testify, that there be there would be 12 nuclear power

 16 plants operational and on line between 2016 and 2020.

 17 In light of what you said, does that estimate seem

 18 plausible to you?

 19 A The -- it's -- it's plausible simply because

 20 there's no -- if you look at the construction cycle of a

 21 nuclear plant, you're probably looking at six to seven

 22 years. It's possible that if the approvals are obtained

 23 in the next three to four years, that -- that we could

 24 probably have those -- that many units on line.

 25 Q And would you consider those units to be

 1093

 1 established technology with demonstrated reliability?

 2 A I believe they will be established technology.

 3 There's -- the changes that are being made in the

 4 technology and nuclear is getting a little beyond my

 5 expertise.

 6 Q Sure.

 7 A But they're not significant enough that you

 8 would expect that there would be significant challenges

 9 with the operation of those units. The main issue with

 10 nuclear is getting those approved.

 11 Q Okay. So if I'm hearing you correctly, you've

 12 told me that the new generation of nucs would not be --

 13 you would not consider them to be an established

 14 technology with demonstrated reliability until 2020 and

 15 yet you believe it plausible to have 12 nuclear power

 16 plants come on line by 2020?

 17 A Well, I think I would like to clarify that the

 18 2020 date was what is -- is a rough estimate, but I

 19 think it's plausible that you could have -- what was the

 20 number, 10, 11?

 21 Q Twelve.

 22 A Twelve nuclear plants on line by -- what was

 23 the date again?

 24 Q 2020.

 25 A By 2020? I think that's plausible.

 1094

 1 Q But their demonstrated reliability might be at

 2 issue; is that correct?

 3 A I think I mentioned that the main issue with

 4 nuclear is getting the regulatory and permitting

 5 approvals, not necessarily the demonstrated reliability.

 6 Q Okay. Looking at your supplemental testimony,

 7 did you include -- did you assume that IGCC costs would

 8 increase by 20 percent as well as those of the

 9 supercritical pulverized coal plants when you were

 10 talking about capital cost changes?

 11 A Yes, I did not estimate supercritical

 12 pulverized coal, but I did assume that IGCC would

 13 increase approximately 20 percent.

 14 Q Okay. So to the same degree as a pulverized

 15 coal plant?

 16 A Yes. And judging by recent press releases, I

 17 think that's conservative because AEP has indicated that

 18 the differential between pulverized coal and IGCC is

 19 where they had previously thought it would be 20 percent

 20 differential in capital CAMR costs, now they're getting

 21 feedback that it's going to be substantially more than

 22 that.

 23 Q And is that the new generation of IGCC plants?

 24 A Yes. So that would make our assumption

 25 favorable to IGCC.

 1095

 1 Q Okay. Mr. Rollins testified that the

 2 operating TECO IGCC unit had an availability of

 3 approximately 74 percent. Would you consider the

 4 operating TECO unit to be old IGCC technology?

 5 A I would like to clarify one thing. The -- the

 6 availability that Myron mentioned was a five-year

 7 availability. The actual availability since commercial

 8 operation is approximately 69 percent.

 9 Q And that's ten years. What's happened in the

 10 last two years?

 11 A I don't have current data for 2006, but it's

 12 in the 80 -- 80 percent range.

 13 Q Would you predict that for the new generation

 14 of IGCC technology, the availability factors would be

 15 higher?

 16 A I would say not. They will not be higher than

 17 what's been demonstrated especially in the short run. I

 18 think any IGCC plant, because they are so complicated,

 19 is going to have a startup curve where the availability

 20 is initially, you know, 30, 40 percent and it gradually

 21 builds up over a five- or six-year time frame until you

 22 get to an availability that is higher and more in line

 23 with what you would hope to get.

 24 But I don't think IGCC will -- because it is

 25 so complicated, it may never get to the availabilities

 1096

 1 that are demonstrated by supercritical coal units.

 2 Q But obviously Tampa Electric has a

 3 ten-year-old IGCC plant that's putting out an 88 percent

 4 availability factor and that's comparable with the

 5 supercritical coal unit, is it not?

 6 A No, it's putting out -- if you look at maybe

 7 one or two years, the availability is at 80 -- 81,

 8 82 percent when operating the gas fires, which is

 9 substantially lower than 90 percent which you can

 10 achieve with a supercritical pulverized coal unit.

 11 Q Do plants in Europe and Japan currently

 12 operating IGCC plants have a higher availability than

 13 that?

 14 A Can you repeat that, please.

 15 Q Do IGCC plants in Europe and Japan have a

 16 higher availability than that 88 percent?

