Deposition of:

Hearing , Volume III

March 11, 2020

In the Matter of:

Petition For A Certificate Of Convenience And Necessity / IN RE:

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ALABAMA PUBLIC SERVICE COMMISSION
MONTGOMERY, ALABAMA

ALABAMA POWER COMPANY,
Applicant.

DOCKET NO. 32953

IN RE: PETITION FOR A CERTIFICATE OF CONVENIENCE
AND NECESSITY

VOLUME III

TESTIMONY AND PROCEEDINGS before the Honorable John A. Garner, Chief Administrative Law Judge, at the Carl L. Evans Chief Administrative Law Judge Hearing Complex, 900 RSA Union Building, 100 North Union Street, Montgomery, Alabama, on Wednesday, March 11, 2020, commencing at 9:31 a.m., and reported by Jan A. Mann, Certified Court Reporter and Commissioner for the State of Alabama at Large.

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March 11, 2020 9:31 a.m.

PROCEEDINGS

ALJ GARNER: For the record, we are here this morning -- all right. I think we are on now. Sometimes it takes a minute for the system to warm up. All right. We are here for the continued hearing of Docket 32953. We are to the point of the intervenor testimony today. We have a lot of that to cover. So any preliminaries before we get started?

MR. GROVER: None that I'm aware of.

MR. MCCRARY: No, Your Honor

ALJ GARNER: All right. I'm going to call the first intervenor which is Manufacture Alabama. Mr. Clark. You submitted some prefiled testimony so if you want to come up and let me swear you in before you're seated.

MR. CLARK: I'm going to waive any statements, Your Honor.

(Witness sworn.)

ALJ GARNER: You may be seated. As the parties are aware, I'm sure Mr. Clark prefiled some testimony. It was four pages. He has been sworn and he has waived his opening statement and summary and so he

is available for cross-examination. Any cross-examination of Mr. Clark? Seeing none --

MS. TIDWELL: Yes, Your Honor.

ALJ GARNER: I'm sorry.

MS. TIDWELL: I just thought maybe someone up here had some.

ALJ GARNER: You almost got off, Mr. Clark.

THE WITNESS: Wasn't there a time limit, Your Honor?

GEORGE CLARK,

having been first duly sworn, was examined and testified as follows:

CROSS-EXAMINATION

BY MS. TIDWELL:

Q. Good morning, Mr. Clark.

A. Good morning to you as well.

Q. My name is Christina Tidwell and I represent Energy Alabama/GASP in this matter. You are the president and CEO of Manufacture Alabama?

A. Yes, ma'am, I am.

Q. And is Manufacture Alabama a 501C4 organization?

A. I believe it's a 6.
Q. A C6?
A. Uh-huh.
Q. A trade organization. Is that right?
A. Right. Right.
Q. During your opening statement on Monday, you mentioned that if any piece of Alabama Power's proposal should be shaved it should be the solar resources. Do I have that correct?
A. I did say that.
Q. And you said that's because solar can't respond to peak demand?
A. That is my opinion, and if we look outside here today, if we look at what the temperature and what the climate has been like over the last 30 days, that is part of my personal evaluation. I'm not a scientist.
Q. The resources that Alabama Power has proposed are solar plus battery storage resources. Is that right?
A. I support that.
Q. And battery storage will be able to provide capacity during the winter peak demand, correct?

A. For a limited period of time, yes.

Q. You state in your direct testimony that your members have a strong interest in the supply of affordable and reliable power to your members. Is that right?

A. It's critical. And we don't just have an interest. It is absolutely critical.

Q. So, yes, that's what your direct testimony states?

A. Yes.

Q. Many of your members also have a strong interest in sustainability. Is that correct?

A. That is correct.

Q. Many of them have sustainability goals?

A. Absolutely.

Q. And on page three of your direct testimony, you list several members. Is that correct?

A. I listed a good many of them.

Q. And one of those members is Olin Chemical?

A. That is correct.

Q. Are you aware that Olin Chemical has a goal of ten percent reduction in carbon emissions

intensity by 2030?

A. I'm not -- no, I'm not familiar with the exact numbers but many of my members have such goals.

Q. And that's a ten percent reduction in carbon emissions intensity by 2030 using a 2018 baseline. U.S. Steel is also one of your members?

A. That's correct.

Q. And the secretary of your board of directors is an employee of U.S. Steel?

A. That is correct.

Q. Are you aware that U.S. Steel has committed to reducing greenhouse gas emissions intensity by twenty percent?

A. Again I'm not, you know, privy to all the various stated goals but I know as a general rule most of my members have policies very similar to that.

Q. Okay. Another one of your members is SSAB. Is that right?

A. And they are also on my board.

Q. And that's a steel company?

A. Steel company with an electric arc furnace.

Q. Are you aware that SSAB has announced plans to convert its global facilities to make fossil-free steel including its plant in Alabama?

A. In general ways, yes.

Q. Does Manufacture Alabama receive any funding from Southern Company or any Southern Company affiliates?

A. Alabama Power Company is a member of Manufacture Alabama.

Q. So do you receive funding from Alabama Power Company?

A. Yes. They pay dues.

Q. How much are those dues?

A. We don't disclose our dues of any member.

Q. Do you disclose your members, a list of your members?

A. Yes.

Q. Is that on your website?

A. It's on our website.

Q. Okay. I believe actually the website might have a malfunction because when I've gone to try to find a list of your members, nothing seems to pop up.

So just letting you know that.

A. We're in the process right now of remodeling. I'm limited when it comes to technology and how to describe all of that. I'm a carbon-based coal man. Excuse the pun. That's a Jimmy Buffett song.

Q. Do you receive any funding from Alabama Power Company other than what they pay in dues?

A. No.

MS. TIDWELL: Okay. That's all of my questions. Thank you.

MR. HILL: I have a couple of questions.

CROSS-EXAMINATION

BY MR. HILL:

Q. In the interest of time, Mr. Clark, you list Olin, SSAB, Occidental and U.S. Steel as supporting the petition. We had a representative from Olin here all week supporting our position. I don't know procedurally how to put this, but if we could clarify whether those four companies support the petition or not and let the judge know in the next week or two?

MR. HILL: Would that be acceptable to

you, Judge Garner?

ALJ GARNER: Yeah, if you need clarification, leave it open-ended for that post hearing. That's acceptable.

Q. I respectfully disagree with your assessment that those companies support the petition but I didn't really ask you a question but would you agree to --

A. What I said was Manufacture Alabama supports it. My board has been briefed on this issue. Olin is not a voting member of my board.

Q. Okay.

A. But that is the consensus-of-my-board reference, who I answer to.

Q. And let's see if we can kind of describe things and maybe this will answer the question without us needing to go to that level. Manufacture Alabama is interested in economic development and bringing in more industry to the state. Is that fair to say?

A. That's very accurate, yes, sir.

Q. And do you have an understanding of my group, which is focused on industrial energy more than other issues? Is that your understanding?

A. That's what I've always thought, yes, sir.

Q. And we have some of the same members from both of our groups?

A. Yes, we do.

Q. But our focus is more on industrial energy and yours is more on economic development. Is that fair?

A. No. I think we're much broader than that. In my opening statement, I tried to speak in terms of what we are doing in workforce development. I'm 73 years old and most of my efforts are really focused now on workforce development, and of course what I'm doing with energy, that's also one of my major efforts.

I have other people on my staff now that do most of the day-to-day lobbying work. As I've stated, I'm chairman of Governor Ivey's workforce innovation board, development board and I spend an inordinate amount of time doing that in order to help reach the stated goals of Governor Ivey which is 500,000 new skilled employees and that's a mighty big task.

It takes a lot of people to get it done and I have to work with a lot of different moving parts and so I spend a lot of time doing that. I can go further and tell you that Accelerate Alabama, which is our economic development strategy, I have --

Q. I don't think those are any of my questions, sir, but would you agree that my group has thousands of employees as well?

A. Of course you do.

Q. Well, how about this? Manufacture Alabama supports the petition and AIEC opposes the petition. If the Court off line would like us to clarify, would you work with me to determine which companies in fact support and oppose the petition?

A. Sure.

MR. HILL: Thank you. I have no further questions.

MS. CSANK: Your Honor, I have a few questions.

CROSS-EXAMINATION

BY MS. CSANK:

Q. Good morning. My name is Diana Csank

with the Sierra Club.

A. Good morning to you.

Q. Sir, you mentioned briefing your board on this matter. Do you recall that?

A. Yes.

Q. Did you personally brief the board?

A. Yes.

Q. And approximately when was that briefing?

A. Excuse me?

Q. Approximately when did you brief your board?

A. I brief my board on every board meeting that we have on various issues. Primarily it surrounds workforce development and what we're doing in workforce development. It would have been on this particular issue somewhere around the end of last year or the first of this year.

Q. Do you recall whether it was before or after you filed testimony?

A. It would have been before I filed the testimony that I filed.

Q. Was it also before the company filed its petition in this matter in early September 2019?

A. No. It was afterwards.

Q. Okay. And in that briefing, do you recall if you provided any documents to your board?

A. No, I did not.

Q. No documents?

A. No.

Q. And in that briefing, did you, yourself, base your verbal briefing on any particular documents?

A. No, not exactly. It's my -- well, no.

Q. All right. And in terms of the briefing you were just describing that happened sometime between September and December of last year, was there one briefing, and upon your verbal briefing, your board voted? Is that how it happened?

A. Well, I have a small board and we a lot of times do things by consensus, and as I recall, that's basically what happened. It was a consensus that we understood that -- I've anticipated that there would be a filing of this nature at some point in time due to the fact that of all the coal-fired generation loss of capacity and so it did not surprise me at all.

And all along the way, I try to keep my board informed. One of the things in business, they

don't like surprises and I consistently advised the board that they should be aware that further capacity might be an issue for Alabama Power Company.

Q. And my question, sir, was whether at the meeting where you briefed your board was it at that same meeting that they decided upon your verbal briefing of them? Yes? No?

A. What?

Q. You represented that you at a particular meeting of the board briefed them without documents, verbally. And my question was, was it at that same meeting where your board decided its position --

A. Yes.

Q. -- in this case?

MS. CSANK: Thank you, sir. No further questions.

ALJ GARNER: Any other cross of Mr. Clark? Thank you, Mr. Clark.

THE WITNESS: Thank you.

ALJ GARNER: You are excused.

THE WITNESS: Thank you, Your Honor.

ALJ GARNER: Mr. Clark's prefiled testimony will be entered into the record. All right.

That brings us to Alabama Industrial Energy.

MS. HOWARD: Your Honor, if I may, I have a request to make regarding witness order. Alabama Solar's witness, Maggie Clark, is trying to get back to North Carolina for an important meeting. If she were to be able to make that meeting, she would need to leave by noon or so today.

Alabama Power has indicated they do not anticipate having cross-examination of her. I polled a few parties this morning but I have not been able to poll every party yet to determine if anyone else has cross-examination for her, but if not, I wondered if we could take a few minutes to put her on the stand and offer her testimony into the record.

MR. HILL: We would agree with that if everybody stipulated that there's no cross.

ALJ GARNER: We can find out really quickly. Anyone have any cross of Ms. Clark?

MR. HILL: I don't.

ALJ GARNER: Confirm that with Alabama Power. I have no objection to that. We can accommodate that. That's fine.

MS. HOWARD: Thank you, Your Honor.

ALJ GARNER: Is she ready to go?

MS. HOWARD: Yes, sir.

ALJ GARNER: All right. Let's go.

MAGGIE CLARK,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. HOWARD:

Q. Good morning.

A. Good morning.

Q. Would you please state your name for the record?

A. Maggie Clark.

Q. And, Ms. Clark, who is your current employer?

A. The Solar Energy Industries Association.

Q. And your position there, please, ma'am?

A. Senior Manager of State Affairs Southeast.

Q. And your business address?

A. One Glenwood Avenue, Raleigh, North Carolina.

Q. Did you cause prefiled testimony and exhibits to be filed in this matter?

A. I did.

Q. Do you have any corrections to that testimony?

A. I do not.

Q. And if I were to ask you those same questions today, would you have the same answers?

A. I would.

MS. HOWARD: We would move for admission of Ms. Clark's prefiled testimony into the record.

ALJ GARNER: All right. Ms. Clark's prefiled testimony will be admitted. I only have one exhibit. You said exhibits. Is it one exhibit?

MS. HOWARD: I believe you're correct, sir.

ALJ GARNER: That will be marked as Alabama Solar Industry Association Exhibit 5 and it is also entered into the record.

MS. HOWARD: Thank you, sir.

Q. Ms. Clark, do you have a summary of your testimony that you would like to give today?

A. I do.

Q. Please proceed with that.

A. In comparison to other states in this region, Alabama is near the bottom in total and projected solar installations over the next few years. In other Southeastern states that have significant (audience noise) solar capacity, regulators have approved installations based on the economic benefits and downward pressure on utility rates.

Solar has an important role to play in economic development by attracting new businesses, jobs, increasing tax revenue and modernizing energy infrastructure. Companies and corporations are increasingly demanding clean energy resources.

Solar is a proven technology that is price competitive with other forms of new energy generation and can result in ratepayer savings. Alabama would stand to benefit economically by increasing its installed capacity of solar energy. The purpose of my testimony is to recommend the PSC's approval of the proposed solar plus storage projects.

