791

 1 BEFORE THE

 FLORIDA PUBLIC SERVICE COMMISSION

 2

 DOCKET NO. 060635-EU

 3 In the Matter of

 4 PETITION FOR DETERMINATION OF NEED FOR

 ELECTRICAL POWER PLANT IN TAYLOR COUNTY

 5 BY FLORIDA MUNICIPAL POWER AGENCY, JEA,

 REEDY CREEK IMPROVEMENT DISTRICT, AND

 6 CITY OF TALLAHASSEE.

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 10 VOLUME 8

 11 Pages 791 through 885

 12 ELECTRONIC VERSIONS OF THIS TRANSCRIPT ARE

 A CONVENIENCE COPY ONLY AND ARE NOT

 13 THE OFFICIAL TRANSCRIPT OF THE HEARING,

 THE .PDF VERSION INCLUDES PREFILED TESTIMONY.

 14

 15 PROCEEDINGS: HEARING

 16 BEFORE: CHAIRMAN LISA POLAK EDGAR

 17 COMMISSIONER MATTHEW M. CARTER, II

 COMMISSIONER KATRINA J. TEW

 18

 DATE: Friday, January 12, 2007

 19

 TIME: Commenced at 9:30 a.m.

 20

 PLACE: Betty Easley Conference Center

 21 Room 148

 4075 Esplanade Way

 22 Tallahassee, Florida

 23 REPORTED BY: JANE FAUROT, RPR

 MARY A. NEEL, RPR

 24

 APPEARANCES: (As heretofore noted.)

 25

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 1 I N D E X

 2 WITNESSES

 3

 NAME: PAGE NO.

 4

 GARY BRINKWORTH

 5

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 1 EXHIBITS

 2 NUMBER: ID. ADMTD.

 3 19 and 20 806

 4 23, 24, and 25 843

 5 61, 62, and 63 882

 6 65, 66, 67, 68, and 70 807

 7 105, 106 and 107 807

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 First Interrogatories

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

 2 (Transcript follows in sequence from Volume 7.)

 3 CHAIRMAN EDGAR: We will call this hearing back to

 4 order. And I believe when we stopped for some nourishment, Mr.

 5 Jacobs, you were continuing your cross. And if you are ready,

 6 we are ready.

 7 MR. JACOBS: Thank you, Madam Chair.

 8 GARY BRINKWORTH

 9 continues his testimony under oath from Volume 7:

 10 CONTINUED CROSS-EXAMINATION

 11 BY MR. JACOBS:

 12 Q Hi, Mr. Brinkworth. Earlier we were discussing the

 13 process that the City of Tallahassee used to assess your DSM

 14 portfolio, and I referred you to your deposition, and that page

 15 number is 77, and beginning at Line 14. And basically we

 16 talked about there that in your assessment you used something

 17 called hourly load shapes.

 18 A Yes, that's correct.

 19 Q Could you explain what that means for us?

 20 A Certainly. When we get to the point in our process

 21 of having screened applicable DSM measures, we want to now

 22 start putting them together in a way that we can use in our

 23 production costing analysis, we have to prepare an hourly load

 24 shape. And, so what Navigant did for us was to build those

 25 hourly chronological shapes in such a way that what that shape

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 1 represents is the savings of that particular bundle of DSM

 2 measures on an hourly basis for each hour of the year. So you

 3 would get an annual shape that represented energy savings for

 4 that DSM bundle, then you take all of those bundles and add

 5 them together and that produces the savings in each hour for

 6 the total portfolio.

 7 Q Now, in that analysis, basically you had to do some

 8 kind of -- and I want to kind of paraphrase, and you can

 9 correct me if I'm wrong, some of kind of the assumptions that

 10 you would have to look at in constructing that load shape. You

 11 would have to look at the end user's consumption profiles?

 12 A Yes, you would have to know what end use you were

 13 targeting with that particular bundle.

 14 Q And so you would look at multi-family, single family,

 15 and so forth and so on?

 16 A That would be correct, yes.

 17 Q And I notice that you did commercial measures, so you

 18 would have to look at some of the commercial uses and those

 19 load profiles and use consumption patterns also, would you not?

 20 A Yes, that's true.

 21 Q Is that different than what the FIRE model does?

 22 A It is.

 23 Q And could you describe that difference?

 24 A Well, we don't use the FIRE Model directly, so I

 25 would have to go from what I generally understand about that

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 1 model. The FIRE Model is a spreadsheet based, what I would

 2 characterize as a static calculation of cost-effectiveness that

 3 uses measure costs and performance associated with a DSM

 4 program compared to an avoided unit. That methodology, as I

 5 understand it, does not involve any kind of load shapes or

 6 chronological analysis of any type, which makes it distinctly

 7 different from the hourly method that we used.

 8 Q And to summarize, essentially, the value of a measure

 9 under the FIRE model looks at how a particular unit that is

 10 going to be operating, how it can shut down that unit, whereas

 11 you look at the uses of your customers and figure out how they

 12 can benefit from this demand reduction?

 13 A Let me see if I can say it a little bit differently.

 14 Q Thank you.

 15 A The way I characterized that is that the FIRE model

 16 looks at the cost of a DSM measure compared to an avoided unit

 17 and tries to identify whether that measure is more or less

 18 expensive than serving that same amount of energy with the

 19 avoided unit, whatever unit that happens to be identified in

 20 the model. Our methodology looks at hourly energy savings from

 21 the DSM package on an hour-by-hour basis, and it does reflect

 22 end use patterns and other sorts of things that you described

 23 because those DSM measures are targeted at particular end uses.

 24 Q Okay. And then you describe that you then took and

 25 put these measures into bundles. Do you have access to the

 797

 1 petition for need application in front of you?

 2 A Yes, I have got the sections here.

 3 Q And it is Volume E?

 4 A Yes.

 5 Q What I particularly want to look at -- and the page

 6 numbers that I have here are E, Volume E. -- let me get to the

 7 bottom here -- 7-11, and on that it is Table E.7-2. And, as I

 8 can understand, this table is actually telling you that over --

 9 in each year when and how your DSM measures are going to give

 10 you relief from your summer peak, your winter peak, and so

 11 forth. Is that a correct statement?

 12 A The table is an annual table, and I should probably

 13 point out that I didn't sponsor this portion of our Volume E,

 14 but I can talk generally about what's here. The table does

 15 show the annual contribution to the summer peak and winter peak

 16 and the annual energy reduction for the entire portfolio over

 17 that period from 2007 through 2025.

 18 Q And is that how you derived your estimate of your

 19 cost savings from the implementation of your DSM portfolio?

 20 A Well, the cost savings is actually done on that

 21 hourly annual basis because we actually use a chronological

 22 production costing model. Actually, I should say

 23 Black & Veatch runs that for us. But the savings are

 24 calculated on an hourly basis and then summed up for the year.

 25 Q On the very next page is another table, Table E.7-3,

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 1 and here it looks like you have described all the particular

 2 bundles that you have used. And I'm not going into particulars

 3 of any of them, but I just want to kind of, again, generally

 4 characterize the table. Now you are saying here is how these

 5 bundles perform?

 6 A Generally, that's correct. This table is intended to

 7 show how the bundles contribute to the annual demand and energy

 8 savings that is shown on the proceeding table. So, for

 9 example, I know we weren't going to go through all of these,

 10 but just in the way of clarification, if you look at our first

 11 bundle here on commercial space conditioning. What the table

 12 is telling you is that of the total summer peak demand

 13 reduction by 2025 that particular bundles contributes

 14 22 percent of that demand savings, and it contributes

 15 20 percent of that winter demand savings, and 24 percent of the

 16 projected annual energy savings by 2025.

 17 Q Thank you. Now, I note that you don't have any

 18 industrial bundles on here, and I think we discussed at your

 19 deposition that you don't have any industrial customers, is

 20 that correct?

 21 A That's correct.

 22 Q But if this were complete and you did have industrial

 23 customers, you would expect that there would be a bundle on

 24 here for industrial, correct?

 25 A We would have targeted all of our end uses, so, yes,

 799

 1 there would have been an industrial bundle here.

 2 MR. JACOBS: Just one moment. I think I may be done.

 3 BY MR. JACOBS:

 4 Q And your rationale in looking at -- we've heard the

 5 term bantered about today of aggressive DSM versus

 6 non-aggressive DSM, and I won't go into what was understood,

 7 but your operational and approach in doing this was targeted to

 8 your users, is that a fair statement? And so there was

 9 symmetry between what you were trying to accomplish in your DSM

 10 and what actually happens on your system?

 11 A Yes. Our city commission particularly directed us to

 12 adopt a more ambitious DSM program that could bring perhaps

 13 additional benefit to our customers, because that was one of

 14 their policy objectives, and so that is what led us ultimately

 15 to the development of this portfolio.

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

 17 CHAIRMAN EDGAR: Questions from staff?

 18 MS. FLEMING: Just a few, Madam Chair.

 19 CROSS-EXAMINATION

 20 BY MS. FLEMING:

 21 Q Good afternoon, Mr. Brinkworth.

 22 A Good afternoon.

 23 Q Earlier you discussed the demand savings from the

 24 City's new DSM measures, do you recall that?

 25 A Yes.

 800

 1 Q If the demand savings from these new DSM measures are

 2 less than anticipated, could the city use the capacity from TEC

 3 to meet its higher than expected load?

 4 A Absolutely. In fact, that's one of the things that

 5 we pointed out to our own city commission is that having TEC in

 6 our mix allows us to fall back kind of, if you will, on less

 7 expensive coal power if for some reason our DSM bundles didn't

 8 perform like we hope that they will.

 9 Q And earlier you stated that the City has approval in

 10 TEC through the permitting process, but not the construction

 11 phase. The City will have another opportunity to decide if

 12 they want to proceed with the Taylor Energy Center at the

 13 construction phase?

 14 A That is my understanding. All the participants have

 15 that same, what is called go/no go option.

 16 Q At that time where the City determines whether they

 17 want to move forward or not, what factors will the City review

 18 to determine if it is still cost-effective or in the best

 19 interest to participate in TEC?

 20 A Well, I expect that we would do a refresh of our

 21 economic analysis. I hope we won't do another three-year IRP

 22 study like we just finished, but it would be our intention to

 23 update our IRP analysis. I'm sure our commission would want to

 24 look at all the economic factors as well as weigh any other

 25 issues related to permit conditions or something like that

 801

 1 before we made a decision.