 17 A I'm not familiar with every IGCC plant in the

 18 rest of the world, but there are some that are operating

 19 at higher availabilities but those do not fire petroleum

 20 coke or coal. They're not solid fuel-fired gasification

 21 plants.

 22 MS. BROWNLESS: Thank you, Mr. Klausner.

 23 CHAIRMAN EDGAR: Mr. Paben?

 24 MR. PABEN: No questions for this witness.

 25 MR. JACOBS: Very briefly.

 1097

 1 CROSS-EXAMINATION

 2 BY MR. JACOBS:

 3 Q Hello, Mr. Klausner. You described with

 4 regards to the nuclear as emerging some factors that

 5 qualify that. Do any of those factors apply to the

 6 supercritical pulverized coal plants?

 7 A I don't think so.

 8 Q So there are no issues with regard to their

 9 heat race -- sup -- the new generation of supercritical

 10 pulverized plants, there's no issues with regard to them

 11 achieving availability standards, heat rating standards

 12 and reliability standards?

 13 A Not the current generation of supercritical

 14 coal units, no.

 15 Q Are there any new current generation plants

 16 that are operating in the U.S.?

 17 A I'm not familiar with all of the units. I'm

 18 not sure when the last supercritical unit was built in

 19 the U.S.

 20 Q Okay. One -- one -- one additional point.

 21 (Telephonic interruption.)

 22 MR. JACOBS: Not that one. I had it on silent

 23 and my wife figured out how to get it to ring. I

 24 don't know how she did that. I lost my total

 25 concentration.

 1098

 1 (Laughter.)

 2 CHAIRMAN EDGAR: Take a moment.

 3 BY MR. JACOBS:

 4 Q The -- the -- so the whole idea in your

 5 testimony of what is emerging and what's not is my

 6 point. Your conclusion is that pulverized supercritical

 7 coal plants are not emerging and you determined that

 8 IGCC, it sounds like, the new generation nuclear are

 9 emerging technologies?

 10 A That's correct. I mean, if -- if nuclear can

 11 get through the regulatory and permitting processes,

 12 then I think those will be -- those will be built and

 13 constructed. The -- you know, that's the main hurdle to

 14 nuclear right now.

 15 Q Okay. I think there was one other question I

 16 have. In -- in -- in your -- in your -- in your

 17 testimony, you looked at the whole idea of capital

 18 costs. And I believe you came -- you came to the

 19 opinion that the assumptions that had been made as

 20 relates to the volatility of capital costs are correct,

 21 and, therefore, that the new level of capital costs are

 22 stable?

 23 A There is some indication in the markets that

 24 there will be stabilizing -- recent indications that

 25 pricing will be stabilizing. If you look at copper,

 1099

 1 which is a -- a commodity that's used throughout power

 2 generation projects for electrical equipment, copper has

 3 seen substantial declines in price recently. So there

 4 are some factors that are causing capital costs to

 5 stabilize.

 6 Q Now, it's my understanding that some of the

 7 more prevailing factors in causing the capital costs to

 8 fluctuate are labor costs?

 9 A That's correct.

 10 Q Material cost? I guess copper would be one of

 11 those. And I guess other support, construction. And

 12 one of the reasons that those costs are escalating is

 13 because of the -- we'll call it the rush to build new

 14 coal plants?

 15 A Right.

 16 Q Is it your view that -- that that -- that new

 17 high activity in building of coal plants is going to --

 18 is going to decline?

 19 A The rush to build coal plants is showing some

 20 signs of moderating as well. My company is seeing that

 21 clients that had evaluated building coal-fired power

 22 plants are holding off on committing to those because of

 23 the pricing. So there are factors that could

 24 potentially moderate prices going forward.

 25 And I think if you look back at the recent

 1100

 1 build out of combined cycles, once the demand let up,

 2 the price on combined cycle price -- combined cycle

 3 plants dropped significantly. So it's -- it's -- there

 4 are stabilizing factors starting to emerge.

 5 MR. JACOBS: Thank you. No further questions.

 6 CHAIRMAN EDGAR: Questions from staff?

 7 MS. FLEMING: Staff has no questions.

 8 CHAIRMAN EDGAR: Mr. Perko?

 9 MR. PERKO: Very briefly.

 10 REDIRECT EXAMINATION

 11 BY MR. PERKO:

 12 Q Mr. Klausner, you were here for Mr. Preston's

 13 questions, were you not?

 14 A For most of them.

 15 Q And you heard the questions regarding his

 16 assumptions concerning nuclear generation, correct?