MS. HOWARD: Thank you, Ms. Clark. As I understand it, cross-examination is waived.

ALJ GARNER: That's my understanding as well. Thank you, Ms. Clark. You're excused. Appreciate you being here.

THE WITNESS: Thank you.

ALJ GARNER: All right. Mr. Hill, are we ready to proceed with your witness, Mr. Pollock?

MR. HILL: Yes, sir.

ALJ GARNER: He's already making his way to the stand. He's so anxious to get up here.

(Witness sworn.)

MR. HILL: Are we ready, Judge?

ALJ GARNER: Yes. Proceed.

JEFFRY POLLOCK,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HILL:

Q. State your name.

A. Jeffry Pollock.

Q. And where are you employed, Mr. Pollock?

A. I'm employed at J. Pollock, Incorporated in St. Louis, Missouri.

Q. What is your business address?

A. 12647 Olive Boulevard.

Q. Did you cause direct testimony to be filed in this petition?

A. Yes.

Q. You had some errata to your testimony that was given to the parties and described in your deposition. Is that correct?

A. Yes.

Q. You also had some errata to your deposition that's been shared with the parties and also handed over to Alabama Power's counsel this week. Is that correct?

A. Yes.

Q. Subject to that errata, is your testimony here today the same as what would be in those previous testimonies before?

A. Yes.

MR. HILL: I would move to have his testimony admitted subject to cross-examination.

ALJ GARNER: Mr. Pollock's prefiled testimony will be admitted subject to cross as well as his prefiled exhibits.

Q. Mr. Pollock, would you give an opening

summary of your testimony?

A. Yes. Thank you. Good morning, Madam President, Commissioners and Your Honor. The Alabama industrial Energy Consumers members desire to have a reliable supply of electricity and rates that are competitive to allow them to sustain their operations. So that quite naturally raises the question why does AIEC oppose the passage of resources in the proposed certificate of convenience and necessity proceeding.

The answer to that question is that we are highly skeptical about the 2018 target reserve markets of the study and the results that Southern Company requires of 26 percent target reserve margin in the winter months. I've identified several problems of that study in my testimony.

I would note that the Georgia Public Service Commission recently reviewed the very same planning study, and as a result of the settlement in the Georgia Power IRP case last year, the commission and parties agreed to defer any decision about a target reserve margin but all parties agreed and AIEC agrees that it's appropriate to do seasonal planning and we support that approach.

My skepticism was also based on observation that most utilities regional transmission organizations have lower planning reserve margins than Southern Company. These are indicated in my Exhibit JP-3 which is a list of southeast investor utilities and Exhibit JP-4 which is an excerpt from the NERC long-term reliability assessment which reviews the planning processes and reserve margin, target reserve margins of various planning regions across the country. As that exhibit shows, I think the largest reserve margin is 20 percent. Most are in the teens.

Southern Company and Alabama Power do have the capacity need. We believe that need is four years out. We also believe that Barry 8 would be the lowest cost resource to meet that need. We ask the commission not to accept the 26 percent target reserve margin but to require further study and analysis before doing so. That concludes my summary.

MR. HILL: Thank you, Mr. Pollock.

ALJ GARNER: Cross-examination of Mr. Pollock? Any cross?

MR. GROVER: We will but reserve our right to go --

ALJ GARNER: Oh, that's right. Thank you. I didn't see any movement over here.

MR. GROVER: I like that you're moving us along.

ALJ GARNER: I assume no one on this side -- oh, Ms. Csank.

MS. CSANK: Some brief questions, Your Honor.

CROSS-EXAMINATION

BY MS. CSANK:

Q. Thank you for your patience, sir. Diana Csank with the Sierra Club. We've met before, correct?

A. Correct.

Q. At your deposition?

A. Yes.

Q. Sir, I think it's your testimony and your included resume identifies, you have decades of experience and expertise in resource planning and procurement in the electric sector?

A. That's part of my experience, yes.

Q. Including specifically resource planning and procurement by Alabama Power and its affiliated companies?

A. Yes.
Q. And also specifically advocating AIEC's interests concerning the same?
A. Yes.
Q. Sir, as part of your testimony and analysis that you're offering to this commission, did you take into consideration AIEC members' clean energy and climate commitments?
A. No.
Q. So you did not get an opportunity to verify whether AIEC members like Evonik have such goals and the extent to which the proposed expansion is consistent with such goals?
A. I've not reviewed those goals, no. That was not my charge.
Q. Nor did you review whether the proposed expansion in this case is consistent with Southern Company's clean energy and climate goals?
A. I haven't reviewed the Southern Company's policy either.
Q. But you're familiar with the load of no carbon commitment that we've been discussing?
A. I've heard about it. I haven't read

the policy in detail, no.

Q. So just to clarify, you did not perform any independent analysis of the need for Barry Unit 8, did you?

A. Clarify what you mean by independent.

Q. So did you perform any sort of reliability assessment of whether Barry Unit 8 specifically is the right -- is in fact a match for the company's claim to reliability need?

A. Yes. I reviewed the information that the company provided, some independent analysis and came to the conclusion that I did, that, yes, there is a capacity need four years out and Barry 8 is the best resource to meet that need.

Q. But you have not identified any technical reason why combined cycle generation specifically is the only way to meet a projected capacity deficit, have you?

A. What do you mean, the technical aspect?

Q. As opposed to an economic or a legal one.

A. I reviewed both the technical ability of the combined cycling unit. I have testified in a number of cases that deal with combined cycling gas turbine units so I'm very familiar with the

technology.

In terms of the economics, I did review the economic analysis that the company provided and did some further independent analysis of that based on more up-to-date gas prices.

Q. Did you review the transmission study that the company has referenced as part of its basis for identifying Barry 8 in its petition?

A. No.

Q. So you didn't do any transmission-related analysis?

A. No.

Q. Can we agree that transmission is a critical part of any reliability assessment?

A. Yes.

Q. And as far as your earlier statement that your opinion is that Barry 8 is the best choice for the company's clean needs, have you performed any independent economic analysis for that opinion, to reach that opinion?

A. Yes, taking information the company provided and doing some additional analysis is how I came to that conclusion.

Q. You did not perform any independent analysis of the cost effectiveness of the five solar and battery projects in the petition, did you?

A. I reviewed the contracts and the term -- pricing terms of those contracts. So in a sense, I'm aware of them.

Q. You're aware of them, but when we spoke last month, you identified for me that you did not have an opinion because you had not had a chance to perform any meaningful analysis on the economics of those resources in the petition, right?

A. I haven't done a specific analysis though I have reviewed the contract terms and particularly the pricing terms that are of concern.

Q. Okay. But you're not, for example, offering analysis that compares head to head those projects to Barry 8 other than what the company has provided?

A. I've looked at the company's analysis. I've also done some independent analysis based on the information the company provided and I have done a head-to-head analysis in terms of looking at the resources on the cost per hour basis. That is the

basis for my conclusion today.

Q. And where is that documented, sir?

A. I can provide a document.

Q. Was that document created after your deposition?

A. Yes.

Q. And at your deposition, you also identified that you are communicating directly with company representatives about this case. Is that correct?

A. I communicate directly with counsel and with the AIEC steering committee members.

Q. But you also have participated at least in one call directly with company representatives, have you not?

A. Talking about Alabama Power Company?

Q. Yes, sir.

A. I'm sorry. I misunderstood your previous question. Yes, we did. Alabama Power did call to provide a briefing and filing and I was listening to that call.

Q. Sir, as a general matter, is it correct to understand your testimony as objecting to wasting

customer money on long-term resource commitments that are not necessary?

A. I think I indicated in the outset of my testimony our goal -- the Alabama Industrial Energy Consumers' goal is to ensure that there is a reliable supply of electricity at rates that can help sustain the operations of the AIEC members.

Q. Would you be good enough to just answer my question with a yes or no?

A. We don't want the company to waste money unnecessarily, so yes.

Q. And do you agree that long-term resource commitments may present greater risks than short-term resource commitments, all else being equal?

A. Well, they have different -- all the things being equal, yes, they have different -- long-term resources have different risks than short-term resources.

Q. Have you conducted an independent analysis of all the risks bearing upon -- material risks bearing upon the resources in the company's petition?

A. What would constitute -- if I may clarify your question, what kind of analysis are you

asking about?

Q. Any, sir. Anything that's documented and quantifies the material risks associated with the resources in the petition, sir.

A. I have not done a formal study to assess the pros and cons of each resource; however, I have obviously looked at the need for resources and the economics associated with the resources that are at issue in this case.

Q. Okay. But specifically in terms of the material risks, do you agree that those can be identified and quantified to some extent? Do you know?

A. Risk of any -- yes, they can. Any resource whether short-term, long-term, regardless of technology will have its pros and cons, its risks and its benefits and they have to be assessed.

Q. And they can be quantified?

A. They can be assessed over a wide range of possible scenarios as a way of trying to quantify which is the best mix overall of results and overall lowest reasonable cost at the least risk for customers.

Q. And you haven't performed that kind of

analysis of your own to present to this commission today, have you?

A. I have in a sense in terms of the recommendation. My recommendation is Barry 8 meets the capacity need Alabama Power and Southern Company will have in four years and at the lowest overall cost.

Q. That's based on the company's information?

A. It's based on that information and my independent analysis and experience dealing with similar utilities that have proposed combined cycle gas turbines to meet future needs.

Q. Sir, do you agree that the electric sector has experienced rapid changes in recent years, correct?

A. Yes.

Q. Do you agree that the market for resources has experienced rapid changes in recent years in particular, correct?

A. The market for resources? Can you clarify what you mean by market?

Q. Right. People toss around the term

market but it's a pretty vague term on its own, is it not?

A. That's why I want to clarify your question.

Q. Right. And we've been talking about resources for several days now. Do you have an understanding of resources, sir?

A. I assume we're talking about resources to meet electricity needs, yes.

Q. Okay. And those can be capacity or energy needs?

A. They can be resources that provide capacity. They can be resources that are energy only. They can be resources that are energy efficiency and a various gamut of resources.

Q. Very good. And so for the market that provides those types of resources and let's be -- that are available to Alabama Power Company and Southern, has that market experienced rapid changes in recent years?

A. Well, yes. That there is a broad market for a wide range of resources and different technologies? Yes, I would say that technology has evolved and now utilities have a lot more choices than

they had in the past.

Q. Okay. And just to put a finer point on it, you may recall that at your deposition we talked about Swanson's law. Do you recall that?

A. Yes.

Q. And that is much like Moore's law. Are you familiar also with Moore's law?

A. I am.

Q. So Moore's law is the principle that the speed and capability of computers can be expected to double every two years as a result of increases in the number of transistors and microchips can contain. Does that sound correct to you, subject to check?

A. Well, yes, as it applies to information and that kind of technology. Yes, that's correct. That's a whole different story when it comes to physics.

Q. But you agree that computers are used as part of resources?

A. Well, I would assume that operational controls are largely automated, yes. They don't produce the energy. They help to operate --

Q. They are components of resources. Yes?

A. Yes.

Q. All right. And similarly there's Swanson's Law that the price of solar photovoltaic modules tends to drop 20 percent for every doubling of cumulative shift volume. At present rates, costs go down 75 percent about every ten years. Do you agree?

A. That may be correct in the past; however, we've seen a leveling off of that cost, leveling off of the reduction, the rate of reduction of those costs and there is a physical limit. There is only so many photons that can be converted in a solar panel to electricity. So you're going to reach very soon the physical limit of what solar panels can actually produce.

Q. Do you have any documents that attempt to quantify this leveling off that you're referencing?

A. Yes.

Q. Do you have documents with you here today to present to the commission?

A. Yes, I can present to the commission once we --

Q. Okay. What about solar favored batteries?

A. Well, that's another issue, too. Because you have battery technology that has evolved and will continue to evolve. You experience some risks with batteries with battery fires and things of that nature that need to be resolved plus you have the question of where do the resources that make those batteries come from is a risk as well. So you have to consider all of the aspects of the resource.

Q. Okay. Let's go back to the broader sweep of resources and I think I at least had you agree that those resources in general are improving in terms of their performance and price?

A. They have in the past and there will be some continued improvement in the future though not as much as in the past.

Q. So you would agree that an incremental approach to resource procurement is economically efficient because it captures these improvements in performance and price?

A. I'm sorry. Could you repeat the first part of your question?

Q. Yes, sir. So an incremental approach to resource procurement is economically efficient because

it captures those type of improvements, the value of them, in performance and price?

A. I'm not sure what incremental planning means. I mean in the sense when utilities claim to be looking at options to meet their needs, they're going to look at a wide range of different resources and technologies to do that. That's part of the planning process.

Q. But if they can invest in smaller increments and diversify their investments not just in term of the resource type but the time over which they buy it, there's an economic efficiency because they can capture that improvement in performance and price over time, can they not?

A. Well, there's a value in option. There's a value in waiting until technology improves. So from that extent if we think we have confidence that a particular technology is going to come way down in price, then the prudent thing to do might be to wait until that happens.

Alternatively there's also a risk of looking just at the short term and trying to meet a short-term need with an incremental resource because

you may be missing an opportunity that might not otherwise arise --

Q. Have you attempted to magnify --

A. -- in the future.

Q. Excuse me -- to quantify the magnitude of risks either -- in either direction?

A. I have not. I'm just aware that there are those risks.

Q. Okay. So you can't present to us whether, you know, the cost or benefits, how they compare of acting now versus acting later?