 2 Q Would you agree that it is prudent for utilities to

 3 continuously evaluate whether participating in a particular

 4 generation plant continues to be cost-effective for that

 5 utility?

 6 A Yes, I would, presuming that we mean continuous. At

 7 some point when we make a commitment to either finance the

 8 project or begin to break ground on the project, I think you

 9 stop at that point. But, yes, you would continuously evaluate

 10 until you made that commitment to construct.

 11 MR. FLEMING: Thank you, Mr. Brinkworth.

 12 REDIRECT EXAMINATION

 13 BY MS. RAEPPLE:

 14 Q Mr. Brinkworth, you were asked some questions related

 15 to the performance of your DSM portfolios, and I think you

 16 responded with regard to your expectation of the DSM

 17 performance. Could you explain to us what that expectation

 18 level is?

 19 A Yes. Our DSM portfolio was built on the assumption

 20 of what is called maximum achievable potential. That basis, as

 21 described by Navigant, is a basis that identifies DSM that is

 22 possible recognizing the actual end uses of the customer and

 23 certain economic factors related to the age of appliances that

 24 might be replaced and then also the willingness of the customer

 25 to participate. That maximum achievable potential, we believe,

 802

 1 represents the most DSM we could realistically pursue given

 2 those end use market conditions.

 3 Q Do you have any guarantee that the City will actually

 4 achieve that maximum achievable DSM?

 5 A No, we don't.

 6 Q Are any other utilities in the state of Florida using

 7 the DSM methodology used by the City of Tallahassee?

 8 A Not that I'm aware of.

 9 Q Ms. Brownless asked you earlier about the case, the

 10 one case where the Taylor Energy Center was more expensive than

 11 a gas plant. Do you remember that line of questioning?

 12 A Yes, I do.

 13 Q In how many cases was the Taylor Energy Center found

 14 to be the least cost plan?

 15 A Forty-six.

 16 Q For the case that Ms. Brownless pointed out, was the

 17 Synapse high CO2 allowance price estimate integrated with the

 18 fuel price estimates?

 19 A No, it was not. The CO2 estimates provided by

 20 Synapse were developed independent of any fuel forecast. We

 21 believe that in order to properly capture the CO2 benefit it

 22 should have been an integrated analysis that allowed fuel

 23 prices to respond to those assumed CO2 allowance costs.

 24 Q Ms. Brownless also asked you to look at some exhibits

 25 that are attached to Mr. Urse's testimony. I believe those are

 803

 1 Exhibits 65 through 68 and Exhibit 70. Do all of those charts

 2 represent the current analysis conducted by the city?

 3 A Not all of them, no. Several of those slides are

 4 actually extracted from presentations we made to the Commission

 5 at various points in our IRP study. Two of them, in fact, are

 6 from September of 2005, and represent earlier levels of

 7 analysis that would no longer be representative of where the

 8 city is now currently in our cases.

 9 Q Are the Progress Energy transmission rates regulated

 10 by FERC?

 11 A Yes, they are.

 12 Q Ms. Brownless also asked you about the possibility

 13 for the variation in the costs of the Taylor Energy Center

 14 depending on the SCA process. Can the costs vary depending on

 15 the results of the SCA process for any proposed power plant

 16 under the Power Plant Siting Act?

 17 A Certainly they can.

 18 Q She also asked you about whether or not the city had

 19 done an internal sensitivity analysis reflecting the 20 percent

 20 in addition to the new capital costs for the Taylor Energy

 21 plant, do you remember those questions?

 22 A Yes, I do.

 23 Q Do you know whether a sensitivity analysis adding

 24 20 percent to those new capital costs was done as part of this

 25 need application process?

 804

 1 A Yes, the project, in fact, did do such a sensitivity,

 2 and I believe the results are part of Mr. Kushner's testimony.

 3 MS. RAEPPLE: Thank you. I have nothing further.

 4 MS. BROWNLESS: Madam Chair, may I just get Mr.

 5 Brinkworth to identify the two exhibits he believes were done

 6 in 2005?

 7 THE WITNESS: Certainly.

 8 CHAIRMAN EDGAR: If you can answer that, then that

 9 would be fine.

 10 THE WITNESS: In Mr. Urse's testimony it would be the

 11 exhibit that is marked as SU-7. Pages 1 and 2 actually

 12 represent material that we presented in September of 2005.

 13 MS. BROWNLESS: Thank you, sir.

 14 MS. RAEPPLE: Madam Chairman, while Mr. Brinkworth is

 15 here, I would request an opportunity to also present his

 16 redirect, which is very brief. I don't mean redirect, I mean

 17 rebuttal.

 18 CHAIRMAN EDGAR: And I knew what you meant, but thank

 19 you for that clarification, as well. Okay. Everybody take a

 20 deep breath. That seems logical to me. Is there an objection?

 21 MS. BROWNLESS: No objection.

 22 CHAIRMAN EDGAR: All right. Then let's go ahead and

 23 do that. Thank you.

 24 DIRECT EXAMINATION (Rebuttal)

 25 BY MS. RAEPPLE:

 805

 1 Q Mr. Brinkworth, did you hear Doctor Bellamy's

 2 testimony during the public hearing?

 3 A Yes, I did.

 4 Q Could you please explain the City's electric rate

 5 structure and the influence that tax exempt government

 6 customers have on those rates?

 7 A Yes, I'll be glad to. The City of Tallahassee's

 8 electric rate structure is built very much the same way any

 9 electric rate utility's rate structure is constructed. Doctor

 10 Bellamy was particularly identifying a component of our rate

 11 structure that allows us to transfer funds to the City of

 12 Tallahassee's general fund as part of a way, as he properly

 13 described, to offset the loss of tax revenues from tax exempt

 14 entities. However, he mischaracterized how large a component

 15 of our rates that particular factor represents. In fact, if

 16 you look at our 2007 revenue requirement models, you would see

 17 that our rate design recovery requires -- almost 65 percent of

 18 our rate revenue is related to fuel and purchased power while

 19 less than 6 percent is related to the transfer to the general

 20 fund. So it's clear that our rising electric rates are driven

 21 primarily by the cost of fuel and not by the transfer to the

 22 general government.

 23 MS. RAEPPLE: Thank you. I have nothing further.

 24 CHAIRMAN EDGAR: Okay. Good. Let's take up

 25 exhibits.

 806

 1 MS. RAEPPLE: At this time I would move Exhibits 19

 2 and 20 into the record.

 3 CHAIRMAN EDGAR: Exhibits 19 and 20 will be moved

 4 into the record.

 5 (Exhibits 19 and 20 admitted into the record.)

 6 MS. BROWNLESS: And at this time, Madam Chair, we

 7 would offer Exhibits 65 through 68, 70 -- let me get these in

 8 order -- 104, 105, 106, and 107.

 9 MS. BRUBAKER: May I just ask for clarification. I

 10 had originally thought that we might take up the earlier

 11 exhibits with that testimony. If everybody is in agreement to

 12 do it now, that is fine.

 13 CHAIRMAN EDGAR: Again, I want to maintain some

 14 consistency of the process because it helps me think and follow

 15 along, but yet we are trying to get as much done as we can, so

 16 if we can go ahead and do that. Is there any objection to --

 17 and actually I'm going to ask you, Ms. Brownless, to read the

 18 numbers again for the exhibits from Witness Urse.

 19 MS. BROWNLESS: 65, 66, 67, 68, and Exhibit 70.

 20 CHAIRMAN EDGAR: Okay. 65, 66, 67, 68 and 70. Any

 21 objection?

 22 MS. RAEPPLE: Madam Chairman, we would object to

 23 Exhibit 70 on grounds of relevance as Mr. Brinkworth has

 24 testified that that is outdated information.

 25 CHAIRMAN EDGAR: Ms. Brubaker.

 807

 1 MS. BRUBAKER: To the extent that it was used for the

 2 purpose of cross examination, it is something that is used for

 3 Mr. Urse's testimony, I think it is appropriate to include that

 4 in the record.

 5 CHAIRMAN EDGAR: Then I will go ahead and admit and

 6 we will enter the just listed exhibits by number into the

 7 record.

 8 (Exhibits 65, 66, 67, 68, and 70 admitted into the

 9 record.)

 10 MS. BROWNLESS: And 105 to 107.

 11 CHAIRMAN EDGAR: Are we up to that? Okay. 105, 106,

 12 and 107. Any objection?

 13 MS. RAEPPLE: No objection.

 14 CHAIRMAN EDGAR: Okay, thank you. So Exhibits 105,

 15 106, and 107 will also be moved into the record.

 16 (Exhibits 105 through 107 admitted into the record.)

 17 MS. BROWNLESS: Thank you, Your Honor.

 18 CHAIRMAN EDGAR: Okay. And the witness can be

 19 excused. Thank you. And I believe that we are, in order to

 20 try to accommodate schedules, going to take the next witness

 21 out of order. Mr. Perko.

 22 MR. PERKO: Paul Hoornaert.

 23 PAUL HOORNAERT

 24 was called as a witness on behalf of the Applicants, and having

 25 been duly sworn, testified as follows:

 808

 1 DIRECT EXAMINATION

 2 BY MR. PERKO:

 3 Q Please state your name and business address for the

 4 record?

 5 A Paul Hoornaert, H-O-O-R-N-A-E-R-T, 55 East Monroe,

 6 Chicago, Illinois.

 7 Q Mr. Hoornaert, have you been sworn?

 8 A Yes, I have.

 9 Q Mr. Hoornaert, did you submit prefiled direct

 10 testimony in this proceeding consisting of ten pages on

 11 September 19th, 2006?

 12 A Yes, I did.

 13 Q Do you have any changes or additions to that

 14 testimony?

 15 A There is one change, and that was covered by

 16 supplemental testimony submitted December 26th.

 17 Q And would that be the estimated capital cost revealed

 18 on Page 7, Line 5?

 19 A That is correct.

 20 Q Other than that change, are there any other changes

 21 to your testimony submitted on September 19th, 2006?

 22 A No.

 23 Q And other than that, with that change, if I were to

 24 ask you the questions in your testimony today, would the

 25 answers be the same?

 809

 1 A Yes.

 2 Q Mr. Hoornaert, are you sponsoring any exhibits with

 3 your original prefiled direct testimony?