 17 A I believe so.

 18 Q And those were in the context of the potential

 19 CO2 regulatory environment?

 20 A Yes.

 21 Q Now, would you imagine or would you believe

 22 that interest in nuclear generation would be increased

 23 both by regulators and industry in the event a CO2

 24 regulatory environment is imposed?

 25 A Yes.

 1101

 1 MR. PERKO: Thank you. No further questions.

 2 CHAIRMAN EDGAR: Okay. Exhibits? I have 52,

 3 53 and 54.

 4 MR. PERKO: That's correct.

 5 CHAIRMAN EDGAR: Oh, 52, 53 and 54 exhibits

 6 will be entered into the record. The witness is

 7 excused. And let's go ahead and call Mr. Kushner.

 8 (Exhibits No. 52, 53 and 54 admitted into the

 9 record.)

 10 MR. PERKO: Bradley Kushner.

 11 BRADLEY KUSHNER

 12 was called as a witness on behalf of the Applicant, and

 13 having been duly sworn, testifies as follows:

 14 DIRECT EXAMINATION

 15 BY MR. PERKO:

 16 Q Please state your name and business address

 17 for the record.

 18 A My name is Bradley Kushner, K-U-S-H-N-E-R.

 19 Business address is 11401 Lamar Avenue, Overland Park,

 20 Kansas.

 21 Q And, Mr. Kushner, have you been sworn?

 22 A Yes, I have.

 23 Q You might want to step up to the microphone.

 24 Mr. Kushner, did you submit prefiled direct

 25 testimony consisting of 18 pages on September 19th,

 1102

 1 2006?

 2 A Yes, I did.

 3 Q And did you submit -- did you -- are you

 4 sponsoring exhibits with that testimony that have been

 5 designated as 57, 58, 56, 57 and 58?

 6 A That's correct.

 7 Q 55, 56, 57, 58?

 8 A Yes, I am.

 9 Q Okay. And I believe two of those exhibits,

 10 specifically 57 -- I'm sorry, 56 and 57, have been

 11 revised through your supplemental testimony; is that

 12 correct?

 13 A That is correct.

 14 Q Now, are there any changes or additions to

 15 your prefiled direct testimony submitted on

 16 September 19th, 2006?

 17 A Yes. In addition to the changes reflected in

 18 my supplemental testimony, I do have three changes.

 19 Q And what are those?

 20 A The first change is on page 12, line 15,

 21 change 790 million to 823 million. The next page,

 22 page 17, line 3, change 66 to 74. And on line 4, change

 23 24 to 28.

 24 Q Are those the only changes in your testimony?

 25 A Yes, they are.

 1103

 1 Q Are you sponsoring sections of the application

 2 identified in Exhibit 58?

 3 A Yes. The sections I am sponsoring are listed

 4 on page 3 of my direct testimony.

 5 Q And other than the changes in the errata sheet

 6 that's been admitted into evidence as Exhibit 3, are

 7 there any other changes or additions to those sections?

 8 A No, there are not.

 9 Q If I were to ask you the same questions in

 10 your prefiled direct testimony of September 19th, would

 11 your answers be the same?

 12 A Yes, they would be.

 13 MR. PERKO: At this time, Madam Chairman

 14 Madam Chair, I would move for admission of

 15 Mr. Kushner's prefiled direct testimony as if read.

 16 CHAIRMAN EDGAR: The prefiled testimony will

 17 be entered into the record as though read.

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 1 BY MR. PERKO:

 2 Q Now, Mr. Kushner, did you also submit

 3 supplemental testimony in this docket consisting of four

 4 pages on December -- I'm sorry, six pages on

 5 December 12th, 2006?

 6 A Yes, I did.

 7 Q Are there any changes or additions to that

 8 testimony?

 9 A No, there are not.

 10 Q And are you sponsoring any exhibits with that

 11 testimony?

 12 A Yes, I am.

 13 Q What are those exhibits?

 14 A Exhibits BEK-2R.

 15 Q And those are the two exhibits that we

 16 mentioned are listed as 56 and 57 on the prehearing

 17 order?

 18 A That is correct.

 19 Q Okay. Thank you.

 20 Mr. Kushner, if I were to ask you the same

 21 questions today that are set forth in your supplemental

 22 testimony, would your answers be the same?

 23 A Yes, they would be.

 24 MR. PERKO: At this time, Madam Chair, I'd

 25 move for admission of Mr. Kushner's supplemental

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 1 testimony dated September 12th, 2006, as if read.

 2 CHAIRMAN EDGAR: The supplemental testimony

 3 will be entered into the record as if read.

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 1 BY MR. PERKO:

 2 Q Finally, Mr. Kushner, did you submit revised

 3 rebuttal testimony in this docket consisting of 11 pages

 4 on December 26, 2006?