A. We can look at what the projected costs and projected benefits and resources the company has identified in its analysis and, you know, we know that there's a need that has to be met and we need to pick a resource that will appropriately meet that need for the benefit of the customers.

Q. So have you done any independent review of whether the Calhoun PPA can be extended?

A. I have reviewed that PPA. I have not done a review to determine if a second extension of that contract can be done and I'm not sure that we want necessarily to extend that contract further

either.

Q. So you don't know?

A. I do know in terms of the actual price of that contract. It's much above the market right now and I would not advise extending that contract.

Q. But, sir, but you don't know an incremental extension of just a few years of that contract, how that would compare to a -- to the proposed gas units in this case, the capital cost of which, publically known, are at least 1.1 billion and that's just two of the three units?

A. That's kind of an apples-to-oranges comparison because the purchase power contract we're talking about is for peaking purchases only. Essentially it's a combustion turbine, combustion turbines. The gas units we're talking about are combined cycling units that will operate year round. And in spite of that difference, those units are a lot less costly.

Q. Are we here talking about a winter peak projected need?

A. Well, we're talking about Alabama Power's winter peaking but they plan with the Southern

Company that is summer peaking system.

Q. Right. Have you independently investigated -- strike that. You're familiar with the Georgia decision on the integrated resource planning proceeding that was completed this last year?

A. Yes.

Q. And do you know if that commission gave direction to Georgia Power to in its resource procurement also review the resources on the Southern regulated system?

A. I'm not sure what part of the -- part of that decision you're referring to.

Q. One moment. I believe it's in the context of the capacity procurement.

A. Okay. I mean there's a lot --

Q. Subject to check, would you accept that? I mean the -- in any event, the Georgia Power IRP final order is in the record or at least it's an exhibit, a pre-filed exhibit.

A. I wasn't aware of that, but if it is, it is. Speaks for itself.

Q. Okay. One moment. And just to make sure this is clear, your opinion is that this petition --

that you're filing support of denial of this petition?

A. Well, in part. I mean our findings support the certification of Barry Unit 8 at this time until such time as the companies can re-run or revise the target reserve margin study and demonstrate that 26 percent is the appropriate target.

Q. And as we have discussed, you have no documents to support that latter opinion other than the documents from the company?

A. Well, I have the documents that -- I have much more support as I indicated in my summary besides the documents that the company provided. I also have my -- the documents in Exhibit JP-3 and 4 which show the reserve margins, planning reserve margins of other utilities and other regional transmission organizations and my own experience.

Q. Sir, have you done an analysis of what the economics would be of delaying Barry 8 by a year?

A. I have not done that analysis.

Q. Have you done an analysis of any type of delay of Barry Unit 8?

A. No.

MS. CSANK: No further questions, sir.

ALJ GARNER: Any further cross from anyone other than Alabama Power? Okay.

CROSS-EXAMINATION

BY MR. GROVER:

Q. Good morning, Mr. Pollock.

A. Good morning, Mr. Grover. How are you?

Q. I'm well, sir. You as well?

A. Yes.

Q. I will attempt to be judicious with your time. I know you need to return to St. Louis. I do want to start by asking just a general question in the hope maybe leaning on some of your background experience. I recall in your deposition you acknowledged familiarity with regulatory activities at the federal level. Do you recall that?

A. I monitor some of those activities, yes.

Q. Okay. And my question is again more of an exploratory one. In the course of your work, have you gained an understanding of who regulates the rates of interstate pipeline companies operating in the United States?

A. Yes.

Q. Who is that agency?
A. The Federal Energy Regulatory Commission.
Q. Okay. And do you have an understanding of whether those rates are set on a cost-of-service basis?
A. Yes, the rates do reflect cost of service.
Q. Okay. And to the extent a pipeline desires to change its tariffed rate for transportation service, it has to seek authorization from the Federal Energy Regulatory Commission, correct?
A. Correct.
Q. Okay. Thank you. Turning to Alabama Power's electric service, I don't want to be repetitive because I think you said much of what I want to ask you but it's fair that the AIEC members are interested in maintaining electricity supply that's reliable and cost effective, right?
A. Yes.
Q. Okay. And the AIEC members are involved in a lot of varied industrial and manufacturing sectors, correct?

A. Yes.

Q. Okay. And I gather listening to Mr. Hill's exchange with Mr. Clark that these sectors and your members and Manufacture Alabama members provide a strong basis for employment in the state of Alabama, correct?

A. Yes.

Q. Okay. And drawing from opening by Mr. Cagle -- and you were here. You got to enjoy Monday with the rest of us.

A. It was fun.

Q. It was fun. Do the jobs that your members and those like Manufacture Alabama provide, are those sort of jobs that provide attractive wages to individuals with skills and craft and technical abilities in the state?

A. That's my understanding. In fact, AIEC had a local economist do basically a study of the economic benefits of manufacturing activities which are considerable in terms of employment payroll multiplier effect that creates multiple jobs in other service-related sectors and is a major engine for export revenues.

Q. On the point of export, I'm curious -- and this is not knowing. Does the AIEC membership comprise the automotive sector?

A. I don't recall.

Q. Okay. I'm sorry to put you on the spot. My question really then -- I mean because there is that sector as well in the state of Alabama that is served by Alabama Power?

A. Correct.

Q. You've got Mercedes, Hyundai, Honda --

A. Yes.

Q. -- as well as their secondary suppliers. Is that correct?

A. Correct.

Q. Okay. And in terms of the operations of these types of industries, a reliable supply of electricity is important to those operations, correct?

A. In general, they are. Of course, some of the operations can also work with the utility to curtail electricity as necessary in order to prevent the utility from having to go out and build additional capacity when that situation becomes cost effective but -- so in that sense, AIEC members can partner with

the utility to do that but, yes, they do want a reliable supply of power for their operations.

Q. And you anticipated a question I was going to ask you here in a moment. I'm going to try to keep my train of thought straight. There are limits to the extent that these customers can engage in that sort of interruptible supply behavior, correct?

A. There can be. I think that we're testing those limits in other markets right now to see how well that companies are willing to work with RTOs, for example, and providing certain ancillary services that allow the RTOs to more efficiently manage their systems, but given that experience, a number of industries can't take -- can't take daily curtailments and can't take long curtailments.

So there are going to be some limits and there will be a practical limit how much of that you can plan for in your future resource mix.

Q. And I think you indicated in your deposition that Alabama Power's reserve margin already comprises -- I think the word you used was hefty portion of demand side options. That's correct?

A. That's correct.

Q. Right.

A. That's the limit I was referring to is at some point if the demand side options constitute the entirety of the utility's reserve margin, that's going to have effects on the quality of service to its customers.

Q. Yeah. I think you said it ultimately may degrade the quality of service. Is that correct?

A. That's correct.

Q. And to that end, I mean I think it goes without saying when interruptions in production, whether on a coordinated basis with the power company or due to some interruption in supply, that impacts your members and other manufacturer and industrial customer member's operations, right?

A. It does. They have to prepare to be curtailed. It's not a cost-free proposition.

Q. That's exactly what I was thinking. It's not a cost-free proposition. And for the unplanned events, I mean there's safety concerns as well, correct?

A. That's correct. That's why they would prepare for those events to make sure that they don't enter into that type of contract if there was going to

be a safety issue.

Q. But outside the context of an interruptible arrangement for purposes of events where there is no notice, that presents safety concerns, correct?

A. It could, again depending upon the notification, assuming that there is some.

Q. Exactly. And I think drawing again from Mr. Cagle's comments early on, I don't know to the extent your members face similar situations but I recall him acknowledging that in a met coal operation there were concerns that the cessation of ventilation was putting workers at risk, correct?

A. I heard that, yes.

Q. And again your membership -- I've heard anecdotally and this is just drawing from what people tell me that for some of the steel manufacturers, for instance, you're talking about rolls of steel that weigh like thirty tons?

A. Yeah, I think it really depends upon the specific circumstances. You have certain parts of the steel industry that really would have a hard time interrupting, yet there are other facets of the steel

industry where those customers actively participate in demand response programs and are able to manage those programs pretty effectively.

So you can't just say all steel companies can't interrupt or can't withstand that because there are segments within the operations that are capable of fully interrupting and providing available resource.

Q. But again up to a certain threshold, correct?

A. Well, it depends upon the specific operation, and in terms of threshold, I don't think we have hit that part yet.

Q. But I think you acknowledged in your deposition we're getting close to the point where service can degrade, correct?

A. Well, we're seeing it in terms of the percentage of demand side options and the percent of reserve margin, yes, that's right. Now whether that will degrade the service will depend upon how the operations are going forward.

Q. That's fair. Thank you. So ultimately it turns back to what we're trying to accomplish. When

Alabama Power is seeking to add new generation, we're looking to balance that reliability coin, reliability side of the coin and the cost effectiveness side of the coin as well, correct?

A. Yes.

Q. And the goal is, I think, to identify what is the least cost reasonable solution, correct?

A. Yes.

Q. So I mean you could have technologies -- and again I think this was explored when we were together in St. Louis. You could have technologies that might come with a cheaper price tag but may present problems in terms of integration with the system or how it sort of coexists with existing customers on the system, correct?

A. Yes, particularly, you know, technologies that have not been tried very extensively.

Q. You mentioned -- I'm going to come to that in a second. You mentioned in your deposition a phenomenon called cycling. Do you recall that?

A. Yes.

Q. What is cycling?

A. So what cycling means is when a generating unit is in operation and that unit sees a great reduction in load because other competing resources are able to operate more cheaply, that resource will cycle its operation down to some level, and then as other resources come off the system, that resource will have to cycle up to meet the demand.

Q. And does the integration of resources that perhaps lack dispatchability characteristics cause problems in terms of the amount to which they are cycling required?

A. Yes. So, for example, a good example in Texas, which has well over 20,000 megawatts of wind generation, observed when the wind stopped blowing early in the morning, the price of electricity jumped and all of the industrial customers that were providing responsive reserve were put on notice that they may have to curtail their load because other resources aren't fast enough to be able to respond to a huge drop in wind generation.

Q. So earlier Ms. Csank was asking you questions about -- I'm going to get it right -- Swanson's law. Do you recall that?

A. Yes.

Q. Okay. And there was some questions about the existence of documents demonstrating what I thought I heard you say which was a flattening out of a cost reduction and sort of solar-type facilities. Do you recall that?

A. Yes.

Q. Let me show you this.

MR. GROVER: May I approach, Your Honor?

ALJ GARNER: You may.

MR. GROVER: Thank you.

Q. I'm going to show you, Mr. Pollock, what is from the exhibit of Sierra Club witness Mark Detsky, Exhibit 4.

MR. GROVER: It's already in the record, Your Honor.

ALJ GARNER: All right.

Q. And I draw your attention to the box on the right side.

A. Okay.

Q. And without belaboring the point because it's in the record, it speaks for itself, does that chart illustrate a flattening out of costs of -- and I

think the words used at the top of the chart are unsubsidized solar PV facilities?

A. That's exactly the phenomenon I was talking about.

Q. Great. Thank you, Mr. Pollock. And also during your deposition, you observed that large -- I think this was the phrase you used to kind of characterize your membership -- large energy intensive users have deployed most, if not all, of sort of the energy efficiency measures that they are capable of, I guess, integrating with their operations. Do you recall that?

A. Yes. That's my understanding, yes.

Q. Okay. And does that flow from the fact that your membership, looking to minimize production costs and maximize revenues, are going to take the steps that are available to them to reduce that cost?

A. That's right.

Q. Okay. This is where we got ahead of me. And again I'm not going to belabor this because I think you testified to it very clearly. You see a need on the company system in the '24, '25 time frame, correct?

A. Yes.

Q. And it's your testimony that Barry 8 is well positioned from a timing perspective and an economic perspective to meet that need, correct?

A. Very much so, yes.

Q. Okay. And I think as you discussed and it sounds like based on your experience of these combined cycle units, Barry 8 will be one of if not the most efficient unit on not only the Alabama Power system but the entire Southern system, correct?

A. In fact, of the gas fired combined cycling units that I've evaluated over the past five years, I think this one would have by far the lowest heat rate.

Q. And that's what's driving those efficiencies. Is that correct?

A. That's correct. And the other advantage of being located -- coal located onsite with existing infrastructure also creates a tremendous amount of economies.

Q. Were you here yesterday when Mr. Bush was testifying?

A. Yes.

Q. Okay. And you heard also that Barry 8's

location includes siting around multiple points of interstate pipeline confluence as well as storage facilities, correct?

A. Yes.

Q. And in your experience, that provides for enhanced flexibility and efficiencies for a facility like Barry 8, correct?

A. Yes.

Q. Okay. And then I understand what you said in your summary and what's in your testimony. Can we agree that if the commission concludes that the company's needs are greater than what you believe those needs are that the company -- or rather the commission should look to other resources that have not been identified as part of that sort of least cost portfolio being presented?

A. Yes, and I leave that option open in my testimony. If the commission finds there is additional needs beyond what we've identified, certainly look at the other resources.

Q. And one point in your testimony, Mr. Pollock, is that the company in your opinion has the ability to utilize what you think is available capacity

resources among its sister operating companies, correct?