 4 A Yes, I am, several sections in A.3 as identified in

 5 the prefiled testimony.

 6 Q And those sections are identified as Exhibit Number

 7 24 in this proceeding?

 8 A Correct.

 9 Q Are you sponsoring any other exhibits?

 10 A My one exhibit is my resume, PH-1.

 11 Q And that has been identified as Exhibit Number 23?

 12 A Correct.

 13 Q Do you have any changes or additions to that exhibit?

 14 A No, I do not.

 15 Q Mr. Hoornaert, did you also present supplemental or

 16 submit supplemental testimony in this proceeding consisting of

 17 four pages on December 26th, 2006?

 18 A Yes, I did.

 19 Q Are there any changes or additions to that testimony?

 20 A No.

 21 Q Are you sponsoring any exhibits with that testimony?

 22 A One exhibit, the updated capital cost summary, PH-1R.

 23 Q And has that exhibit been identified as Number 25?

 24 A Yes.

 25 Q And I may have asked you this, but do you have any

 810

 1 changes or additions to that exhibit?

 2 A No, I do not.

 3 Q If I were to ask you the same questions in your

 4 supplemental testimony as set forth therein today, would your

 5 answers be the same?

 6 A Yes, they would.

 7 MR. PERKO: At this time, Madam Chairman, we would

 8 request that the prefiled direct testimony and supplemental

 9 testimony of Mr. Hoornaert be inserted into the record as

 10 though read.

 11 CHAIRMAN EDGAR: The prefiled testimony will be

 12 entered into the record as though read.

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 825

 1 BY MR. PERKO:

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

 3 prefiled direct and supplemental testimony?

 4 A Yes, I have.

 5 Q Would you please provide that now?

 6 A Sargent & Lundy is the designing engineer for the

 7 Taylor Energy Center. As project manager, I am responsible for

 8 the overall planning and coordination of the engineering

 9 aspects of the design. The purpose of my testimony is to

 10 review the technical aspects of the Taylor Energy Center

 11 design.

 12 The Taylor Energy Center will use proven highly

 13 reliable supercritical pulverized coal technology. The

 14 supercritical pressure and temperatures and the higher cycle

 15 efficiencies result in less fuel consumption and lower emission

 16 levels. The nominal plant output will be 765 megawatts net.

 17 This unit will be equipped with the best available control

 18 technology to minimize environmental impacts. We will include

 19 an SCR for NOX control, wet FGD for SO2 control, a bag house

 20 and wet ESP for particulate control, and activated carbon

 21 injection as a contingency if that proves necessary for mercury

 22 control. The wastewater generated by the station will be

 23 recycled and processed. If needed, the processing of remaining

 24 wastewater will go through a zero liquid discharge system.

 25 The Taylor Energy Center will be capable of burning a

 826

 1 wide range of solid fuels, including coals from Latin America,

 2 Central America, and the Powder River Basin, as well as up to

 3 30 percent petroleum coke. The capital costs were developed to

 4 include equipment, materials, construction, and indirect costs.

 5 The capital costs have been updated to account for recent

 6 changes in market conditions. O&M costs, both fixed and

 7 variable, have also been estimated. That concludes my summary.

 8 MR. PERKO: I tender the witness for

 9 cross-examination.

 10 CHAIRMAN EDGAR: I apologize, but I need to take a

 11 five-minute break. So everybody relax for just a few minutes.

 12 Please don't go far, and we will start back in five minutes.

 13 Thank you.

 14 (Short recess.)

 15 CHAIRMAN EDGAR: I'm sorry. That was more than five

 16 minutes. And I want you all to know I do actually have

 17 excellent time management skills, although perhaps today it's

 18 not showing.

 19 I need to step away for just a few more minutes, so

 20 Commissioner Carter is going to go ahead and chair the hearing.

 21 You're in very capable hands, and I'll be back very shortly.

 22 Commissioner Carter, you have the gavel.

 23 COMMISSIONER CARTER: I'm reminded of the beginning

 24 of A Tale of Two Cities. Dickens said it was the best of times

 25 and the worst of times. But that's just free.

 827

 1 Ms. Brubaker, we were --

 2 MS. BRUBAKER: I believe Mr. Perko has a small

 3 clarification to make, and then I think we are at the point of

 4 tendering the witness, if I remember correctly.

 5 MR. PERKO: Yes, Commissioner. I just want to

 6 clarify with Mr. Hoornaert.

 7 We spoke about the application sections that you're

 8 sponsoring. Have those been updated in the errata sheet that

 9 has been submitted into evidence as Exhibit Number 3?

 10 THE WITNESS: Yes, they have.

 11 MR. PERKO: Thank you. We tender the witness for

 12 cross-examination.

 13 COMMISSIONER CARTER: Okay.

 14 MS. BROWNLESS: Thank you.

 15 COMMISSIONER CARTER: Ms. Brownless, you're

 16 recognized.

 17 CROSS-EXAMINATION

 18 BY MS. BROWNLESS:

 19 Q. Good afternoon, Mr. Hoornaert.

 20 A. Good afternoon.

 21 Q. We're handing out the responses of the applicants to

 22 NRDC's first set of interrogatories, and if you could just look

 23 at those when you get it and see if you provided the responses

 24 to numbers 18 and 19.

 25 A. Okay.

 828

 1 MS. BROWNLESS: And I think that needs to be marked

 2 as an exhibit, which I think is 108; is that right?

 3 MS. BRUBAKER: That's right. I'm sorry. Would you

 4 repeat the caption, please, the title?

 5 MS. BROWNLESS: Sure. It's applicant's responses to

 6 NRDC's first set of interrogatories, numbers 1 through 26.

 7 (Exhibit Number 108 was marked for identification.)

 8 BY MS. BROWNLESS:

 9 Q. And I'm sorry. Did you provide the responses to 18

 10 and 19?

 11 A. Yes, I did.

 12 Q. Thank you. And are they true and correct to the best

 13 of your knowledge and belief?

 14 A. Yes, they are.

 15 Q. Thank you. Will you look at your updated Table

 16 A.3-5, which is your Exhibit PH-1R on your -- I think it's --

 17 A. Okay. I have that.

 18 Q. All right. And is that the updated capital cost

 19 summary to which you referred?

 20 A. Yes, it is.

 21 Q. Okay. On that updated capital cost summary, where it

 22 says base estimate --

 23 A. Yes.

 24 Q. Does that include the transmission costs that

 25 Mr. Brinkworth identified as directly assigned transmission

 829

 1 costs to TEC?

 2 A. It includes the 5.5 miles to the Perry substation,

 3 which is what I believe Mr. Brinkworth was referring to.

 4 Q. Okay. And those are the ones that solely benefit

 5 TEC?

 6 A. That is correct.

 7 Q. Okay. So you're not expecting to get those

 8 reimbursed by anybody?

 9 A. I wouldn't expect so.

 10 Q. Now, your revised cost estimate on your chart, does

 11 that include activated carbon injection for mercury removal in

 12 phase 2 of the CAMR regulation?

 13 A. Yes, it does.

 14 Q. And is that cost approximately $40 million?

 15 A. Yes, it is.

 16 Q. Okay. And I believe at your deposition, you

 17 testified there were approximately 2 to $4 million of variable

 18 O&M costs associated with that?

 19 A. As an O&M cost, that's our estimate, yes.

 20 Q. Okay. And that's a variable O&M cost; correct?

 21 A. Yes, it would be.

 22 Q. Okay. And that variable O&M cost was not included in

 23 the revised cost estimate that we just discussed?

 24 A. That's correct.

 25 Q. Now, as I understand it, TEC is projecting a need for

 830

 1 a 90-day coal supply; is that right?

 2 A. Correct.

 3 Q. Okay. And also, a 90-day limestone storage for

 4 inactive and a 10-day active limestone storage on-site?

 5 A. Correct.

 6 Q. Okay. Now, this is approximately a 3,000-acre site;

 7 is that correct?

 8 A. Correct.

 9 Q. And this site will accommodate or can accommodate

 10 another 800-megawatt size coal plant; is that correct?

 11 A. It could.

 12 Q. Okay. Are you aware of whether any site

 13 certification application has been filed in this case?

 14 A. It has not been.

 15 Q. Thank you. And are you aware of whether the

 16 applicants will ask -- or what amount of capacity the

 17 applicants will ask for under the ultimate site certification?

 18 A. The SCA site certification application will be based

 19 on one unit of approximately 800-megawatt gross size.

 20 Q. Okay. So they're not asking for any more than

 21 800 megawatts for ultimate site certification at this time?

 22 A. That is correct.

 23 Q. With regard to the TEC unit, I believe your testimony

 24 at deposition was that at a minimum, there should be 30 days of

 25 coal supply on-site; is that correct?

 831

 1 A. That's correct.

 2 Q. And that anything over 30 days was basically at the

 3 discretion of the utility?

 4 A. Correct.

 5 Q. Is it true that a 45-day coal supply would be

 6 sufficient for an 800-megawatt coal plant?

 7 A. It could certainly be adequate. It's a matter of the

 8 utility's choice on how much coal they want to stockpile.

 9 Q. Okay. So the 90-day, is that also true for the

 10 limestone storage?

 11 A. That's correct.

 12 Q. And just so I'm clear and the record is clear, the

 13 limestone storage is an operating expense, not a capital cost;

 14 is that correct?

 15 A. That's correct.

 16 Q. So the 90-day coal supply would be sufficient to

 17 accommodate two 800-megawatt coal plants on this site

 18 ultimately; is that correct?

 19 A. If the utility elected to have half as much active or

 20 ultimate storage on-site, that would be correct.

 21 Q. And that would be within the realm of reasonable

 22 utility practice; right?

 23 A. It would be reasonable.

 24 Q. If the second unit sited on this site was an IGCC

 25 plant, it could also take advantage of this coal, could it not?

 832

 1 A. Yes, it could.

 2 Q. Is limestone required for an IGCC unit to operate?

 3 A. No.

 4 Q. Are there any technologies of which you are currently

 5 aware that will allow TEC to be retrofitted with CO2 capture

 6 equipment should CO2 be regulated during the 40-year life of

 7 this plant?

 8 A. The CO2 capture technology is an emerging technology,

 9 and there are technologies available. But as I mentioned,

 10 they're emerging. It's relatively new.