 5 A Yes, I did.

 6 Q Are there any changes or additions to that

 7 revised rebuttal testimony?

 8 A No, there are not.

 9 Q If I were to ask you the same questions today

 10 as are set forth in that testimony, would your answers

 11 be the same?

 12 A Yes, they would be.

 13 MR. PERKO: At this time, Madam Chairman, I'd

 14 ask for the admission of Mr. Kushner's revised

 15 rebuttal testimony as if read.

 16 CHAIRMAN EDGAR: The rebuttal testimony will

 17 be entered into the record as though read.

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 1142

 1 BY MR. PERKO:

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

 3 your prefiled testimony and supplemental testimony?

 4 A Yes, I have.

 5 Q Could you please provide that at this time.

 6 A Yes. A detailed economic analyses were

 7 performed for each applicant to evaluate the cost

 8 effectiveness of participation in the Taylor Energy

 9 Center. The analyses were performed using the

 10 chronological optimum generation expansion planning

 11 model POWROPT and the chronological production costing

 12 model POWRPRO.

 13 In addition to each applicant's share of the

 14 Taylor Energy Center, the supply-side alternatives

 15 evaluated included various simple cycle, combined cycle,

 16 CFB and IGCC alternatives appropriate to each applicant.

 17 Each applicant's least cost capacity expansion plan over

 18 the 2006 through the 2035 period was identified by

 19 developing two unique capacity expansion plants, one

 20 with Taylor Energy Center and one without it. And these

 21 economic analyses considered transmission system costs

 22 and losses specific to each applicant as well as costs

 23 for compliance with the applicable air emission and

 24 other regulations.

 25 In addition to the base case analysis,

 1143

 1 numerous sensitivity scenarios were evaluated for each

 2 applicant. Out of the more than 70 total cases analyzed

 3 in all but a single case for one applicant the results

 4 showed participation in the Taylor Energy Center is

 5 included in each applicant's least cost expansion plant.

 6 Taylor Energy Center is also more cost

 7 technical effective than either bid received in response

 8 to the applicant's RFP. The comprehensive economic

 9 analysis including the base case and sensitivity

 10 scenarios in comparison to the RFP responses demonstrate

 11 that the capacity expansion plan including participation

 12 in the Taylor Energy Center is a robust plan for each

 13 applicant and is sufficiently flexible to overcome

 14 variation and deviations from the base case assumptions.

 15 Evaluation of conservation measures taken by

 16 or reasonably available to the applicants demonstrate

 17 that there are none which might mitigate the need for

 18 the Taylor Energy Center.

 19 This concludes my summary.

 20 Q And, Mr. Kushner, have you also prepared a

 21 summary of your revised rebuttal testimony?

 22 A Yes, I have.

 23 Q Could you present that at this time.

 24 A Yes. The Commission-approved FIRE model was

 25 used to evaluate the cost-effectiveness of 180 different

 1144

 1 DSM measures for each FMPA and JEA. The Commission has

 2 consistently found the rate impact test or RIM test to

 3 be appropriate for determining cost effectiveness.

 4 Consistent with the Commission's previous actions, the

 5 results of the RIM test were used as the basis for the

 6 DSM cost-effectiveness evaluation.

 7 The scope and methodology of the DSM

 8 evaluations performed for FMPA and JEA were consistent

 9 with those presented to and approved by the Commission

 10 and the Need for Power Applications for FMPA's Treasure

 11 Coast Energy Center Unit 1 and OUC's Stanton Energy

 12 Center Unit B Need for Power Applications. None of the

 13 DSM measures were found to be cost effective for either

 14 FMPA or JEA when considering the updated Taylor Energy

 15 Center capital cost estimate. This holds true when also

 16 considering the high fuel forecast and regulated

 17 CO2 sensitivity scenarios.

 18 The level of detail provided for the FIRE

 19 model analysis is consistent with or greater than the

 20 level of detail provided in prior need filings approved

 21 by this Commission. DSM measures selected for

 22 evaluation represent a wide range of various end use

 23 measures across residential and commercial including

 24 industrial customer classes and differentiate between

 25 new and existing construction.

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 1 For DSM measures that are implemented,

 2 associated savings are dependent upon the DSM measure

 3 being continually implemented over its assumed useful

 4 life. And the cost effectiveness of DSM is dependent

 5 upon the levels of participation and actual costs

 6 occurred.

 7 The evaluation of biomass alternatives for

 8 each participant shows that biomass is not a

 9 cost-effective alternative to the Taylor Energy Center.