A. Yes.

Q. And that's in accordance with or would occur through the intercompany interchange contract which I think we refer to sometimes as the IIC, correct?

A. That's correct.

Q. Okay.

A. The system is operated as a whole, and to the extent that there are resources available and a company needs those resources, those resources are available to that company.

Q. Right. So a couple of things. One, at the outset of her questions, Ms. Csank asked you about your experience in the resource planning field. Do you recall that?

A. Yes.

Q. And I think during your deposition you and I clarify that that resource planning experience comes through your work on behalf of your clients in the course of the proceedings that you participated in in your consulting career?

A. That's right. It's an accumulation of my knowledge and participation in many, many

regulatory proceedings and more recently in a lot of resource planning cases.

Q. Okay. But it's fair -- a couple of things. And again I think we've heard this repeated so many times. I've just got to say it with you, too. You're not a lawyer?

A. Thankfully, no.

Q. I won't begrudge you that at all. And you're not, through your trade and experience, an electric system planner yourself, correct?

A. I've never been employed as a planner.

Q. Or an electric system operator?

A. I've not been employed as an operator.

Q. And it's my understanding you don't have any firsthand experience with sort of the modeling that occurs through systems such as the SERVM model that Mr. Carden testified to, correct?

A. Correct.

Q. And I think likewise you were here Monday when I believe you spoke. You don't have the sort of experience and exposure to the administration and management of the IIC that someone like Mr. Weathers has, correct?

A. No, I don't have that type of experience, although I can remember back in my days when I had more hair and it was dark that I remember the terms IIC pretty well so it's been part of my knowledge for many years.

Q. Okay. My final questions are these. I know your testimony talks about what you've observed in other systems with respect to the winter reserve margins and you mentioned a few of those here but I think we did acknowledge and agree in your deposition that the Tennessee Valley Authority has a target winter reserve margin of 25 percent, correct?

A. I'm aware of that, yes.

Q. Okay. And I think you also took an action item in your deposition maybe to go and confirm that the winter reserve margin for the PowerSouth Cooperative here in Alabama also is in that 25 percent range?

A. We were able to confirm that as well.

Q. And lastly, the little talk about the Georgia Public Service Commission's IRP order, is it your understanding that for purposes of planning the target winter reserve margin that was derived from the

2018 reserve margin study was authorized for Georgia to use?

A. I'm sorry. Could you clarify that question?

Q. I know that didn't come out very well. That for planning purposes, the Georgia Public Service Commission authorized Georgia Power to use the target winter reserve margin from the 2018 reserve margin study?

A. The commission, the Georgia commission didn't approve a specific target reserve margin. They said -- in settlement indicated the decision on what the reserve margin should be for the winter should be deferred pending further collaboration with parties and reviewed in the next IRP case.

Q. And I think in the spirit of the document speaks for itself and it sounds like it is in the record. If not, it's publicly available. If Georgia Public Service Commission said that the winter reserve margin could be used for planning purposes for Georgia, you wouldn't quibble with what the commission said?

A. I understand the part of what you're saying. I think what the commission was saying -- and

I can't read their thoughts. I can't read their minds but what I think the intent of the order was, that the parties agree that the seasonal planning was appropriate and that the winter was an appropriate period to do planning for.

Q. And I guess lastly just for clarity, Georgia Power is a summer peaking utility, correct?

A. Yes.

MR. GROVER: Great. Thank you, Mr. Pollock.

ALJ GARNER: Redirect?

MR. HILL: No other cross?

ALJ GARNER: They had their chance.

REDIRECT EXAMINATION

BY MR. HILL:

Q. Okay. Just a couple of questions as a redirect. The Sierra Club asked you about the five solar panel capacity versus Barry 8. Do you have an opinion about capacity issues when it comes to solar versus Barry 8?

A. I do have some issues with respect to that. As I understand it, in order for the batteries to qualify for tax credits, they have to be recharged

by the solar facilities themselves, which means that if we have a long string of overcast days and those batteries aren't able to be recharged and the weather gets cold, it's not clear to me that those batteries would be around to provide the capacity need.

Q. Okay. There was also discussion with you and the Sierra Club about what you marked as Exhibit JP-4, 2018 long-term reliability assessment?

A. Yes.

Q. And with regard to the 26 percent number, are there any other conclusions that you can reach, particularly from the graph that's provided on page two, that would be relevant to our hearing here today?

A. Well, again as I indicated, this gives an idea -- it's called a 2022 reference margin level. That's what the -- basically you look at page 3 of 3. That's what each system is planning toward, and as indicated, the highest is 20 percent. The range is anywhere from 12 percent to 20 percent and so none of them -- none of the planning regions identified here, assessment areas plan for more than a 20 percent reserve margin. Most are in the teens.

Q. I'm sorry. And what is Alabama Power

proposing to do here?

A. Their proposal is a 26 percent target reserve margin in the winter months and that's for Southern Company. It's not just -- Alabama Power is part of Southern Company so it's a Southern Company target reserve margin.

Q. Okay. Mr. Grover asked you about your goals about having reliable and cost effective generation and that was your testimony. You also talked about how you testified at numerous other places. For instance, on page 37 of your testimony, you list numerous, numerous pages. Do you always testify against reliability and capacity in these proceedings?

A. Well, when I testify in resource planning cases, we do a complete assessment of the need for the resource and the economics.

Q. What I'm saying though is sometimes or many times, if not most times, you're advocating the utility to have more reliability or capacity. Is that fair?

A. Well, if the utility's demonstrating a particular need, then they should be adding capacity but there are instances even when a utility is

advocating a particular need where the selection of resource is not the lowest reasonable cost.

MS. CSANK: Your Honor, I was just fumbling with the microphone. May I just note for the record I object to that last question, Sierra Club does, because it was a leading question.

ALJ GARNER: I will allow it. Use some caution with leading.

Q. All right. One more question along those lines. Do you always -- have you always testified in favor of a utility opening up a new facility like Barry 8 or another similar facility?

MS. CSANK: Your Honor, same objection.

MR. HILL: It's a yes or no question.

ALJ GARNER: I'll allow it.

A. Yes, I've taken the position opposing proposed new resources, both combined cycle gas turbines as well as renewable.

Q. There was some talk about the SERVM model and also talk about PowerSouth. Do you have any insights about how modeling can affect the numbers that get generated?

A. Well, the only thing I can -- two

things I can observe about that. First of all, it turns out TVA and Southern Company both use SERVM. And, secondly, there was a study done in 2018 that SERC conducted that probably -- assessment of the reliability needs of the different SERC regions.

Southern Company is in the SERC southeast region and that study indicated that if the southeast region of each of the -- in the southeast region including Southern Company, PowerSouth and TVA, all the ones that currently plan for a 25 percent target reserve margin, at the conclusion of that study said if individually each of the utilities were planning just for their owns needs that their reserve margin could be 25 percent, but if the region as a whole were to conduct integrated planning and we looked at the region wholistically rather than the individual components of that region, the range of reserve margins would be 13 to 20 percent.

Q. How is that relevant to the hearing we're having here today?

A. I think it's a valid question as to whether or not -- it goes to the question of whether or not the company's proposed target reserve margin is

reasonable given the empirical evidence of the study I just quoted and the experience of other systems and other utilities.

MR. HILL: Thank you, Mr. Pollock. I have no further questions.

ALJ GARNER: Thank you, Mr. Pollock. You're excused. Mr. Pollock's prefiled testimony and exhibits are admitted into the record.

THE WITNESS: Thank you, Your Honor.

ALJ GARNER: Glad you enjoyed yourself.

THE WITNESS: Always a pleasure.

MS. CSANK: Your Honor, Sierra Club would request a brief break just to confer with the witnesses and make sure that we have a clear understanding of their travel constraints.

ALJ GARNER: I'll give you five minutes.

(Brief recess.)

ALJ GARNER: We didn't have any prefiled testimony on behalf of Energy Fairness.Org. I see Mr. Cagle didn't have any prefiled testimony.

UNIDENTIFIED SPEAKER: No, sir, Your Honor.

ALJ GARNER: Okay. Mr. Hooper did not have any prefiled testimony either. Just confirming.

(Witness sworn.)

ALJ GARNER: All right. Ms. Csank.

RACHEL WILSON,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. CSANK:

Q. Would you please state your name for the record?

A. My name is Rachel Wilson.

Q. And where are you employed?

A. I'm employed at Synapse Energy Economics.

Q. Did you cause to be filed in this matter testimony and exhibits?

A. Yes, I did.

Q. And do you have any errata to that prefiled testimony?

A. I have two corrections to make to that testimony. The first is at page 10, line 2. The word different should actually read difference. And,

secondly, on page 26, line 9, it says units Barry 7 and 8. That should actually read units Barry 6 and 7.

Q. And subject to that errata if I were to ask you the questions in your prefiled testimony, would you answer the same?

A. Yes, I would.

MS. CSANK: Sierra Club would move Ms. Wilson's prefiled testimony and exhibits into the record.

ALJ GARNER: Ms. Wilson's prefiled testimony and her exhibits will be entered subject to cross-examination.

MS. CSANK: We tender the witness for cross-examination.

ALJ GARNER: Does she have a summary?

MS. WILSON: I do have a summary, yes. Good morning, Your Honor. Good morning, Commissioners. Thank you for this opportunity to share my findings and recommendations.

Based on my review of the testimony and documents that Alabama Power has offered in support of its petition, I find that the company has not shown that

its proposed expansion is needed or that it is the least cost means to serve customers.

The proposed gas units are a mismatch for Alabama Power's projected need because of peak demand declines in the middle of the decade while the gas units have useful lives of several decades. The company did not investigate alternative resource portfolios and I demonstrate that a mixture of DSM and renewables can result in lower costs to repairs.

Alabama Power should do three things to reduce its projected capacity deficit before seeking to add these gas units to its system. First, it should seek capacity from the other Southern Company operating companies to the extent it can to meet its capacity need through the middle of the decade.

Second, the company should conduct a new DSM potential study and undertake all cost effective DSM. Third, the company should also procure additional renewable resources.

It is my recommendation that the proposed gas unit should be rejected or at least deferred until the results of these three actions are known.

If the commission does grant the

certificate to the proposed gas units rather than deferring that decision, it should impose three conditions on that approval to protect Alabama customers.

First, the company shareholders rather than its customers should bear the cost of the proposed gas units if they were to become stranded assets. Second, the proposed gas units should be required to operate under enforceable annual declining greenhouse gas emissions limits and, third, Alabama Power should submit a retirement replacement study for the vulnerable (audience coughing) units on its own system. Thank you.

ALJ GARNER: Thank you.

MS. CSANK: We now tender the witness for cross-examination.

ALJ GARNER: All right. Cross-examination from the intervenor's side? Seeing none, looks like it's you, Mr. McCrary.

MR. MCCRARY: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. MCCRARY:

Q. Good morning, Ms. Wilson.

A. Good morning.

Q. Nice to see you again.
A. Nice to see you as well.
Q. Just a few preliminary matters. You are a paid consultant in this case, are you not?
A. Yes, I am.
Q. Working with Synapse out of Cambridge, Massachusetts?
A. That's correct.
Q. You are not an employee of Sierra Club?
A. I am not.
Q. But in looking over your resume, it appears that you do a lot of work for that organization?
A. I have worked for Sierra Club in the past; however, all of my work involves least cost resource planning.
Q. When I took your deposition at the end of February, in talking about Sierra Club, we kind of got off to a rocky start. We couldn't seem to agree that Sierra Club was an environmental organization. Do you recall that exchange?
A. I do recall that exchange.
Q. And on reflection, can we now agree that Sierra Club is an environmental organization?

A. I'm not sure that their operations are limited to environmental matters but I think it would be fair to say that they do perform a certain number of -- a certain amount of work related to the environment, yes.

MR. MCCRARY: Approach the witness, Your Honor?

ALJ GARNER: You may.

Q. And just for the avoidance of doubt on that, in anticipation that you might not --

MR. MCCRARY: Your Honor, I don't anticipate marking this as an exhibit.

Q. -- we might not reach total agreement, I have handed you a printout from the Sierra Club Strategic Plan adopted May 2015. Do you see that?

A. I do.

Q. And there's a mission statement for Sierra Club on page two, is there not?

A. Yes, there is.

Q. And it says the purposes of the Sierra Club are to explore, enjoy, and protect the wild places of the earth, to practice and promote the responsible use of the earth's ecosystems and resources, to educate

and enlist humanity to protect and restore the quality of the natural and human environment, and to use all lawful means to carry out these objectives. Did I read that correctly?

A. Yes.

Q. That sounds like the mission statement of an environmental organization, does it not?

A. Yes, it does, and there may be other things that Sierra Club does that are not reflected in this mission statement. Also I'll just point out again that my work in this docket is related to least cost resource planning.

Q. Would you expect if there were other important objectives of an organization it might appear in their mission statement?

A. I don't think I said that those aren't important. I said there may be other things that they do.

Q. Okay. Now again reflecting on your experience in looking at your Exhibit 1, that's your CV, is it not?

A. That's correct.

Q. In part of that CV, you have listed all

the instances in which you have testified, correct, starting on page five?