 11 Q. Okay. Is it relatively expensive as well?

 12 A. I really am not able to comment on the cost.

 13 Q. Thank you. Should CO2 be regulated in a fashion

 14 similar to SO2 and NOx under a cap and trade program, the net

 15 effect -- is it true that the net effect in order for TEC to

 16 operate would be that it would either have to purchase CO2

 17 emission allowances or turn off the plant?

 18 A. Again, I'm really not in a position to comment on

 19 that. It's not my area of expertise.

 20 Q. Is it true that current IGCC technology allows CO2 to

 21 be captured and sequestered?

 22 A. Again, it's emerging, but I believe that's accurate.

 23 Q. And by sequestered, I mean not released into the

 24 atmosphere.

 25 A. Right.

 833

 1 Q. So if that's the case, IGCC units would not

 2 necessarily be forced to use allocated allowances or to

 3 purchase them; is that correct?

 4 A. I can't comment on that.

 5 Q. This TEC plant is designed such that it can burn up

 6 to 30 percent petcoke; is that right?

 7 A. That is correct.

 8 Q. And it can also burn several types of domestic and

 9 international coal?

 10 A. Yes.

 11 Q. Okay. So is it fair to say that the fuel diversity

 12 that's demonstrated in this particular plant is as to coal type

 13 rather than as to fuel type? In other words, it isn't coal

 14 versus natural gas, coal versus diesel, it's different types of

 15 coal?

 16 A. That is correct.

 17 Q. An IGCC plant can burn natural gas as well as coal;

 18 is that right?

 19 A. In an IGCC, if it's burning natural gas, that's

 20 typically a backup fuel when the gasification process is not

 21 available.

 22 Q. All right. But the purpose of an IGCC plant is it

 23 produces synthetic gas from coal; correct?

 24 A. Correct.

 25 Q. So it can utilize natural gas in lieu of synthetic

 834

 1 gas?

 2 A. If the combustion turbines are so designed.

 3 Q. So in that sense, if the combustion turbines are

 4 correctly designed, an IGCC plant has dual fuel capability?

 5 MR. PERKO: Commissioner Carter --

 6 COMMISSIONER CARTER: I think you're right. He never

 7 said whether it was correct or not, so let's just stay focused.

 8 MS. BROWNLESS: Okay.

 9 MR. PERKO: Commissioner Carter, I have another

 10 objection. I've let this -- I've been somewhat patient, but --

 11 MS. BROWNLESS: We're moving on, Gary. That's the

 12 last one.

 13 MR. PERKO: Okay.

 14 BY MS. BROWNLESS:

 15 Q. You were asked at your deposition with regards to

 16 emissions and the difference between petcoke and coal. Do they

 17 -- does petcoke produce more or less SO2 than coal?

 18 A. The petcoke has a higher sulfur level, but we would

 19 be designing for the same outlet SO2 level irregardless of the

 20 fuel, which coal or the blend.

 21 Q. All I'm trying to do is just get a straight

 22 comparison. If one were to burn 100 percent petcoke versus

 23 burning 100 percent coal, would it produce more or less SO2?

 24 A. 100 percent petcoke is higher in sulfur, so it would

 25 be higher in SO2 emissions.

 835

 1 Q. Does petcoke produce the same or greater or lesser

 2 amounts of NO2 for the same volume?

 3 A. I believe the NOx is comparable.

 4 Q. Okay. And do you know how petcoke compares with coal

 5 with regard to CO2 emissions?

 6 A. I do not.

 7 Q. Do you know whether an IGCC unit of similar size

 8 would emit more or less SO2 per ton of coal?

 9 A. Could you repeat that question, please?

 10 Q. Do you know whether an IGCC unit of similar size

 11 would emit more or less SO2 per ton?

 12 A. I'm not sure. I can't comment on that.

 13 Q. Okay. The same question for NO2, NOx?

 14 A. The same response.

 15 Q. CO2?

 16 A. Same response.

 17 MS. BROWNLESS: Thank you so much, Mr. Hoornaert.

 18 MR. PABEN: I have nothing.

 19 COMMISSIONER CARTER: No questions?

 20 Mr. Jacobs, you're recognized.

 21 MR. JACOBS: Thank you.

 22 CROSS-EXAMINATION

 23 BY MR. JACOBS:

 24 Q. Good afternoon.

 25 A. Good afternoon.

 836

 1 Q. Let me just touch on a couple of brief points. I

 2 believe in your deposition when you discussed the revised

 3 capital costs, you indicated that it would not be expected that

 4 these present projections would increase any further. Is that

 5 still your opinion?

 6 A. That is correct.

 7 Q. And that is based on what factors?

 8 A. The estimate, the way we have developed it, does

 9 include escalation rates to get us through the construction

 10 period, and those are our best estimates as to the way the

 11 market will react.

 12 Q. Are you familiar with present projects to design and

 13 construct supercritical pulverized plants in other areas of the

 14 country?

 15 A. I'm not sure what specific ones.

 16 Q. Okay. Let me direct you to two in particular. One

 17 would be the Big Stone project in South Dakota, and the other

 18 would be the Cliffside project in North Carolina.

 19 A. The Cliffside project?

 20 Q. Yes.

 21 A. Is that the Duke project?

 22 Q. Yes, that's the Duke plant.

 23 A. I have read about those projects.

 24 Q. And you're aware that in both those instances, they

 25 had a parallel experience as yours, where they came in with

 837

 1 original projections and then had to come back with

 2 substantially modified projections, are you not?

 3 A. I'm aware of that.

 4 Q. Without going too far afield -- and you can just

 5 indicate to me if you have familiarity with this. Let's talk

 6 specifically about the Duke instance. In that particular case,

 7 the company filed official pleadings with the State Commission

 8 in North Carolina indicating that an important part of the

 9 reason for their increase was due to market factors. And if

 10 you would like, I could read it to you, but are you aware

 11 generally of that concept?

 12 A. I'm aware of that.

 13 Q. And my question simply is this: In your statement

 14 today that you think you've captured all those potential

 15 escalation factors, you believe you've accounted for all the

 16 prevailing market factors that are in play in the design and

 17 construction of supercritical plants?

 18 A. Yes, I have.

 19 Q. Okay. You may be aware of the testimony we had

 20 earlier yesterday regarding the whole status of the technology

 21 in pulverized supercritical plants, supercritical pulverized

 22 plants. Let me restate the question then, if I may. Are you

 23 aware of any supercritical pulverized plants that are presently

 24 being designed and -- that are presently operational in the

 25 United States?

 838

 1 A. There are many supercritical pulverized coal units in

 2 operation in the United States.

 3 Q. And have any of those been constructed and become

 4 operational within the last five years?

 5 A. I think there's one in Iowa that's soon to come

 6 online. I think that's the newest. Within the last five

 7 years, I can't recall any specific ones that have come online.

 8 Q. Okay. Let me move on to another item, and this is

 9 kind of under the general category of capital costs to

 10 construct a plant still. Are you aware of the market

 11 circumstances with regard to delivered coal? And in

 12 particular, I'm speaking to the rail difficulties with the

 13 delivery of coal in the United States.

 14 A. That's outside of the area that I'm testifying to.

 15 Q. Okay. Very well. And then it is the case that in

 16 Taylor Energy, the primary analysis that has been done assumes

 17 that the plant will burn primarily Latin American coal with up

 18 to a 30 percent mixture of petcoke; is that correct?

 19 A. That was determined out of the fuel analyses that we

 20 did to be the lowest cost option.

 21 Q. Okay. And then there was a sensitivity analysis done

 22 that would assume Powder River Basin would be the fuel; is that

 23 correct?

 24 A. There's Central Appalachian and Powder River Basin;

 25 correct.

 839

 1 Q. In the event that there are regulations -- I'm not

 2 now arguing that there will be, but in the event that carbon is

 3 regulated, would that assumption still hold true, i.e., that

 4 the plant will primarily use Latin American and petcoke and not

 5 Powder River Basin as a base case?

 6 A. Since the CO2 regulations haven't been defined, I

 7 guess that piece of it I'll put to the side. But relative to

 8 those three fuels, I don't think there's any real difference.

 9 Q. In terms of --

 10 A. In terms of CO2, I wouldn't think there's any

 11 significant difference.

 12 Q. So if there are carbon allowances, you wouldn't see

 13 any preference amongst the owners to want to use Powder River

 14 Basin to address some of their allowance costs?

 15 A. That would have to be reviewed, but I don't see that

 16 as a big impact.

 17 Q. Okay. Just one moment. I think that may be it.

 18 Oh, one final question. There was already a

 19 discussion of the flexibility in fuels at Taylor Energy. As

 20 one of those items of flexibility, could Taylor Energy burn

 21 biomass, or could it be designed to burn biomass?

 22 A. At this point, it has not been incorporated into the

 23 conceptual design.

 24 MR. JACOBS: Okay. Thank you.

 25 COMMISSIONER CARTER: Staff?

 840

 1 CROSS-EXAMINATION

 2 BY MS. BRUBAKER:

 3 Q. Just a quick question or two, if I may, please. Mr.

 4 Hoornaert, at your deposition, you made reference -- it was at

 5 page 18, line 20 of your deposition, and I'll just read it for

 6 the sake of brevity. "The advantage of petcoke is an

 7 opportunity fuel that comes out of the refining industry, and

 8 it has a lower cost compared to coal." Can you explain for me

 9 what is meant by the term "opportunity fuel"?

 10 A. As an opportunity fuel, it's a by-product of the

 11 refining industry, so the availability of petcoke varies,

 12 depending upon what other companies want to use petcoke as a

 13 fuel, along with what the output of the refining industry is.

 14 So it's almost like a spot market type arrangement for petcoke

 15 purchase.

 16 MS. BRUBAKER: I think that actually concludes my

 17 questions there. Thank you.

 18 COMMISSIONER CARTER: Okay. You want to --

 19 MR. PERKO: Very briefly.

 20 COMMISSIONER CARTER: Okay.

 21 REDIRECT EXAMINATION

 22 BY MR. PERKO:

 23 Q. Mr. Hoornaert, with regard to the transmission lines

 24 between the Taylor Energy Center and the Perry substation that

 25 you referred to in response to Ms. Brownless, will Progress

 841

 1 Energy Florida make the determination whether these lines are

 2 properly categorized as direct assigned or as network upgrades

 3 as part of the ongoing facilities study?

 4 A. I believe that's the case, based on Mr. Brinkworth's

 5 testimony.