 10 The Taylor Energy Center remains the most cost-effective

 11 alternative for each applicant when considering the high

 12 emission allowance price and regulated CO2 sensitivity

 13 scenarios.

 14 MR. PERKO: We tender the witness for

 15 cross-examination.

 16 CHAIRMAN EDGAR: Thank you. Let's see. It's

 17 about ten minutes till 8:00. Can we take just a

 18 second and talk about where we are?

 19 I'm showing Mr. Kushner and Mr. Urse and then

 20 Mr. Rollins are -- are -- is -- sorry -- the

 21 witnesses that we have remaining. Can you give me

 22 an idea as either individually or as a group about

 23 how much cross for Mr. Kushner, about how long so

 24 I've got a feel?

 25 MR. JACOBS: My guess would be it would be

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 1 approaching an hour.

 2 CHAIRMAN EDGAR: Okay. Then --

 3 MR. JACOBS: I don't want to speak out of

 4 turn, but I know I have a fair amount and I think

 5 NRDC has a fair amount.

 6 CHAIRMAN EDGAR: Ms. Brownless?

 7 MS. BROWNLESS: Yes.

 8 CHAIRMAN EDGAR: All right. Then let me make

 9 a few comments. First off, as I said earlier, I

 10 hoped we could push to the end. But I -- we are

 11 all made of sturdy stock, but I think we're

 12 starting to push the envelope on fatigue.

 13 With that in mind, I'm sorry to have to say

 14 that we're all going to have to come back another

 15 day. So as I said earlier, we will plan to come

 16 back at 10:30 on Thursday. The fact that we have

 17 some additional time to -- to rest and clear our

 18 thoughts in between is not an invitation to extend

 19 questioning. If anything, it is an opportunity to

 20 further refine and make questions productive and

 21 efficient.

 22 Ms. Brubaker?

 23 MS. BRUBAKER: Madam Chairman, I would like to

 24 point out that briefs under the current schedule

 25 are due on the 18th. So I think some extension is

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 1 appropriate. However, I would also note that with

 2 the exception of Mr. Kushner's testimony, Mr. Urse

 3 and Mr. Rollins' rebuttal, we have covered

 4 extensive ground. And we do have daily transcripts

 5 available with much gratitude to the court

 6 reporters who have been working so hard on this

 7 case.

 8 So I think first of all, my sense is there's a

 9 lot to work with even prior to the 18th. I note

 10 that under the current schedule, the staff

 11 recommendation is due on the 1st and Agenda is the

 12 13th. To the extent we have an extension of

 13 briefs, I would, of course, ask for a commensurate

 14 extension to late file the staff rec.

 15 CHAIRMAN EDGAR: I would expect that that

 16 request would be favorably considered.

 17 MS. BRUBAKER: Okay. And certainly welcome

 18 the thoughts of the parties, but I was thinking

 19 perhaps an extension to the 23rd.

 20 MS. BROWNLESS: What day is that, Jennifer?

 21 MS. BRUBAKER: That would be a Tuesday -- I'm

 22 sorry. The 18th to the 23rd. The 18th is a

 23 Thursday. Tuesday is the 23rd.

 24 CHAIRMAN EDGAR: For briefs?

 25 MS. BRUBAKER: For briefs.

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 1 MS. BROWNLESS: Okay.

 2 CHAIRMAN EDGAR: I'm seeing some nods.

 3 Mr. Perko? Nods.

 4 Okay. Then we will go ahead and work from

 5 that schedule from this point forward which will be

 6 for briefs of the parties to be to the Commission

 7 on January 23rd. Does that work?

 8 Thank you. All right. Any other questions,

 9 comments, clarifications?

 10 Seeing none, okay. Then everybody get a --

 11 get some sleep. And we will begin on Thursday

 12 taking up the cross of Mr. Kushner. We are done

 13 for the evening. Thank you all.

 14 (Hearing adjourned.)

 15 (Please go to Volume 10.)

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 1 CERTIFICATE OF REPORTER

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 3

 4

 5 STATE OF FLORIDA )

 6 COUNTY OF LEON )

 7

 8 I, LORI DEZELL, RPR, CCR, certify that I was

 9 authorized to and did stenographically report the

 10 proceedings herein, and that the transcript is a true

 11 and complete record of my stenographic notes.

 12 I further certify that I am not a relative,

 13 employee, attorney or counsel of any of the parties, nor

 14 am I a relative or employee of any of the parties'

 15 attorney or counsel connected with the action, nor am I

 16 financially interested in the action.

 17 WITNESS my hand and official seal this 15th

 18 day of January, 2007.

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