A. That's true as of the date of the resume which is October 2019.

Q. So it doesn't include this proceeding?

A. It does not. And there was an additional proceeding in the state of North Carolina on which I testified on behalf of a solar developer.

Q. Okay. So looking at your pages five and six of your Exhibit 1 and adding this proceeding to that list, correct me if I'm wrong, but in all the instances in which you've testified since 2011, it appears that twelve of those have been for Sierra Club?

A. Without counting, I'll accept that number, yeah.

Q. And two others have been for -- two other instances have been for other environmental groups?

A. Yes.

Q. And then one for something called the Public Council Unit. I don't even know what that is but we'll spot you that's not an environmental group, okay?

A. It is not. That's the Washington Attorney General.

Q. So 14 out of 15 of the instances in which you've testified shown here including this case represent testimony on behalf of environmental groups, right?

A. That's correct.

Q. That would be a 93 percent appearance rate?

A. I'll accept that number.

Q. Be careful accepting lawyer math. Now in your opening summary, I think you indicated that Alabama Power in your view had not demonstrated the expansion of its resources was needed, correct?

A. That a portion at least of those natural gas units that are proposed in this docket may not be needed, yes.

Q. But your testimony -- you offer no testimony, do you, on the reliability reserve requirement?

A. I don't offer testimony on that, no, and my testimony doesn't suggest that Alabama Power should do no procurement, just that it should either delay or eliminate certain of these proposed gas units in favor of other resources that do have the capacity

value associated with them.

Q. Right. But looking at page seven of your testimony, lines five through ten, you refer to the reserve margin study, the 2018 reserve margin study and you say my analysis does not delve into the details of this new methodology and accepts without affirming the company's calculations. That's your testimony, right?

A. That's correct.

Q. So you have not done a reserve margin analysis, have you?

A. I have not looked at the reserve margin.

Q. Now turning to page eight of your testimony and caring over to page nine, there you suggest that Alabama Power can rely on capacity at other retail operating companies to meet its need. Is that the upshot of that testimony?

A. My testimony states that Alabama Power asserts that it can't rely on the capacity of other operating companies but that I haven't seen evidence that it can't rely on that capacity for at least a portion of its projected capacity deficit.

Q. Now when you think of relying on that

capacity, are you referring to the Intercompany Interchange Contract?

A. Yes.

Q. Now when I took your deposition at the end of February, you indicated that you weren't referring to the Intercompany Interchange Contract. Isn't that what you said?

A. I recall having a discussion of the contract and we discussed that any capacity acquired from the other Southern Company operating companies would have to be acquired via that contract and that Alabama Power would be purchasing that capacity from its sister companies.

Q. All right. Be that as it may, at the time we -- at the time we met to take your deposition, you had not read the Intercompany Interchange Contract, correct?

A. That's correct. I had not read it.

Q. Right. And so since we had that discussion and you couldn't answer any questions about it, have you since read the Intercompany Interchange Contract?

A. I have not read it in its entirety, no.

Q. Did you read the portions of the Intercompany Interchange Contract that were quoted in Mr. Kelley's testimony?

A. Could you point me to that testimony?

Q. You were responding to Mr. Kelley's testimony here. It's footnoted on pages eight and nine of your testimony.

A. That's correct. And my assertions in my testimony are based on the testimony of Mr. Kelley and the statements that he makes around capacity that may or may not be available from the other operating companies. And I don't have his testimony in front of me so I'm happy to look at portions if you have a copy.

Q. Are you aware that the Intercompany Interchange Contract was included among Mr. Kelley's rebuttal exhibits?

A. I didn't recall that.

Q. Did you read Mr. Kelley's rebuttal testimony?

A. I did read it, yes.

Q. Did you read Mr. Bush's rebuttal testimony?

A. Yes, I did.

MR. MCCRARY: And, Your Honor, I don't have a copy of this but it's in the record. It's Mr. Kelley's Exhibit 2.

Q. Let me just read this to you, Ms. Wilson, and see if you recall looking at this in connection with your testimony. Section 7.1 of the IIC says provision for sharing of temporary surplus or deficits of capacity between operating companies. And the first sentence says, it is a fundamental premise of this IIC that each operating company is expected to have adequate resources to reliably serve its own obligations. Do you recall that sentence?

A. I do, yes, and one of those resources could include capacity purchases.

Q. Capacity purchases pursuant to the IIC?

A. Capacity purchases in general whether from the other Southern Company operating companies or another company or merchant power generator operating in the market.

Q. But you're not suggesting -- because a moment ago, you said that one of the resources that Alabama Power could rely on to serve its customers could

be capacity purchased under the IIC but that's not permitted. That would be circular. The company can't acquire capacity pursuant to the IIC to meet its obligations under the IIC, could it?

MS. CSANK: Your Honor, objection. She stated that she's not a lawyer and I believe Mr. McCrary is seeking a legal conclusion.

ALJ GARNER: I'll allow it.

A. I'm sorry. Could you restate that?

Q. The Intercompany Interchange Contract itself could not provide a mechanism for fulfilling Alabama Power's obligations under the Intercompany Interchange Contract. That would be circular, would it not?

A. I don't know how exactly Alabama Power would go about procuring capacity under the IIC. My testimony states that Alabama Power does seem to rely on capacity from the other Southern Company sister companies in the early years and stops relying on that capacity in the year in which it constructs Barry 8. I have not seen any evidence that Alabama Power could not continue to rely on that capacity for at least another year.

Q. This same section of the IIC goes on to state, nevertheless the operating companies recognize that in any given year one or more of them may have a temporary surplus or deficit of capacity as a result of coordinated planning or by virtue of load uncertainty, unit availability or other circumstances. It is among the purposes of this IIC to share among the operating companies the benefits and burdens of their coordinated system operations including the costs associated with such capacity. Do you see that?

A. I don't see that but I hear that.

Q. You heard that.

A. Yes.

Q. And that's your understanding of the sharing of capacity under the IIC?

A. Again I'll just restate that I'm not familiar with the IIC and I don't offer any opinions on that in my testimony.

Q. Do you know whether capacity accessed by one company under the eyes -- withdraw that. When capacity is it put in the pool -- you know the IIC is sometimes referred to as the pool?

A. I do, yes.

Q. Do the retail operating companies retain ownership of their capacity when it's committed to the pool?

A. I don't know how exactly that functions but I would assume so.

Q. And so the pool simply optimizes those resources and dispatches them against aggregate load in order to lower total production costs for all. Isn't that the function of the IIC?

A. That's my understanding of how the pool operates.

Q. It's an operating agreement, is it not?

A. Again I'll just say that I'm not familiar with the IIC and can't say for certain that that's true but I'll accept it, yes.

ALJ GARNER: For purposes of clarification, that's Alabama Power Exhibit 30.

MR. MCCRARY: Thank you, Your Honor.

ALJ GARNER: IIC.

Q. So for purposes of my question, let's assume that, as you suggest, Alabama Power would need to approach one of the sister companies through some other mechanism besides the IIC if it wanted to acquire

capacity from those companies?

A. I don't think I said that and I'll just say again I don't know how Alabama Power would go about procuring that capacity but it has relied on other opcos in the past and I have not seen any evidence that it has checked to see whether or not it could acquire capacity in this year of great need which is the winter of 2023-2024.

Q. How has Alabama Power relied on capacity of other operating companies in the past other than through the operation of the IIC?

A. I don't know the answer to that.

Q. Would you agree with me, Ms. Wilson, that assuming other operating companies had capacity that they wished to sell to Alabama Power, they would sell whatever was assessed by the owning company to have the least value to its own customers? Would you agree with that?

A. I think that any excess capacity that it would have available to sell is capacity that it, itself, does not need and so it is certainly a possibility that that would be more expensive capacity, yes.

Q. I mean one retail company that's obligated to serve customers in a cost effective manner is not going to sell its best capacity to someone else, is it?

A. That's correct. And I'll also point out that the cost of existing capacity can still be lower than the cost of building new capacity, particularly if a purchase is short term in nature.

Q. Do you have any experience operating power plants?

A. No.

Q. Do you have any experience in the wholesale marketplace selling capacity?

A. No.

Q. Do you know what a super critical unit is?

A. I'm generally familiar with that term, yes.

Q. What does that term refer to?

A. To me, a super critical unit is a coal-fired unit that operates at higher efficiencies than other types of coal-fired units.

Q. You have testified in proceedings

involving the other affiliated retail operating companies, have you not?

A. That's correct.

Q. And one of those proceedings was in Mississippi?

A. Yes.

Q. And that was a proceeding involving the Daniel plant?

A. That's correct.

Q. It's a two unit facility?

A. Yes.

Q. Do you recall how many megawatts in the Daniel units?

A. Not offhand, no.

Q. But that would be among the capacity that's held by another retail operating company, correct?

A. Yes.

Q. Now your testimony there had to do with whether or not environmental investment should be made to enable Daniel to be in compliance with the CCR water rule, correct?

A. CCR and ELG rules around water, yes.

Q. Right. And what was your position in that proceeding?

A. My position was that the Daniel plant had been operating uneconomically for three historical years that we analyzed and projections using Mississippi Power's own data show that Daniel was forecast to be continuing to operate uneconomically in the future.

Q. So you opposed the expenditure -- withdraw that. You opposed the making of investment to allow Daniel to continue to operate in compliance with environmental rules?

A. Data showed that continued operation of plant Daniel and the capital investment necessary to ensure that continued operation was uneconomic for Mississippi ratepayers and Mississippi Power's own analysis confirmed that.

Q. You opposed the making of the investment that would allow Daniel to continue to operate?

A. That's correct on the grounds that retirement was a least cost alternative for ratepayers.

Q. So you also testified in the Georgia IRP

proceeding, did you not?
A. That's correct.
Q. The last one, 2019?
A. Yes.
Q. And in that proceeding, you offered testimony regarding Bowen units 1 and 2, did you not?
A. That's correct.
Q. And your recommendation in that proceeding was that the Bowen units be retired, correct?
A. My analysis showed that it was more economic again on a net present value basis examining Georgia Power's portfolio of resources to retire Bowen units 1 and 2, yes.
Q. So your recommendation -- just to answer the question, your recommendation was that Bowen units 1 and 2 should be retired?
A. I think my recommendation in that case was two parts. One was that, yes, the plant should be retired, and in the absence of Georgia Power committing to retire those units, capital spending limits should be placed on Bowen units 1 and 2.
Q. And the commission -- what year did you recommend Bowen retirement?

A. I can't recall offhand. I think we examined retirement in the year 2022 but that's subject to check.

Q. All right. Did the Georgia commission accept the recommendation that capital spending be limited with respect to the Bowen units?

A. The stipulation does place capital spending limits on Bowen 1 and 2, yes.

Q. Is that the same kind of capital spending limits that the Georgia commission imposed in the prior IRP proceeding directed to the Hammond and -- what was the other units?

A. I believe it was McDonough.

Q. Right.

A. Yes. Similar, yes.

Q. Right. And in the next term of the Georgia IRP, what was the fate of the Hammond and McDonough units?

A. Georgia Power requested de-certification for those units.

Q. Those units were retired?

A. That's correct.

Q. Would that series of events cause you

to -- withdraw that. Does that series of events suggest to you that there is a possibility if not a probability that the Bowen units might be retired in the next turn of the Georgia IRP in 2022?

A. Yes, there is a possibility or probability.

Q. How many megawatts are Bowen 1 and 2?

A. I can't recall offhand.

Q. Is it more than a thousand? Do you remember that?

A. I don't. I believe so but I'm not certain.

Q. So when you say that Alabama Power should look to sister companies to buy so-called excess capacity, the Daniel units would be those kinds of units, that kind of capacity?

A. The capacity that's on the systems of the sister operating companies.

Q. All right. The same Daniel capacity you recommended be retired?

A. Not Daniel specifically. Just capacity in general on those systems.

Q. All right. And the Bowen units, that's

the same kind of capacity that you think might be available to purchase?

A. Bowen and Daniel make up a portion of the operating company's capacity but they are certainly not the entirety of that capacity.

Q. And somewhere in your testimony, I think you also suggest that perhaps units could be used for seasonal operation. You suggest that, do you not?

A. I say that other jurisdictions have switched operation of their coal units to seasonal operation and that that could be a possibility for the Southern Company opcos.

Q. Well, we've already established you have no experience operating plants, correct?

A. That's correct.

Q. Have you done any study or analysis regarding the feasibility of operating a super critical coal unit in a seasonal manner?

A. I have not done such analysis, no.

Q. And I think you said in response to a data request that you were aware of some instances where other jurisdictions have done that?

A. That's correct.

Q. All right. One of those was Dolet Hills. Is that one of them?

A. Yes.

Q. Dolet Hills is a SWEPCO unit. Is that right?

A. That's correct.

Q. Co-owned by Cleco and SWEPCO?

A. Yes.

Q. And do you know whether it continues to function as a so-called seasonal capacity unit?

A. As of what date?

Q. As of now.

A. My understanding is that it does continue to function that way; however, in the recent rate case in Arkansas, part of the settlement that resulted from that case was that SWEPCO committed to retirement of Dolet Hills. I think that date was 2026 but that's subject to check.

Q. Let me hand you this document and see if that reflects the same Dolet Hills unit that we've been talking about.

ALJ GARNER: You want this one marked I take it?

MR. MCCRARY: Yes.

ALJ GARNER: Marked as Alabama Power Exhibit 41.