 6 Q. And, Mr. Hoornaert, you mentioned the potential O&M

 7 costs associated with activated carbon injection. Can you tell

 8 me why you did not include those in your cost estimates for the

 9 Taylor Energy Center?

 10 A. The reason those have not been included, as earlier

 11 stated, the capital cost for the ACI equipment has been

 12 included as a contingency item, if in fact it's determined to

 13 be needed. We are -- there will be mercury removal

 14 capabilities based on the existing planned pollution control

 15 equipment in the neighborhood of 70 to 90 percent.

 16 But since mercury capture is an emerging issue,

 17 exactly how those systems will react to mercury removal has not

 18 really been determined, and it isn't an item that we can get a

 19 guarantee from our equipment suppliers for. So therefore,

 20 there is some amount of uncertainty relative to how much

 21 co-benefit capture we'll get from the existing pollution

 22 control equipment. So the ACI equipment has been included as a

 23 backup, and the O&M costs have not been included, because it

 24 really isn't defined whether that's going to be needed or not

 25 or when that would be needed throughout the plant life.

 842

 1 Q. Mr. Hoornaert, you answered some questions from Ms.

 2 Brownless regarding CO2 capture. Can CO2 also be captured and

 3 sequestered at supercritical pulverized coal plants?

 4 A. Yes, it can.

 5 Q. And Mr. Jacobs asked you some questions regarding the

 6 Duke Energy plant that I believe was the Cliffside units.

 7 A. Correct.

 8 Q. And you're aware that Duke Energy had filed with the

 9 North Carolina Utilities Commission some updated costs. Do you

 10 know what those updated costs were?

 11 A. It's my understanding that the costs for two

 12 800-megawatt units were originally estimated at $2 million and

 13 are now estimated at $3 million. And if you compare that to

 14 the original Taylor Energy Center cost, we were considerably

 15 more conservative to begin with than the Duke project, and at

 16 this point, we continue to be much more conservative than even

 17 the revised Duke numbers.

 18 Q. I just wanted to make sure. What were the revised

 19 Duke numbers? I believe you said it was 2 billion; is that

 20 correct?

 21 A. I may have said million. Correct. It's 2 billion up

 22 to 3 billion.

 23 Q. The original was 2 billion?

 24 A. That is correct.

 25 Q. And now what's the revised?

 843

 1 A. Three billion.

 2 Q. And for how many units was that?

 3 A. Two 800s.

 4 Q. And the original estimate for Taylor County was what?

 5 A. The original estimate for Taylor was 1 billion --

 6 1.7 billion, and we're now at over 2 billion for one

 7 800-megawatt unit.

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

 9 COMMISSIONER CARTER: Okay. Let's see. We have an

 10 exhibit. Is this exhibit already part of our packet, or do we

 11 need to renumber this one?

 12 MS. BRUBAKER: No, sir. Mr. Perko I think can walk

 13 us through Mr. Hoornaert's exhibits.

 14 COMMISSIONER CARTER: Okay. You're recognized.

 15 MR. PERKO: Yes, Commissioner. At this time, we

 16 would offer Exhibits -- I believe they're 23, 24, and 25.

 17 MS. BROWNLESS: We have no objection, sir.

 18 COMMISSIONER CARTER: Okay. No objections. Show it

 19 done.

 20 (Exhibits Number 23, 24, and 25 were admitted into

 21 evidence.)

 22 MS. BROWNLESS: And at this time we would like to

 23 offer what has been identified for the record as Exhibit 108.

 24 MS. BRUBAKER: No objection.

 25 MS. BROWNLESS: His portions that he sponsored, which

 844

 1 are 18 and 19.

 2 COMMISSIONER CARTER: No objections; right?

 3 MR. PERKO: (Shaking head negatively.)

 4 COMMISSIONER CARTER: This means yes, this means no

 5 (indicating.) No objections. Okay. It's in, 108. I'm just

 6 trying to keep track here.

 7 (Exhibit Number 108 was admitted into evidence.)

 8 MS. BRUBAKER: And, Commissioner Carter, if the

 9 witness is ready to be excused, we had a request to take

 10 Mr. Lashof out of turn to accommodate a travel schedule, and

 11 certainly staff has no objection to doing so as the next

 12 witness.

 13 COMMISSIONER CARTER: Okay. Does anyone have any

 14 further questions for this witness?

 15 Thank you, sir. You are excused.

 16 The next witness will be -- give me a second here.

 17 Mr. Daniel Lashof; is that right?

 18 MR. SIMMS: Yes, Commissioner. NRDC would call

 19 Dr. Lashof.

 20 COMMISSIONER CARTER: Okay. Give us a chance. Just

 21 a moment here.

 22 MR. SIMMS: Sure.

 23 MS. BRUBAKER: And actually, Commissioner Carter, if

 24 I may, while everyone is getting the relevant documents and

 25 whatnot, apparently there has also been a request to take

 845

 1 Mr. Powell up after Dr. Lashof, so I think everybody is in

 2 agreement that there's no objection to doing so.

 3 COMMISSIONER CARTER: While we're coordinating, let's

 4 coordinate that too.

 5 You're recognized.

 6 MR. SIMMS: Thank you, Commissioner.

 7 Thereupon,

 8 DANIEL LASHOF

 9 was called as a witness and, having been first duly sworn, was

 10 examined and testified as follows:

 11 DIRECT EXAMINATION

 12 BY MR. SIMMS:

 13 Q. Good afternoon, Dr. Lashof.

 14 A. Good afternoon.

 15 Q. Could you please state your name for the record?

 16 A. It's Daniel Lashof.

 17 Q. And could you state your position and your business

 18 address, please?

 19 A. I'm the science director of the NRDC Climate Center.

 20 My business address is 1200 New York Avenue Northwest,

 21 Washington, D.C., 20005.

 22 Q. Thank you. Did you file testimony in this case on

 23 November 2, 2006, consisting of 12 pages?

 24 A. I did.

 25 Q. And do you have any changes that you wish to make to

 846

 1 your testimony?

 2 A. No.

 3 Q. If you were asked these same questions today, would

 4 your answers be the same?

 5 A. Yes.

 6 MR. SIMMS: I would like to ask that Dr. Lashof's

 7 testimony be placed in the record as though read.

 8 COMMISSIONER CARTER: The testimony will be entered

 9 into the record as though read.

 10 BY MR. SIMMS:

 11 Q. Did you include any exhibits with your testimony?

 12 A. Yes.

 13 Q. And did these include an overview of your

 14 professional experience and qualifications?

 15 A. Yes.

 16 Q. A copy of the Stern Report, Summary of Conclusions?

 17 A. Yes.

 18 Q. A copy of "What To Do About Coal," a Scientific

 19 American article dated September 2006, of which you were an

 20 author?

 21 A. Yes.

 22 MR. SIMMS: For the record, those are identified as

 23 DAL-1, DAL-5, and DAL-6, identified for the hearing, I believe,

 24 as Numbers 61, 62, and 63.

 25 BY MR. SIMMS:

 847

 1 Q. Dr. Lashof, did you provide answers to the staff's

 2 first set of interrogatories to NRDC?

 3 A. Yes, I did, to numbers 1 through 5.

 4 Q. Do you have a copy of those with you?

 5 A. Yes.

 6 Q. Is that true and correct, to the best of your

 7 knowledge and belief?

 8 A. Let's see. The one I've been provided, it looks like

 9 the response to the applicants' interrogatories.

 10 MR. SIMMS: I'm sorry. One second. We'll give you

 11 the staff's interrogatories. I apologize.

 12 MS. BRUBAKER: Commissioner Carter, may we go off the

 13 record for a moment?

 14 COMMISSIONER CARTER: Okay, everybody, let's take

 15 five.

 16 (Discussion off the record and short recess.)

 17 COMMISSIONER CARTER: We are back on the record.

 18 Ms. Brubaker.

 19 MS. BRUBAKER: I suppose I'll let things fall

 20 naturally.

 21 COMMISSIONER CARTER: Okay.

 22 MR. SIMMS: I would like to just identify them for

 23 the record at this point, and then if it makes sense

 24 procedurally, deal with objections when we offer them.

 25 MS. BRUBAKER: Okay. That's fine. Then I suppose

 848

 1 we're at the part where we have the opening statement from the

 2 witness then.

 3 MR. SIMMS: I just wanted to make sure we get the

 4 identification on the record, and then I'll let him provide a

 5 summary, if that's procedurally -- if that's okay.

 6 MS. BRUBAKER: Okay. With that, it would be

 7 identified as Exhibit 109 by my count.

 8 BY MR. SIMMS:

 9 Q. I'll make sure we're speaking about the same ones.

 10 The first was the answers to staff's first set of

 11 interrogatories. Dr. Lashof, do you have those now?

 12 A. Yes, I do.

 13 Q. And which of those interrogatories did you prepare

 14 the answers for?

 15 A. One through 5.

 16 Q. Thank you. And is that a true and correct copy that

 17 you have before you to the best of your knowledge and

 18 understanding?

 19 A. Yes, it is.

 20 MR. SIMMS: And if we could identify that as Exhibit

 21 109.

 22 (Exhibit Number 109 was marked for identification.)

 23 BY MR. SIMMS:

 24 Q. Dr. Lashof, did you provide answers to the

 25 applicants' first set of interrogatories to NRDC?

 849

 1 A. Yes, I did.

 2 Q. For which of those interrogatories did you prepare

 3 answers?

 4 A. One, 3, 4, and 6 through 12.

 5 Q. Thank you. And do you have a copy of those before

 6 you?

 7 A. I do.

 8 Q. And is that a true and correct copy to the best of

 9 your knowledge and belief?

 10 A. Yes, it is.

 11 MR. SIMMS: And could we identify that as Exhibit

 12 110? Thank you.

 13 (Exhibit Number 110 was marked for identification.)

 14 BY MR. SIMMS:

 15 Q. Did you prepare a short summary of your testimony?

 16 A. I did.

 17 Q. Would you read that for the record, please?

 18 A. Yes. Thank you.

 19 Coal-fired power plants are the single largest source

 20 of heat-trapping carbon dioxide emissions in the United States.

 21 It has become abundantly clear that such emissions are creating

 22 a serious threat of dramatic climate disruptions, and as a

 23 result, many states have adopted or are in the process of

 24 adopting laws and regulations that will limit emissions of

 25 carbon dioxide from power plants. These include the Regional

 850

 1 Greenhouse Gas Initiative adopted in the Northeast and laws

 2 enacted last year in California to limit statewide emissions of

 3 greenhouse gases and to require that new long-term investments

 4 in baseload generation have CO2 emissions no higher than those

 5 from state-of-the-art natural gas combined cycle power plants.

 6 I'm also aware that the Florida Department of

 7 Environmental Protection is currently developing a white paper

 8 that will recommend that the State implement a program to limit

 9 carbon emissions. Among other things, the white paper

 10 acknowledges that costs associated with CO2 mitigation --

 11 MR. PERKO: Commissioner, I need to --

 12 COMMISSIONER CARTER: I think we've already ruled on

 13 that, so I think this is out of bounds. Did we not rule on

 14 that white paper yesterday or two days ago?

 15 MR. PERKO: And beyond that, it goes beyond his

 16 direct testimony.

 17 MS. BRUBAKER: That's correct.

 18 COMMISSIONER CARTER: So I would -- why don't we just

 19 take a minute, and you can get with your witness and just kind

 20 of let him know, just in case he's not aware of what we've

 21 already ruled on so it can all go smoothly for everyone. Okay?

 22 Let's just take five on that.

 23 MR. SIMMS: Okay. Thank you, Commissioner.

 24 (Short recess.)

 25 COMMISSIONER CARTER: Okay. We are back on the

 851

 1 record. And the last we left, there was an objection that was

 2 sustained. Where are we?

 3 MR. SIMMS: Thank you, Commissioner. I think we are

 4 ready to resume, and we will resume with the witness's summary.

 5 And we have discussed with him keeping the summary within the

 6 scope of his direct testimony.

 7 Dr. Lashof.

 8 THE WITNESS: Should I continue from where I left off

 9 or --

 10 BY MR. SIMMS:

 11 Q. I think that will be fine, if you will remain within

 12 the scope of the direct testimony.

 13 A. Thank you. In 2005, the U.S. Senate passed a

 14 resolution calling for a, quote, comprehensive and effective

 15 national program of mandatory market-based limits and

 16 incentives on emissions of greenhouse gases that slow, stop,

 17 and reverse the growth of such emissions.

 18 Based on these and other factors, it is my judgment

 19 that it is virtually certain that carbon dioxide emissions from

 20 the Taylor Energy Center will be regulated during the life of

 21 the proposed facility. It is reasonably foreseeable that TEC

 22 would incur substantial costs associated with obtaining carbon

 23 dioxide emission allowances.

 24 It would therefore be prudent to adopt a moderate CO2

 25 emission allowance price forecast as part of the base case for

 852

 1 evaluating whether TEC is the least cost option for the

 2 participants and conduct sensitivity analysis with higher and

 3 lower forecasts. Consistent with assumptions adopted by

 4 utilities in many other jurisdictions, a reasonable estimate

 5 for CO2 costs under expected U.S. regulation range from about 8

 6 to about $40 per ton of CO2.

 7 In my judgment, the applicants have not included

 8 reasonably foreseeable CO2 allowance costs in their economic

 9 evaluation. Therefore, I conclude the applicants have not

 10 demonstrated that TEC is the least cost option.

 11 That concludes my summary.

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 863

 1 MR. SIMMS: I would tender the witness for

 2 cross-examination.

 3 MR. PERKO: Commissioner, I think that it would

 4 probably be more appropriate for the other intervenors to go

 5 first. Depending on whether and the extent to which friendly

 6 cross-examination is allowed, my cross-examination may be very

 7 limited.

 8 COMMISSIONER CARTER: So you want to cross-examine

 9 your own witness? Is that what you're saying?

 10 MS. BROWNLESS: No, sir. Here's --

 11 MR. PERKO: No, I'm speaking of --

 12 MS. BROWNLESS: -- the problem, Your Honor. The

 13 problem is this concept of, quote, friendly cross, close quote.

 14 There is no such concept under the Florida Rules of Civil

 15 Procedure, which are the rules that apply to administrative

 16 proceedings and proceedings before this body.

 17 So to the extent Mr. Perko would like to go last,

 18 he's certainly welcome to go last. But, you know, I do not

 19 acknowledge or accept, and would strongly contest that there is

 20 any such thing as friendly cross, so I think the order is up to

 21 my colleagues. It's not a matter of friendly cross.

 22 MR. JACOBS: And I think that's who Mr. Perko is

 23 really addressing, is our opportunity to cross-examine the

 24 witness of NRDC. And I think Mr. Perko's -- we had

 25 discussed -- we were already in agreement that we would go

 864

 1 first, but I think his concern is that we would operate in

 2 tandem as one party in our questioning of these witnesses, and

 3 I too would disagree with that assumption. They're not totally

 4 unified interests. We have interests that are distinct.

 5 COMMISSIONER CARTER: Well, let's not get far afield.

 6 Let's stay focused on why we're here, and let's stay focused on

 7 the issue. We'll allow some, but I'll expect us to really --

 8 you know, let's don't turn this into more than what it really

 9 is, and let's adhere to some modicum of professionalism. This

 10 is a situation where we're dealing with something that's

 11 significant to the people of Florida, so let's keep it on that

 12 level.

 13 Ms. Brubaker.

 14 MR. JACOBS: We can assure you, Commissioner Carter,

 15 that --

 16 COMMISSIONER CARTER: Wait, wait, wait, wait.

 17 Ms. Brubaker.

 18 MS. BRUBAKER: I don't really have anything in

 19 particular to add. I would just note that the direct case is

 20 the direct case. I think cross-examination is probably most

 21 appropriate to try the direct case, to get clarification where

 22 clarification is needed, to challenge where challenging is

 23 appropriate, depending on one's position in the proceeding.

 24 I don't think it's appropriate to -- and I'm not -- I

 25 don't mean to infer that this is what the intervenors intend to

 865

 1 do or will do, but I don't think it's appropriate to wholesale

 2 enlarge, expand upon the case in chief when that opportunity

 3 was already provided through prefiling in your direct case.

 4 I don't think that cross-examination, in any event,

 5 should be irrelevant, immaterial, unduly repetitious. That's

 6 in Section 120.569, Florida Statutes. So I would expect

 7 everyone to be mindful of time and to be professional.

 8 COMMISSIONER CARTER: Thank you, Ms. Brubaker.

 9 Mr. Jacobs, you were about to say?

 10 MR. JACOBS: I would like to move on, but I feel I

 11 have to at least be very clear. Unless there have been some

 12 modifications of the Florida Rules of Civil Procedure or --

 13 COMMISSIONER CARTER: Are you going to make a speech,

 14 or are you going to move on? Okay. Let's move on. Let's move

 15 on.

 16 MR. JACOBS: I would like to move on. Very well,

 17 sir.

 18 COMMISSIONER CARTER: Let's move on.

 19 MR. JACOBS: And what I would like to say is that we

 20 intend to be bound --

 21 COMMISSIONER CARTER: This is not a forum to discuss

 22 whether or not the Florida Rules of Civil Procedure are

 23 appropriate or not. That's a different forum. That's across

 24 the street at the Supreme Court. So let's move on with our

 25 case.

 866

 1 MR. JACOBS: Very well.

 2 CROSS-EXAMINATION

 3 BY MR. JACOBS:

 4 Q. Good afternoon, Mr. Lashof.

 5 A. Good afternoon.

 6 Q. How are you? I want to be very clear and very

 7 specific. I want to direct you to your testimony. And I want

 8 to go to page -- I'm sorry. Let me get to the bottom here.

 9 Page 10.

 10 A. Yes, sir.

 11 Q. And I want to begin at line 9. And here you indicate

 12 that the Taylor Energy Center would generate substantial

 13 volumes of carbon emissions.

 14 A. Yes. I provide an estimate of the lifetime emissions

 15 from the plant over 50 years.

 16 Q. And on what do you base those estimates?

 17 A. I base the estimates on my knowledge of the carbon

 18 content, average carbon content of coals and an estimate of the

 19 heat rate of the plant.

 20 Q. And the baseline assumptions for your analysis comes

 21 from the application that was generated by the applicants; is

 22 that correct?

 23 A. I don't recall whether these specific numbers for the

 24 heat rate come directly from the application. The size of the

 25 plant comes from the application.

 867

 1 Q. Okay. Now, there is clear indication in your

 2 testimony that there is an economic cost associated -- real

 3 economic cost associated with generating carbon; is that

 4 correct?

 5 A. I believe it's virtually certain that over the life

 6 of the facility, there will be economic costs associated with

 7 emissions of CO2 from the plant, yes.

 8 Q. And that is based on your understanding of what the

 9 start date, the operational date of this plant is?

 10 A. Yes, based on the expected start date and the

 11 lifetime of the facility.

 12 Q. Okay. And so the idea here is that in evaluating

 13 this plant, the true O&M costs of the plant when it comes

 14 online will be affected by a carbon regulatory regime; is that

 15 correct?

 16 A. Yes.

 17 Q. You in your testimony on page 11 -- actually, it

 18 begins on page 10 at line 21, and you talk about several

 19 proxies for what a cost might be. Over on the next page, you

 20 cite some examples of regulatory regimes that are in place

 21 today and other regulatory agencies. Do you see that?

 22 A. Yes.

 23 Q. You also cite a regulatory regime that exists in

 24 Europe; correct?

 25 A. Yes, I do.

 868

 1 Q. And would it be reasonable to use these proxies as

 2 evidence of an emerging trend that exists today for a carbon

 3 regulatory regime?

 4 MR. PERKO: Objection. I believe Mr. --

 5 COMMISSIONER CARTER: Let's focus. Look, everyone is

 6 entitled to their day, and we want to have that, but let's stay

 7 focused. If you want to get information in the record, the

 8 proper way to do it is to do it properly, so let's stay

 9 focused. We're not here litigating what they're doing in

 10 Europe or anything like that. We're talking about this project

 11 as planned and our the needs determination, so let's stay

 12 focused.

 13 MR. JACOBS: Yes, sir.

 14 BY MR. JACOBS:

 15 Q. Mr. Lashof, we're looking at your testimony still,

 16 the same page. You cite the Idaho -- I'm sorry. You cite a

 17 carbon price that is in existence today that applies to Idaho

 18 Power. You cite a price that is in today that has been

 19 required by the Montana Public Service Commission; is that

 20 true?