Q. Is this article referring to the Dolet Hills coal plant that you were referring to?

A. It's the same unit, yes.

Q. So you point to Dolet Hills as an example of seasonal capacity and yet Dolet Hills is being closed pursuant to a settlement agreement with Sierra Club, is it not?

A. That's correct. And again I don't see the retirement date listed in this article but I believe that it's 2026.

Q. Now, Ms. Wilson, in your testimony, you offer a calculation of C02 emissions from the three gas-fired resources that are in the proposed portfolio, do you not?

A. That's correct.

Q. That's on page 26 of your testimony?

A. 26 and 27, yes.

Q. All right. And you're calculating the C02 output of those units over a number of years, are you not?

A. Correct. Their useful lives.

Q. Is that a calculation of the gross C02 output? In other words, it's the output of those units alone?

A. Yes. That's correct.

Q. Are you aware that these resources, if approved and dispatched in the system, could very well displace other generating resources?

A. That's a possibility, yes, but that depends on what the annual energy requirement is and whether or not the generation from these units is in fact displacing other resources or is going to meet increasing energy demands.

Q. Did you do any sort of analysis to consider the net C02 impacts of these units when you did your calculation or did you just offer a gross calculation?

A. I offered a gross calculation. To do that sort of analysis requires the use of production cost or system dispatch model, which I did not do in this analysis.

Q. You think it would be fair -- if one were to talk about the C02 effects of these units, do you

think it's fair to include the net effect as opposed to just the gross effect?

A. It's a possibility, yes, and I'll add that we had spoken about the Southern Company pool doing least cost dispatch around its entire system, and if that were the case, these units could be going to meet demand that is coming from other Southern Company opcos so it's not a simple calculation.

Q. But you will agree with me that if units are being displaced and dispatched through these facilities, then those units wouldn't be emitting CO2, correct?

A. If those -- yes. That's correct.

Q. And if that were in fact the case --

A. Well, let me clarify. Those units would be emitting CO2 to the level that they are generating but they would be emitting less CO2 if they were generating less.

Q. And it would be fair -- if you're trying to offer this calculation for whatever reason, the net would be a more fair representation than the gross?

A. It would be another representation certainly.

Q. Now it's true, is it not, that the units that are in the portfolio are already subject to emission regulations directed to, among other things, CO2?

A. I'm sorry. Could you say that again?

Q. Yes. Are the units that are involved in the proposed portfolio, are they not already subject to existing emissions regulations including CO2 emissions?

MS. CSANK: Your Honor, I'll launch an objection to the extent that this question is seeking a legal conclusion.

ALJ GARNER: Well, we've established she's not a lawyer so I will allow -- if she has an answer, she can give it.

A. We're talking about the gas units?

Q. Yes.

A. I can't say for certain. I'm generally aware of certain rules that govern CO2 emissions in the past but I'm not sure of the status of those rules today.

Q. You're not familiar with air permits that include limits on, among other things, CO2 emissions?

A. I don't know if these units have such

permits that limit CO2 emissions.

Q. So that maybe we will have a baseline to talk from here, Ms. Wilson, I'm going to hand you what's labeled table 2 of subpart triple and quadruple T part 60 of CO2 emission standards for affected stationary combustion turbines. Do you see that?

A. I do.

ALJ GARNER: Do you want this document marked, Mr. McCrary?

MR. MCCRARY: Yes, sir.

ALJ GARNER: Alabama Power Exhibit 42.

Q. You see under in the first column there, effective EGU, it talks about newly constructed combustion turbines?

A. I do see that.

Q. Right. You see the CO2 emission standards?

A. I do.

Q. And it's a thousand -- it must meet a thousand pounds of CO2 per megawatt hour limit?

A. That's correct. This is a standard governing the weight of CO2 output.

Q. Do you know who ADEM is? A-D-E-M.

A. I'm not aware of that acronym.

Q. The Alabama Department of Environmental Management?

A. Okay. Thank you. Sure.

Q. Is that entity responsible for issuing air permits among other things?

A. I don't know that. I'll note that these are standards for a combustion turbine and we're examining combined cycle units in this docket.

Q. Is not a combined cycle a combination of a combustion turbine and a steam generator?

A. It is, yes.

Q. So if Barry 8 is to be built and operated, it would have to comply with existing regulations such as this, would it not?

A. I don't know the answer to that.

Q. We can agree, can we not, that CO2 emissions are already regulated through regulation such as this?

A. Generally, sure, we can agree to that, but again I don't know how these rules apply specifically as I'm not familiar with them.

Q. In your testimony, you also calculate a

so-called social cost of carbon, do you not?

A. That's correct.

Q. And that's on page 29 and 30 of your testimony?

A. Yes.

Q. And your calculation there is based on the work of an interagency working group and I think you included their report among your exhibits?

A. I did, yes.

Q. Now in your testimony, we -- I mean your deposition, we talked about this. The interagency working group that you're referring to has been disbanded, has it not?

A. That's correct.

Q. Do you know by what means it was disbanded?

A. Not specifically but it was a working group under President Obama's administration and it may have been disbanded as a result of the change in administration.

Q. All right.

ALJ GARNER: We will mark the document that's just been handed to me -- the title is

Presidential Document -- as Alabama Power Exhibit 43.

Q. Ms. Wilson, what I've handed you is Executive Order 13783 as of March 28, 2017. Do you see that?

A. Yes, I do.

Q. And if we look over on the page, what's marked as page 16095 in the federal register, three pages over in this document -- you see section five?

A. I do.

Q. And in subpart B there, it says interagency working group on social cost of greenhouse gases which was convened by the Counsel of Economic Advisors and O&B director shall be disbanded and the following documents issued by the IWG shall be withdrawn as no longer representative of governmental policy. Do you see that?

A. Yes, I do.

Q. Is that the working group that we've been talking about?

A. That's correct.

Q. And if I look over to subpart Roman numeral VI at the top of the next page, technical update of the social cost of carbon for regulatory impact

analysis August 2016, do you see that?

A. I do.

Q. Is that not the same document that you attached to your testimony?

A. It is, yes.

Q. So when did you become aware that the working group had been disbanded and this document no longer reflected government policy?

A. I don't know specifically. I did know that the working group had been disbanded when I wrote this testimony and attached this document if that's your question. And I'll say that governmental policy changes from administration to administration and this is one estimate of the social cost of carbon. There have been others and will continue to be others in the future.

Q. So at the time that you presented this calculation in your testimony to this commission, you did so knowing that the document -- that the working group you were citing and the cost that you were relying on had been withdrawn and no longer representative of federal government policy?

A. That's correct. They were no longer

federal government policy but they -- the results and the estimates of the social cost of carbon still serve a number of studies done on the climate damages associated with global emissions and I chose to use those studies as one representation of the social cost of carbon here.

Q. Now I asked you in your deposition if you were aware of any other measures that had been put in place by the government to replace that that had been withdrawn here by this working group. Do you recall that?

A. I do. And I wasn't aware of any at the time but I have since become aware that the current administration does have such an estimate, though I cannot recall those numbers offhand.

MR. MCCRARY: Judge, I'll have to give you one in just a moment. I'm one copy short.

Q. Now, Ms. Wilson, what I've handed you -- and perhaps this will refresh your recollection -- are excerpts from the regulatory impact analysis for the repeal of the Clean Power Plan. Do you see that issued by the Environmental Protection Agency?

A. I do.

Q. And this is dated June of 2019?
A. Yes.
Q. And I included the table of contents but then I move over to chapter 4 which is estimated climate benefits and human health co-benefits. Do you see that?
A. I do.
Q. And if you look over on page 4-3 of that document, the paragraph there, it says Table 4-1 presents the average domestic CO2 estimate across all the integrated assessment model runs used to estimate CO2 for each discount rate for the years 2015 to 2050. Do you see that?
A. Yes.
Q. And if we turn over to the next page to Table 4.1, does that refresh your recollection as to some revised estimates as to the social cost of carbon by the federal government?
A. It does, yes.
Q. And correct me if I'm wrong but does not the cost estimate for the domestic social cost of CO2 range from one dollar to six dollars in 2015?
A. Yes, under two different discount rates.

Q. Right. And as of 2050, it ranges from two dollars to eleven dollars again over two different discount rates?

A. That's correct.

Q. Would it be fair to say, Ms. Wilson, that if your calculation was done using these updated values as opposed to the ones from the disbanded interagency working group, you would have gotten a considerably smaller number through your calculation?

A. It would be lower, yes.

Q. Do you recall what kind of dollar values you were using in your calculation?

A. So I state on page 30 of my testimony, lines 3 through 5, climate damages were calculated using the interagency working group's mid value for the social cost of carbon of fifty-two dollars per ton in 2020 that rises to eighty-five dollars per ton in 2050 at a discount rate of three percent.

Q. Okay. So that would then -- fifty-two dollars a ton in 2020 under the three percent discount, on this chart, that would be seven dollars. Is that right?

A. That's correct.

Q. And then rising to eighty-five dollars a ton in 2050 on this chart would be eleven dollars?

A. That's correct.

Q. So let me ask my question again. If one were to use these updated values to do the calculation in your testimony, you would get a significantly smaller number, would you not?

A. I think I said that that number would be lower, yes.

Q. You said it would be different and lower. It would be significantly lower based on this comparison that we just looked at?

A. Significant has a scientific designation behind it, and so I cannot -- as I sit here today, I cannot calculate if that number is statistically significantly different but it is different.

ALJ GARNER: Still owe me the copy of 44.

MR. MCCRARY: Thank you, Judge.

ALJ GARNER: This will be marked at Alabama Power Exhibit 45.

Q. Ms. Wilson, on page 19 of your testimony,

you refer to an exhibit RW-7 which is a document from the Union of Concerned Scientists, correct?

A. Yes.

Q. The Union of Concerned Scientists is an environmentalist organization, is it not?

A. I'm familiar with the Union of Concerned Scientists's actions around climate change. I'm not familiar with other things that they do. If you have a mission statement to show me, I'll be happy to take a look.

ALJ GARNER: While you're looking at that, Mr. McCrary, you just handed me 44 so there is no 45. I thought you were handing me another document.

MR. MCCRARY: I'm sorry, Judge. Off the record for a moment.

(Off-the-record discussion.)

Q. I don't have to -- I don't have to go to the website to find the mission statement. If you look on the last page of your own exhibit, Ms. Wilson -- are you there with me?

A. Yes.

Q. There we go. And down at the bottom, you

see where it says Union of Concerned Scientists and it says the Union of Concerned Scientists puts rigorous independent science to work to solve our planet's most pressing problems.

Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative practical solutions for a healthy, safe and sustainable future. Do you see that?

A. I do. And I'll say that I believe, subject to check, that the Union of Concerned Scientists also does work relating to human health which I don't -- can be an environmental concern but I don't think it is exclusively an environmental concern.

Q. As it relates to this document, this is an environmental-oriented document, is it not?

A. This is, yes.

Q. Okay. Now have you independently verified the analysis set forth or summarized in this document?

A. I'm sorry. Can you ask that again?

Q. Sure. Have you independently verified the analysis that purports to be set forth in this

document?

A. No, I haven't.

Q. You haven't looked at the methodology or data or anything else it purports to present?

A. I've read the document. I haven't attempted to recreate the analysis or do anything else that would be a verification.

Q. All right. And similarly you have another exhibit, RW-5. This is a document issued by a group called Ceres?

A. That's correct.

Q. And Ceres is another environmentalist organization, is it not?

A. Environmentalist or environmental?

Q. Either. Environmental.

A. Mostly environmental problems, yes, but its members, I believe, are primarily investors.

Q. Okay. So on the second page of that document where it says about Ceres --

A. Yep.

Q. -- Ceres is a nonprofit organization mobilizing business and investor leadership on climate change, water scarcity, and sustainability challenges.

A. That's in line with my answer to your previous question, yes.

Q. So this is an environmental organization?

A. It tackles environmental problems, yes.

Q. And as with the document from the Union of Concerned Scientists, would it be fair to say that you have not independently verified any of the analysis, methodology or data that purports to be set forth in this document?

A. I haven't attempted to replicate the analysis for verification purposes.

Q. You've just simply read it, correct?

A. Correct.

Q. Now on page 15 of your rebuttal -- I'm sorry -- of your testimony, you suggest that Alabama Power needs to get some wind resources from neighbors in SPP or MISO. You say that, do you not?

A. I say that the procurement should include PPAs for those resources. If they are found to be cost effective, then I would say that the company should obtain those resources, yes.

Q. Do you know whether Alabama Power currently has any such resources?

A. Not to my knowledge.

Q. So you don't know about Alabama Power's PPA with the Buffalo Dunes Wind Project in Kansas?

A. I'm not familiar with that project but I'll accept that it has such a project.

Q. And similarly you're not familiar with Alabama Power's PPA with the Chisholm View Wind Project in Oklahoma?

A. No.

Q. And since you're not familiar with those contracts, I assume you're not aware of Alabama Power's experience with high transmission costs and high congestion charges that are required in order to go across the SPP RTO system and the MISO RTO system?

A. I'm not familiar with those, no. That being said, Alabama Power can certainly structure a resource procurement such that it can examine bids from wind or wind generators operating in SPP or MISO and evaluate those bids compared to other resources.

Q. Now on page 15 of your testimony -- strike that. On page 16 of your testimony, you say my own analysis illustrates that customers can save money if the company procures demand-side resources and

supply-side resources instead of its proposed gas units. You say that, do you not?

A. I do.

Q. But then you proceed to describe an analysis that you did using the clean energy portfolio tool developed by the Rocky Mountain Institute, do you not?

A. I do.

Q. And we will talk about your use of that tool later, but suffice it to say that whatever you did with that tool, it was an analysis comparing your clean energy portfolio to Barry 8, correct?

A. It was a clean energy portfolio developed from the use of the tool. I didn't specify what the portfolio was with the exception of a DSM requirement.

Q. Yes, ma'am. But you were comparing this portfolio against a combined cycle unit, were you not?

A. That's correct.

Q. And that combined cycle unit was Barry 8?

A. Yes.

Q. You did no such comparison with respect to the Hog Bayou facility or the Central Alabama

facility, correct?

A. I did not look at the other two facilities, no.

Q. So when you say my own analysis illustrates customers can save money if the company procures demand-side resources and supply-side renewables instead of its proposed gas units, you did no such analysis with respect to Hog Bayou and Central Alabama, correct?

A. That's correct. And I -- on page 18 of my testimony, the question is why is your analysis focused on Barry Unit 8 and my response is it is a new unit that has not been built yet and it would have the longest service life of the three gas units that the company proposes to add to its system.

Q. Right. And my question wasn't why you used Barry 8 as the point of comparison. It's simply to point out you have no analysis directed to the other units, do you?

A. That's correct. I do not.

Q. Now your analysis -- withdraw that. When you say that customers can save money and you talk about something being less expensive, that analysis is

predicated on the application of a levelized cost of energy approach, is it not?

A. That's correct.

Q. Which is sometimes referred to as LCOE because I'll get tongue tied otherwise if I say the whole thing.

A. Yes. LCOE is the acronym.

Q. And LCOE, can we agree, is basically a simple screening tool, isn't it?

A. Yes, I would characterize it as such.

Q. It does nothing more than take the net present value of the cost of a resource and divide it by the net present value of the megawatt hours of that resource?

A. Generally, yes, and it is typically used as a screening tool to compare resources with varying useful lives as have the resources in the tool that I used.

Q. It is not -- LCOE is not a production cost modeling tool?

A. It is not.

Q. It does not provide a basis for making resource decisions?

A. No.

Q. In fact, it is particularly ill-suited even for screening purposes to compare different technologies, is it not?

A. I wouldn't say so, no. It provides one metric of the levelized cost of energy as a way to compare a variety of different resources and it -- there are certain benefits that it doesn't take into account that are captured by a production cost or dispatch model but it's certainly useful as a screening tool to give a user information about the types of resources and the general cost and benefits that might be expected to stem from those resources.

Q. Are you familiar with the U.S. Energy Information Administration?

A. Yes.

Q. Sometimes called EIA?

A. Correct.

Q. What is EIA?

A. It is the information arm of the Department of Energy.

Q. I'm going to hand you an excerpt from an EIA document.

MR. MCCRARY: And, Your Honor, this is Mr. Bush's Exhibit 3. I don't know -- but it's already in the record as Mr. Bush's Exhibit, Rebuttal Exhibit 3, however it was numbered.

ALJ GARNER: All right.

Q. And this document refers to the levelized cost approach, does it not? Levelized cost electricity?

A. Yes.

Q. And as you said, this document recognizes that the LCOE does not capture a number of important aspects that attach to various resources, correct?

A. I don't think I've said anything about this document.

Q. But previously you said LCOE doesn't capture many important attributes that attach to generating resources?

A. I said certain attributes, yes.

Q. Okay. And let me direct your attention to the top of the second page of this exhibit. It's marked page three at the bottom under the heading levelized avoided cost of electricity. And the first sentence says LCOE does not capture all of the factors that contribute to actual investment decisions making

the direct comparison of LCOE across technologies problematic and misleading as a method to assess the economic competitiveness of various generation alternatives. Do you see that?

A. I do.

Q. But you just disagree with that?

A. I do in part because I do believe that LCOE analysis has value as a screening tool, which is what I've used it for here. This statement doesn't say to me that there is no value. It suggests what we've already agreed upon, that a company or utility wouldn't use the LCOE methodology as its sole tool for making a decision.

Q. Do you agree --

A. And I'll note that in the second paragraph it says comparing two different technologies using LCOE alone evaluates only the cost to build and operate a plant and not the value of the plant's output to the grid. I do agree with that and it is for that reason that one should investigate these resources using a capacity expansion and production cost model.

Q. So let's just -- let's tease that out a

little bit with a very simple example because that's the only kind I could come up with. You could do an LCOE on, for example, a solar -- a stand-alone solar facility, could you not?

A. You could.

Q. And you could do an LCOE on a combustion turbine, correct?

A. That's right.

Q. And if those are the only two resources you had, you could compare those two LCOE results. And let's just assume for the sake of my question that the stand-alone solar had the lower LCOE value.

A. Okay.

Q. That would be in dollars per megawatt hour?

A. Yes.

Q. But as far as being able to reliably serve load with it, that would tell you nothing about which of those resources was best suited to reliably serve load, would it?

A. If you mean reliability in terms of contribution toward peak, it doesn't give you very much information, no, or none at all about peak.

Q. It doesn't give me any information about the resource's ability to serve load, does it, in a reliable manner?

A. It doesn't speak to reliability, no.

Q. Right. So, for example, I might have a dirt cheap solar facility as compared to the CT in my hypothetical, but if I want to turn the lights on at night, my dirt cheap solar facility is not going to help me out, is it?

A. Stand-alone solar generally doesn't help you when the sun isn't shining.

ALJ GARNER: State for the record the document that is currently being discussed is Alabama Power Exhibit 34.

MR. MCCRARY: Thank you, Your Honor.

Q. And it's those kinds of important operational attributes as demonstrated in my hypothetical, that's the kind of thing that the LCOE approach doesn't shed any light on, correct?

A. That's one thing, yes, and there are a number of metrics by which a utility would evaluate investment decisions. Reliability is one. It isn't captured by LCOE but LCOE might give the company

valuable information about other metrics.

Q. You are aware, are you not, that we're here in this proceeding because Alabama Power has a reliability need?

A. That's correct.

Q. And so reliability is at the very heart of this proceeding we're in today, is it not?

A. That's correct. And I believe it was discussed yesterday that there is a capacity value that is associated with solar. It isn't as high as the capacity value that's given to a thermal resource, but in most cases as we sit here today, it is not zero.

Q. Is it your testimony that stand-alone solar provides any significant capacity value to deal with winter peak load requirements?

A. My testimony doesn't discuss that, no.

Q. And you do understand that we're here not only to talk about a reliability need but specifically a winter reliability need?

A. That's correct. And that is I believe the reason that the solar has been paired with battery storage resources in Alabama Power's analysis and the

clean energy portfolio that I put forth in my testimony includes both solar and storage resources.

Q. All right. Do storage resources -- well, withdraw that. We will get to it in a moment but do you recall whether your portfolio includes some stand-alone solar?

A. I believe it does, yes.

Q. And it also includes some battery resources?

A. That's correct.

Q. Do you remember the duration of those batteries?

A. Those were one hour batteries.

Q. All one hour batteries?

A. Correct.

Q. And that's in your portfolio?

A. Yes.

Q. But again the portfolio is not tested for reliability under the LCOE, is it?

A. It does meet peak in the top 50 hours of the year, yes.

Q. You're referring to the RMI tool that you applied?

A. That's correct.

Q. All right. We'll talk about that soon. In fact, the RMI report that you rely on is Exhibit RW-10. Is that right?

A. That's correct.

Q. I'm going to take a shot here, but the Rocky Mountain Institute, is that an environmental organization?

A. I would call it more an electricity organization.

Q. Okay. With an environmental bend?

A. To the extent that they talk about CO2 emissions contributing to climate change, then yes.

Q. So when I look over on -- I don't know what page this is -- about two or three pages over about the Rocky Mountain Institute, Rocky Mountain Institute, an independent nonprofit founded in 1982, transforms global energy use to a clean, prosperous, and secure low carbon future?

A. I think that's consistent with what I said, yes.

Q. Okay. Now this proceeding represents your first involvement with the RMI tool, correct?

A. That's correct.

Q. The RMI tool, as we discuss it here, is a model that was developed by RMI for purposes of doing the evaluations described in this RW-10?

A. Yes.

Q. Your first use of the tool or exposure to the tool was in November of 2019?

A. That sounds right.

Q. Prior to that time, you had no experience with it?

A. Using it, no.

Q. And I think you told me in your deposition that you received training on the use of the tool?

A. That's correct.

Q. Training from an employee of the Sierra Club?

A. Sierra Club holds the license to the tool and Synapse does not so I had to receive a bit of training from the Sierra Club in how to use it, yes.

Q. You got no training from the people at RMI who developed the tool?

A. I did not but the person who trained me

is listed in the acknowledgment section as having reviewed the report and the tool.

Q. So Sierra Club has a license to the tool, a Sierra Club person helped develop the tool, and a Sierra --

A. I don't know that they helped develop it but they did review the tool and offer their perspective.

Q. Okay. So they were somehow involved in this RMI report?

A. Correct.

Q. You don't know what the involvement was?

A. I don't.

Q. All right. Be that as it may, the Sierra Club has had a license to this tool and a Sierra Club club employee trained you on the use of the tool?

A. Correct, on the input assumptions and how they go into the model, yes.

Q. Did you develop an understanding of how the tool works or did you just simply learn how to input it and derive outputs?

A. The understanding of the use of the tool is general and it runs in a code language called

Python which I'm not familiar with so I haven't examined the Python code to determine exactly how the model is running its algorithms.

Q. A few moments ago, you said something about the top 50 hours and I think you were alluding to some of the requirements in the RMI tool that it imposes on the clean energy portfolio, were you not?

A. That's correct.

Q. And that's laid out on probably a number of places but --

A. Page 23 is what we've discussed previously.

Q. Let's turn over there. So for purposes of trying to mimic a dispatchable gas-fired resource, the CEP requires a clean energy portfolio to satisfy these criteria, correct?

A. That's correct.

Q. And so the first criteria is that the CEP has to produce at least as much energy each month as the gas plant?

A. Yes.

Q. Does it matter when the energy is produced?

A. No, it doesn't appear to.
Q. All right. So the gas plant being dispatchable will produce the energy when it's needed, correct?
A. It can, yes.
Q. And the clean energy portfolio won't necessarily produce energy when it's needed, correct?
A. The renewable resources would produce energy when either the wind is blowing or when the sun is shining but then the battery storage components would be able to dispatch any stored energy in times when it is needed.
Q. These are the one hour batteries --
A. Correct.
Q. -- that are in your portfolio?
A. Yes.
Q. So this first criteria is just total megawatt hours in a month?
A. That's correct.
Q. Without regard to when in the month?
A. Without regarding to timing, yes.
Q. And the second criteria is that it has to match or exceed the gas plant's seasonally adjusted

nameplate during the region's top 50 hours of peak net load?

A. Correct.

Q. So how many hours are there in a year?

A. Eighty-seven sixty generally.

Q. And so this has to just meet the gas plant's nameplate capability in 50 of those hours?

A. That's correct.

Q. The gas plant will have its capability subject to normal E-4 and -- or maintenance -- be there 24/7, won't it?

A. If it's online, yes.

Q. Then it says something about flexibility, right?

A. That's correct.

Q. And it says the clean energy portfolio must match or exceed the gas plant's nameplate capacity during the hour when the region experiences its greatest one hour increase in net load?

A. Yes.

Q. Just that one hour?

A. Yes.

Q. What about other hours when there are

increases in net load that might be very close to that one hour?

A. Well, if it can meet its seasonally adjusted nameplate capacity during the hour of greatest one hour increase, then I would think that it could meet smaller increases in other hours.

Q. What if there was an increase that was very close to that greatest hour, say in the next hour?

A. I'm not sure how the model would deal with that, but again I'll say if it can meet that greatest one hour increase, then I think it would be able to meet a similar increase. It would have to be the following hour.

Q. What if it was a particularly challenging day and there were a number of hours that were very close in terms of the peak output requirement? No problem for the CEP?

A. I don't know the answer to that.

Q. At some point, would your one hour batteries run out of juice?

A. Each of the one hour batteries would run out of juice after an hour and it would just depend on how many batteries you have, how much energy

is needed, and how those batteries are dispatching the stored energy.

Q. But whether all that would really work or not doesn't matter because all that the tool requires is to match the one hour that's identified here?

A. That's correct. And we've talked about the CEP tool being a screening tool and so it's assumptions that go into making it a simplified tool are somewhat limited compared to a capacity optimization and electric sector dispatch model and I'm not suggesting that it be used for anything other than what it was used for here.

If we want to get at some of these questions, you would need to run your resource portfolio through a dispatch model. I attempted to show a portfolio that could be least cost compared to the gas plant or the proposed gas unit additions and Alabama Power did no such analysis.