 21 A. That's correct.

 22 Q. You cite a price that is in existence today that has

 23 been implemented by the California Public Utilities Commission;

 24 is that correct?

 25 MR. PERKO: Commissioner, I'm sorry. I need to

 869

 1 object. I think we're just reading through the testimony. And

 2 furthermore, I don't believe Mr. Jacobs is allowed to ask

 3 leading question, since this witness is clearly not adverse to

 4 the party he's representing.

 5 COMMISSIONER CARTER: Ms. Brubaker, you know, I --

 6 MS. BRUBAKER: I suppose if --

 7 COMMISSIONER CARTER: I don't want to delete the

 8 entire information, but I do see that we're just getting far

 9 afield here.

 10 MS. BRUBAKER: If Mr. Jacobs could -- I suppose -- I

 11 understand that he's probably laying a foundation. If there's

 12 any way to accelerate that process and get to the

 13 questioning --

 14 MR. JACOBS: I would love to do that.

 15 MS. BRUBAKER: Okay. Asking leading questions of a

 16 witness is generally more appropriate when it is an adverse

 17 witness. I would not consider Mr. Lashof an adverse witness to

 18 the Sierra Club and the other inventors that Mr. Jacobs

 19 represents.

 20 MR. JACOBS: Ms. Bru -- I'm sorry to interrupt. Go

 21 ahead.

 22 MS. BRUBAKER: I've completed.

 23 MR. JACOBS: If I may, Commissioner Carter, the way

 24 that I was anticipating doing that was having him read his

 25 testimony into the record, which I thought was more

 870

 1 inappropriate than simply quoting to him what was in his

 2 testimony. If that's more appropriate, I would be happy to do

 3 that. That would not be leading; is that correct?

 4 MS. BRUBAKER: Well, I suppose my concern would be

 5 that the testimony is in the record at this point. Perhaps if

 6 there's a way to accelerate to the actual questioning --

 7 MR. JACOBS: I think we can. Let me try that.

 8 MS. BRUBAKER: Thank you.

 9 BY MR. JACOBS:

 10 Q. Dr. Lashof, based on your testimony that has been

 11 prefiled, is it your view -- strike that. What is your opinion

 12 as to an emerging standard for carbon regulatory costs in the

 13 United States?

 14 MR. PERKO: Objection. First of all, it calls for

 15 speculation. And secondly, the opportunity to file testimony

 16 for this witness came and passed on November 2nd. He has

 17 provided expert opinions. Those are in the testimony, and they

 18 stand for themselves. I think all we're getting into here is

 19 supplementing the record inappropriately.

 20 COMMISSIONER CARTER: Mary Anne?

 21 MS. HELTON: I'm sorry. I just -- I find myself at

 22 the point where I just can't keep my mouth shut.

 23 COMMISSIONER CARTER: I'm listening.

 24 MS. HELTON: First I would like to read you the

 25 Florida Statutes, because I think that's what is applicable

 871

 1 here. "Irrelevant, immaterial, or unduly repetitious evidence

 2 shall be excluded, but all other evidence of a type commonly

 3 relied upon by reasonably prudent persons in the conduct of

 4 their affairs shall be admissible whether or not such evidence

 5 would be admissible in a trial in the courts of Florida."

 6 So I think one thing we need to think about today is,

 7 we're trying to get through this massive number of witnesses

 8 and get finished with the hearing so you all can actually make

 9 your decision.

 10 I would also -- if I could just beg your indulgence

 11 and read a paragraph from the 2004-2005 edition of Florida

 12 Civil Practice by Judge Padovano. He is talking about civil

 13 trial practice, which is not exactly on point, but I think it's

 14 interesting, in that he disagrees with Ms. Brownless with

 15 respect to which parties are entitled to cross-examine

 16 witnesses.

 17 MS. BROWNLESS: With all due respect, and I'll make

 18 this very brief, I know Judge Padovano. He's an excellent

 19 appellate judge. It's his treatise. It's his opinion. With

 20 that caveat, please read.

 21 MS. HELTON: I would be happy to. Section 19.6

 22 concerning cross-examination: "If there is one party on each

 23 side of the case, each would have the right to cross-examine

 24 the witnesses called by the other. Likewise, if there are

 25 multiple parties on one side of the case, all parties on one

 872

 1 side would have a right to cross-examine a witness called by a

 2 party on the other side.

 3 "It is more difficult, however, to determine whether

 4 a party has a right to cross-examine a witness called by

 5 another party on the same side of the case. A party who is

 6 aligned on the same side of the litigation as the party calling

 7 the witness should be allowed to cross-examine the witness if

 8 the interests of the parties are adverse to each other.

 9 "On the other hand, a party who is aligned on the

 10 same side of the litigation with a party having a common

 11 interest should not allowed to cross-examine a witness called

 12 by that party. Co-parties having common interests in the

 13 litigation shouldn't be allowed to cross-examine witnesses

 14 called by each other."

 15 I agree with Ms. Brownless that this is a treatise.

 16 However, it's a treatise written by, I believe, a respected

 17 judge in the State of Florida, one who presided over circuit

 18 court and now is presiding in appellate court. I know that I

 19 think he takes a pretty hard line, one that the Commission does

 20 not follow in its practice strictly.

 21 However, I do think that we need to all be aware of

 22 the time that we have in this case. We have to be aware that

 23 we have certain prehearing procedures here at the Commission

 24 which involve parties prefiling their direct case by way of

 25 prefiled testimony. It should not be, and I do not believe is,

 873

 1 proper Commission practice for another party to bolster a case

 2 filed by that party by way of cross-examination. And I would

 3 hope that all parties here today could keep that in mind so

 4 that we can move along in a quick and deliberate manner.

 5 MS. BRUBAKER: If I might also just weigh in, from a

 6 quick review of the issues, while not necessarily word for word

 7 identical, there is a certain amount of similarity in the

 8 positions take by the party whom the witness represents and the

 9 counsel who is currently asking questions, and perhaps if

 10 there's a way to focus on whatever differences there may be in

 11 those positions, that might be a more effective and useful use

 12 of our time.

 13 COMMISSIONER CARTER: Thank you. I am fairly close

 14 to disallowing this whole process, but I was hoping that if we

 15 were to just stay focused, we could go down it. I gave you

 16 some leeway, Mr. Jacobs, and it seemed like it's a figurative

 17 slap in the face.

 18 You must take the proceedings serious before this

 19 tribunal. I mean, every lawyer that I know of in Florida, and

 20 practically any other state, has taken an oath of office. And

 21 in that oath of office, we have three responsibilities, to our

 22 client, to the lawyers on the other side, that is, the process,

 23 and to the judicial tribunal before which we're appearing. And

 24 I don't need to lecture to any of your lawyers about that,

 25 because those are the rules that we all adhere to over and

 874

 1 above what's written in the books.

 2 And I was willing to allow some leeway. And I'm

 3 telling you, I'm going to take two minutes, and then when I

 4 come back in two minutes, I'm going to make a ruling. So I

 5 would hope that this is not the way that we reward the process

 6 when I say I'm willing to allow some leeway. You can't have it

 7 your way just because you want it a certain way. I can't have

 8 it my way.

 9 So I'm going to take about two minutes, and I suggest

 10 that those of you that have similar interests get your act

 11 together.

 12 We are in recess.

 13 (Short recess.)

 14 COMMISSIONER CARTER: We are back on the record. And

 15 the last time, there was an objection pending, and I shall

 16 sustain the objection, and will most happily pass the gavel on

 17 to our distinguished chairman.

 18 CHAIRMAN EDGAR: Okay. My understanding is that,

 19 Mr. Jacobs, you are questioning; is that correct?

 20 MR. JACOBS: Yes.

 21 CHAIRMAN EDGAR: Okay.

 22 MR. JACOBS: Yes, Madam Chair.

 23 BY MR. JACOBS:

 24 Q. Dr. Lashof, if I recall, my last question was

 25 objected to.

 875

 1 Off the record for a moment. The objection was as to

 2 speculation; is that correct?

 3 MR. PERKO: I believe the objection was to reading

 4 the testimony and getting him to try to supplement the

 5 testimony through additional opinions, and speculation.

 6 BY MR. JACOBS:

 7 Q. Dr. Lashof, would you give us your statement and the

 8 basis of your statement in your testimony on page 11, beginning

 9 at line 2 to line 10?

 10 A. Yes. In my testimony, I review the practice of a

 11 number of other states in requiring utilities in their

 12 integrated resource plans to quantitatively incorporate

 13 expected carbon dioxide emission allowance costs for the

 14 purposes of determining what a least cost option is, as

 15 required in their base cases, and I conclude that a reasonable

 16 range based on that practice is 8 to $40 per ton.

 17 MR. JACOBS: No further questions.

 18 CHAIRMAN EDGAR: Okay. Thank you. Mr. Paben, did

 19 you have questions?

 20 MR. PABEN: Just a few.

 21 CROSS-EXAMINATION

 22 BY MR. PABEN:

 23 Q. Mr. Lashof, did you complete the response to NRDC's

 24 response to applicants' first set of interrogatories, number

 25 one?

 876

 1 A. Yes.

 2 Q. In that response, did you provide a chart which

 3 compared different CO2 prices?

 4 A. Yes, I did.

 5 Q. Let me ask you -- is this a true and correct copy of

 6 that chart?

 7 A. Yes, it is.

 8 Q. And can you briefly describe what this chart shows

 9 and your basis?

 10 MR. PERKO: Objection. Madam Chairman, we're trying

 11 to supplement the record here. This is not in the witness's

 12 testimony, nor does he speak about it.

 13 MR. PABEN: Well, you know, my client has his own

 14 witness that speaks about potential future carbon dioxide

 15 costs, and it doesn't coincide with this chart.

 16 CHAIRMAN EDGAR: Mr. Perko.

 17 MR. PABEN: And I just wanted to ask him to explain

 18 the difference.

 19 MR. PERKO: Ms. Deevey's testimony is in the record,

 20 and it speaks for itself, as does Mr. Lashof's.

 21 CHAIRMAN EDGAR: I think we need to move on. I will

 22 concur with the objection.

 23 BY MR. PABEN:

 24 Q. Mr. Lashof, the last question then. Mr. Preston

 25 based his carbon dioxide sensitivity analysis on the

 877

 1 McCain-Lieberman bill, the Climate Stewardship Act of 2005; is

 2 that correct?

 3 A. Yes.

 4 Q. Is that the most recent version of the

 5 McCain-Lieberman Act?

 6 MR. PERKO: Objection, Your Honor. Again, it's

 7 outside his direct testimony.

 8 CHAIRMAN EDGAR: Mr. Paben.

 9 MR. PABEN: Well, his direct testimony is on the

 10 likelihood of various federal legislation passing. That's what

 11 his direct testimony is pretty much about. He states fairly

 12 often that he's virtually certain that, you know, federal

 13 legislation will pass.

 14 CHAIRMAN EDGAR: Ms. Brubaker, or Ms. Helton?

 15 MS. BRUBAKER: If we could have just a moment.

 16 CHAIRMAN EDGAR: Just a moment, yes, of course.

 17 (Pause.)

 18 MS. BRUBAKER: Could I trouble counsel for

 19 Mr. Whitton to repeat his grounds for continuing this line of

 20 questioning?

 21 MR. PABEN: It's based on Mr. Lashof's -- trying to

 22 understand his basis for his virtual certainty, which he

 23 repeatedly states, that there will be -- you know, there's

 24 federal legislation regarding these CO2 costs, you know, which

 25 stems from page 5 of his testimony.

 878

 1 MS. HELTON: And did your question go to whether

 2 there is a certainty or not? I'm sorry. I didn't hear your

 3 full question.

 4 MR. PABEN: This question goes to the applicants'

 5 expert, Mr. Preston, based his analysis on the McCain-Lieberman

 6 bill, Senate 342, you know, the Climate Stewardship Act of

 7 2005, and I was just wondering if that was the most recent.

 8 MR. PERKO: Madam Chair, I would just point out that

 9 Mr. Lashof's testimony does not even reference Mr. Preston nor

 10 the McCain-Lieberman bill.

 11 MR. PABEN: I was just going to Mr. Lashof's

 12 testimony about the virtual certainty of CO2 --

 13 CHAIRMAN EDGAR: Ms. Brubaker?

 14 MS. BRUBAKER: I'm inclined to agree that it's

 15 outside the scope of the direct testimony. If you want to

 16 allow some very limited questioning to see where it goes, but

 17 I'm afraid I don't see it in the testimony at this time.

 18 CHAIRMAN EDGAR: Okay. Because of the previous

 19 ruling about allowing some latitude, but I think we have done

 20 that, and for consistency, again, I think we need to move

 21 along, so I will agree with the objection.

 22 BY MR. PABEN:

 23 Q. Let me just ask then, Mr. Lashof, what is the basis

 24 of your virtual certainty that carbon dioxide regulation will

 25 be passed?

 879

 1 A. It stems from the developments in the states, where a

 2 number of states have recently passed laws or adopted or are in

 3 the process of adopting regulations, as well as the

 4 developments in Congress, which include a series of bills that

 5 have been introduced recently, the resolution, as I discussed

 6 in my testimony, passed by the Senate last year, and additional

 7 legislation, many of which include much deeper reductions than

 8 the McCain-Lieberman bill.

 9 MR. PABEN: That's all. Thank you.

 10 CHAIRMAN EDGAR: Thank you. Mr. Perko.

 11 MR. PERKO: Just very briefly, Madam Chairman.

 12 CROSS-EXAMINATION

 13 BY MR. PERKO:

 14 Q. Mr. Lashof, on page 11 of your testimony -- I believe

 15 Mr. Jacobs referenced this. On line 8, you state that Idaho

 16 Power is using a carbon cost of $14 per ton starting in 2012.

 17 And there's a footnote referencing a website, and I believe

 18 that is to the Idaho Power 2006 Integrated Resource Plan; is

 19 that correct?

 20 A. Yes.

 21 Q. Now, in that 2006 Integrated Resource Plan, it states

 22 that Idaho Power expects to add approximately 250 megawatts of

 23 pulverized coal generation in 2013; is that correct?

 24 A. I don't recall that specifically. I don't recall

 25 whether that's what it states in the resource plan. I don't

 880

 1 have the document with me.

 2 MR. PERKO: If we could just have a moment, Madam

 3 Chairman, while that document is distributed to counsel.

 4 CHAIRMAN EDGAR: Yes, sir.

 5 (Documents distributed.)

 6 BY MR. PERKO:

 7 Q. Dr. Lashof, do you see the document that I gave to

 8 you entitled "2006 Integrated Resource Plan, Idaho Power"?

 9 A. Yes, I do.

 10 Q. Is that the document referenced in your testimony?

 11 A. Yes, it is.

 12 Q. And I would refer you to page 97 of that document,

 13 the first full paragraph. Does that refresh your recollection

 14 as to whether Idaho Power expects to add approximately 250

 15 megawatts of pulverized coal generation in 2013?

 16 A. Yes. The Integrated Resource Plan calls for 150

 17 megawatts of wind in 2012, followed by 250 megawatts of

 18 pulverized coal in 2013.

 19 Q. Thank you. Now, Mr. Lashof, beginning on page 9,

 20 line -- it looks like it's after 25, but the last word starts,

 21 "integrated gasification combined cycle." And the gist of the

 22 sentence is that integrated gasification combined cycle or IGCC

 23 can allow for the capture and permanent disposal of CO2.

 24 Is it technically feasible to permanently capture and

 25 sequester carbon dioxide from pulverized coal units?

 881

 1 A. As addressed in my article, "What To Do About Coal,"

 2 yes, it's technically feasible. But it's more expensive and

 3 requires approximately 30 percent of the energy output of a

 4 pulverized coal unit to capture carbon dioxide, and therefore

 5 it's more expensive and requires more energy than with an

 6 integrated gasification combined cycle unit.

 7 Q. Are there any integrated gasification combined cycle

 8 units currently in operation that capture and sequester carbon

 9 dioxide?

 10 A. I'm aware of a proposed unit by BP that is expected

 11 to be online in 2011 or 2012 in Carson, California, but not any

 12 currently in operation.

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

 14 CHAIRMAN EDGAR: Are there questions from staff?

 15 MS. BRUBAKER: Just one, please.

 16 CROSS-EXAMINATION

 17 BY MS. BRUBAKER:

 18 Q. Dr. Lashof, are you aware of any particular

 19 methodology that has been approved by either the EPA or DEP

 20 expressly for the purpose of evaluating source-specific costs

 21 associated with controlling SO2 and NOx and CO2 air emissions?

 22 A. I'm not aware of any formally approved methodology.

 23 I'm aware that the Environmental Protection Agency uses various

 24 models to make estimates.

 25 MS. BRUBAKER: Thank you.

 882

 1 CHAIRMAN EDGAR: Ms. Brownless?

 2 MS. BROWNLESS: I think at this time we would like to

 3 move Dr. Lashof's exhibits into the record, and they are --

 4 CHAIRMAN EDGAR: So no redirect?

 5 MS. BROWNLESS: No, ma'am.

 6 CHAIRMAN EDGAR: Okay. Before we do that, do we need

 7 to mark this document that Mr. Perko distributed?

 8 MR. PERKO: No, ma'am.

 9 CHAIRMAN EDGAR: Okay. Thank you.

 10 Okay. The exhibits.

 11 MS. BROWNLESS: Give me a minute, and I'll make sure

 12 I have the right numbers for you.

 13 CHAIRMAN EDGAR: Okay. From my list, 61, 62, and 63.

 14 MS. BROWNLESS: Yes, ma'am. And I believe that there

 15 would also be -- well, why don't we do these first.

 16 CHAIRMAN EDGAR: Yes, let's start with those. Are

 17 there any objections to the exhibits marked as 61, 62, or 63?

 18 MR. PERKO: Madam Chairman, I understand that we had

 19 previously had an objection to 62 as hearsay, and we understand

 20 that that will be admitted, but I just would like to preserve

 21 that objection to the extent that it's uncorroborated hearsay.

 22 CHAIRMAN EDGAR: So noted. With that objection,

 23 Exhibits 61, 62, and 63 will be entered the record.

 24 (Exhibits Number 61, 62, and 63 were admitted into

 25 evidence.)

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 1 CHAIRMAN EDGAR: And then that brings us to --

 2 MS. BROWNLESS: And that brings us to Exhibit 109 and

 3 110.

 4 CHAIRMAN EDGAR: Yes, ma'am.

 5 MR. PERKO: And, Madam Chairman, we would object to

 6 those as supplementation of the record outside the witness's

 7 direct testimony.

 8 CHAIRMAN EDGAR: And my understanding is that those

 9 exhibits do go beyond the direct testimony, so unless I hear

 10 something different, I am inclined to not admit at this time.

 11 MS. BROWNLESS: Thank you, Your Honor. And I'm just

 12 going to put this on the record. With regard to Exhibits 109

 13 and 110, we don't think they go beyond direct.

 14 We would say that there's no prejudice to either the

 15 staff or the applicants, because these responses were provided

 16 prior to the hearing. They've had plenty of time to review

 17 them. They can cross-examine on them. They could do whatever

 18 they needed to do. So there's no prejudice to admitting them

 19 into the record.

 20 Thank you.

 21 CHAIRMAN EDGAR: Okay. That objection is also noted

 22 for the record, and my ruling remains to not enter them.

 23 MS. BROWNLESS: Thank you, Your Honor.

 24 CHAIRMAN EDGAR: Thank you. And I believe that

 25 concludes where we are with this section and witness Lashof.

 884

 1 Thank you. And you are excused.

 2 THE WITNESS: Thank you.

 3 (Transcript follows in sequence in Volume 9.)

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 2 CERTIFICATE OF REPORTER

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 4 STATE OF FLORIDA:

 5 COUNTY OF LEON:

 6 WE, JANE FAUROT and MARY ALLEN NEEL, Registered

 7 Professional Reporters, do hereby certify that the foregoing

 8 proceedings were taken before us at the time and place therein

 9 designated; that our shorthand notes were thereafter

 10 transcribed under our supervision; and the foregoing pages

 11 numbered 791 through 884 are a true and correct record of the

 12 aforesaid proceedings.

 13 WE FURTHER CERTIFY that we are not a relative,

 14 employee, attorney or counsel of any of the parties, nor

 15 relative or employee of such attorney or counsel, nor are we

 16 financially interested in the foregoing action.

 17 DATED THIS 16th day of January, 2006.

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