Q. So in your testimony, for example, on pages 16 and 17 and really all through there, when you use words like save money, less expensive, cost effective, that's just based on this -- those statements are predicated on your LCOE analysis and the results of

your application of this tool, correct?
A. Yes.
Q. The RMI tool includes some regional data, does it not?
A. I'm sorry. Includes what kind of data?
Q. Regional.
A. Oh, regional. Yes, it does.
Q. Somewhere in here -- maybe you can help me -- there's a map that shows the various regions?
A. Yes.
ALJ GARNER: Page 43.
MR. MCCRARY: Wow. Go, Judge.
ALJ GARNER: I just turned to it.
THE WITNESS: Thank you. Page 43.
MR. MCCRARY: Yield to the bench.
ALJ GARNER: You're on your own.
MR. MCCRARY: Thank you, Judge.
Q. So on page 43 if I can get there -- yeah.
ALJ GARNER: You sound surprised.
MR. MCCRARY: No. Just having a hard time getting these slick pages to turn.
Q. I assume we're down in the southeast, right?

A. Yes.

Q. And then the description there on the right where it says southeast, even though Alabama is colored in the map, it says Florida, Kentucky, Louisiana, and South Carolina?

A. That's correct. And I think that's because of the time this report was issued, the authors weren't aware of the proposed Barry Unit 8 addition. If you look on page 20 of the report, Figure 3 shows announced gas-fired generation projects and Barry 8 doesn't show up on that map.

Q. Oh, okay. So when this report talks about any sort of analysis of gas-fired plants that it purports to have done, it doesn't include Barry 8?

A. I don't believe so, no.

MR MCCRARY: Let's go off the record for a second.

(Off-the-record discussion.)

ALJ GARNER: Let's come back at 1:15. We are in recess until 1:15.

(Lunch recess.)

ALJ GARNER: We are back on the record. Are you ready to proceed?

MR. MCCRARY: Yes, sir. Your Honor, we will go ahead and mark as our next exhibit in order. These are a number of excerpts from Ms. Wilson's spreadsheets that were provided in discovery. I think she's familiar with them.

ALJ GARNER: Alabama Power Exhibit 45.

MR. MCCRARY: We will be talking about these for the next little bit.

THE WITNESS: Should this light be green?

ALJ GARNER: Push the middle button.

THE WITNESS: Okay. Thank you.

Q. (BY MR. MCCRARY:) Ms. Wilson, one thing I just wanted to revisit from our morning session just briefly. You had indicated that in your view Alabama Power should have inquired about any additional wind-related resources in connection with its solicitation?

A. Yes.

Q. Are you aware that the -- that the capacity RFP that was conducted by the company in 2018 included a solicitation for wind although it had to be delivered to the southern border?

A. I'm not explicitly familiar with that RFP and the capacity that it requested. I will say that to the extent that it did, it should continue to do so as those types of wind resource pricing change year to year. And what Alabama Power has done historically shouldn't preclude it from asking for bids for those types of resources in the future.

Q. Right. And for the record, the company received zero proposals in response to that solicitation.

A. Noted.

Q. I put before you certain spreadsheets and these are familiar to you?

A. They are, yes.

Q. These are among the spreadsheets that were inputs and outputs from your application of the RMI tool, are they not?

A. That's correct.

Q. And before we get started, I just want to ask you something. Yesterday your counsel said something that I thought was pretty insightful as it relates to this discussion. She said something to the effect of flawed inputs, flawed outputs. Do you agree

with that when it comes to the application of a model?

A. That's generally true, yes, though the degree will vary.

Q. Sure.

A. And I'll just along those lines note that in my deposition we discussed these spreadsheets and I have gone back and looked at some of the inputs and outputs again with the hope that I can provide clarification to some of the questions that you asked.

Q. Good.

MR. MCCRARY: Off the record.

(Off-the-record discussion.)

Q. Ms. Wilson, the first of these spreadsheets is labeled at the top Attachment F. Do you see that?

A. I do.

Q. And this is essentially the cost inputs that you used in your application of the model, is it not?

A. That's correct.

Q. And so that we're clear about -- the record is clear about some of the abbreviations, there's a reference to BAU NGCC. Is that business as usual

natural gas combined cycle and that refers to Barry 8?

A. Yes.

Q. Then there's a reference to various resources that have the type RE. Is that renewable energy?

A. Yes.

Q. And moving down that column B, there's a reference to ES. Is that energy storage?

A. Yes.

Q. And then a reference to TX. That's transmission?

A. Yes.

Q. And then a number of options that have EE. Is that energy efficiency?

A. Yes.

Q. And then the last three have DR. Is that demand response?

A. Yes.

Q. Okay. Then -- and I'll remind you and you remind me. Some of this information is confidential and we don't intend to get into that in this open session. So we'll see if we can't talk around it, okay?

A. Okay.

Q. In column D, line 5, there is a CapEx value shown for the Barry 8 unit, is there not?

A. There is.

Q. And next to that, there is a CapEx year and that year is shown as 2019?

A. That's correct.

Q. All right. Now in our deposition, we discussed how -- we discussed whether the value shown under the CapEx, whether that was an in-service value as of 2023 or a 2019 value, did we not?

A. We did.

Q. And I think during the deposition you were unable to say for certainty which it was?

A. I think that at the end of the deposition we got to the conclusion that that value was in 2019 dollars but assumed an in-service date of 2023.

Q. And that's your understanding still today?

A. Of this spreadsheet, yes.

Q. Is that an accurate statement as to the cost of Barry 8 in 2023 in-service?

A. Mr. Bush during that deposition stated

that those costs in his testimony were in fact in 2023 dollars and the discussion in the deposition was whether this analysis then under -- I'm sorry -- overstated the cost of Barry Unit 8 as it appears in this spreadsheet, and for purposes of the levelized cost analysis, that answer is no.

And that is because we're dividing, as we discussed earlier, a numerator over a denominator and the cost of production was also in those same dollar years rather than in 2023. And so when you then convert the base years dollars, the result winds up being the same. There's no net effect on the LCOE calculation for Barry 8.

Q. So it's your understanding that the value you have entered in column D-5 is a 2019 value?

A. That's the way that I entered it, yes. And as I said, when you carry that analysis through, that value doesn't -- if you were to adjust it to 2023 dollars, it doesn't have an effect on the resulting LCOE.

Q. Just so the record is clear as to what your model does, when you enter a value for the CapEx value for any of the resources, then there's a CapEx

year indicated, correct?

A. Yes.

Q. And the model -- does the model escalate the CapEx value shown from the year entered up to the in-service year of 2023?

A. It escalates it according to the year in which -- the year's dollars in which that investment goes into service. So it's essentially presenting those dollar values in nominal terms as opposed to real terms which are shown here.

Q. What life value did you enter for the Barry unit?

A. So here -- well, we talked about this in my deposition as well. Originally I had entered a value of 40 years for the Barry life, and for some reason, RMI's tool was producing an error when we ran it that way so we did adjust it to a life of 20 years in order to have the model actually produce outputs.

Q. So you've taken the -- you've taken the cost of a 40 year asset and you've compressed it into a 20 year life. Is that the effect of this entry?

A. That's the effect, yes. And when you redo the levelized cost analysis and give Barry Unit 8

a 40 year life, the net effect of that change is about two dollars per megawatt hour.

So in this case, my results showed that the LCOE of Barry 8 was about forty-five dollars and change per megawatt hour so that lowers that value by two dollars per megawatt hour.

Q. And what we have here -- and we'll get to that later but the value you have shown for Barry 8 is overstated in your LCOE results?

A. Slightly, yes, based on the useful life adjustment.

Q. Did you read Mr. Bush's rebuttal testimony as well?

A. I did.

Q. And did you see where he had indicated that you had put the wrong dollar amount for a 2023 in-service cost for Barry?

A. I did. And I didn't recall that in the deposition as we were discussing it but I did remember it after the fact.

Q. All right. And you don't dispute what he said in that regard, do you?

A. No, I have no reason to challenge that,

just that it wasn't clear from his testimony and work papers to me at the outset that that value was in 2023 dollars.

Q. But sitting here today, we know that the value is in 2023 dollars?

A. That's right.

Q. You have a 30 year life entered for the solar renewable energy resources, do you not?

A. That's right.

Q. And is it not true that this tool takes 30 years worth of cost, spreads that cost of those resources over 30 years, and then for purposes of the LCOE just takes the first 20 years of that value?

A. That's what the methodology states RMI's supporting document, yes, but it levelizes that 20 years over the production and discounts it back to a present year dollar. I don't know what the effect would be sitting here today of taking a 30 year cost stream and discounting or dividing it by production and discounting back to the present year dollars but I believe it to be small.

Q. But to be clear, what this methodology has done for these 30 year lifed solar resources, it

spread the cost over 30 years and then simply taken 20 of those 30 years and use it in the LCOE calculation?

A. That's correct, but it's discounted then by 20 years as opposed to being discounted by 30 years and you're dividing a constant stream of costs over either 20 or 30 years, depending on which way you're doing it, and dividing it by production which is constant in this portfolio.

Q. Well, a moment ago we discussed that Barry has a 40 year life?

A. Yes.

Q. And you said that when you tried to enter the accurate 40 year life in this tool, you got an error message?

A. That's true.

Q. Did you try to enter a 30 year life?

A. No.

Q. Well --

A. The RMI methodology assumes a 20 year life for natural gas plants and that is an assumption that's contained in the documentation in my Exhibit 10 and my assumption is that that's the way that it would have to be entered here. So when I adjusted it for --

to reflect that 40 year life, I did my own calculation in Excel, not as part of the RMI tool.

Q. Well, if the tool will take a 30 year life for the solar resources, why wouldn't it take a 30 year life for Barry? At least that would be closer to right.

A. I don't know the answer to that.

Q. All right. Looking on down, I see the CapEx year that's alongside all the generic energy efficiency options is 2012, is it not?

A. Yes.

Q. Is that -- that's the vintage of the cost information for those resources?

A. That's my understanding of that, yes.

Q. And do the penetration assumptions that are embedded in the tool also -- were they also as of 2012?

A. I'm not sure I understand the question.

Q. Well, for example, energy efficient -- energy efficiency for commercial lighting, that would refer to the move from the, say, incandescents to LEDs, would it not?

A. Yes.

Q. And so there was a certain penetration of LEDs in 2012, right?

A. That's correct.

Q. But now here we are in 2020 and I assume -- would you agree with me that there is a much greater penetration of LED lights in the commercial space?

A. I assume that it's greater. I don't know by what degree.

Q. So does the tool assume that there's the opportunity for LED expansion as that opportunity might have existed in 2012 as opposed to how that opportunity might exist today?

A. I'm not sure and I think we could perhaps go back to the methodology to determine that answer.

Q. The last question on this page --

A. But --

Q. I'm sorry?

A. That's okay.

Q. The last question I had for you on this page, over in column L, I'm seeing a CapEx decline per year and that is only entered for the solar resources

for the renewable energy resources and the energy storage resources, correct?

A. There's a wind decline as well.

Q. Okay. And the entering that CapEx decline, that basically assumes as cost reduction in connection with those resources, correct?

A. In real terms, yes.

Q. Year over year?

A. Correct.

Q. So would that be for the full life of those resources?

A. So that CapEx reduction would only apply to the year in which the capital is being spent. So while the reduction would occur year over year, if the capital is being spent in 2023, then there is spending in that year that is then spread over the remaining years and that doesn't decline. I think that answers your question.

Q. Okay. If that same resource were deployed several years later, it would assume the cost of that resource has been reduced by this CapEx decline rate per year, correct?

A. That's correct.

Q. So this assumes, for example, that for storage resources, there's going to be a six percent cost decline every year over the full 20 year horizon?

A. The number six percent isn't reflected here.

Q. 5.7 percent.

A. That's not for solar.

Q. I said battery. If I said solar, I misspoke. I was intending to say for the battery.

A. That's correct, yes. And that's consistent with assumptions from the National Renewable Energy Laboratory in Lazard which puts out estimates of both capital and operating costs for these technologies as well as the learning curves associated with them.

Q. And there are other cost reduction assumptions built into this model for other renewable resources, correct?

A. That's correct. And in its methodology, RMI notes that these assumptions about learning curves are conservative relative to the actual percentage declines that we've seen historically.

Q. Have you seen any information that would indicate to you that cost declines in this space are starting to flatten out as the technology matures?

A. I think different sources predict different types of learning curves.

Q. Well, just so we're on the same page, let me show you what -- an excerpt from Detsky 4. It's a page from the Lazard materials and you see the highlighted section that I have there?

A. Yes.

Q. And does that -- let me read it so that we are -- I'm sorry. I only have one copy. It says in light of material declines in the pricing of system components and improvements in efficiency among other factors, wind and utility scale solar PV have exhibited dramatic LCOE declines; however, as these industries mature, the rates of decline have diminished. Do you disagree with that?

A. For wind and solar, that's typically thought to be correct, yes.

Q. Okay.

ALJ GARNER: What's that page reference, Mr. McCrary?

MR. MCCRARY: It's page eight from the Lazard book.

MR. GROVER: Detsky 4.

ALJ GARNER: Detsky 4.

MR. MCCRARY: Yes, sir.

Q. Let's look at the next page of Exhibit 45. Let me ask you a few questions about that. That's at the top of the page marked attachment G, is it not?

A. Yes.

Q. And these are the scenario parameters that are reflected in your model run?

A. That's correct.

Q. Line five, value for additional energy. Do you see that?

A. Yes.

Q. And that's the value that this -- the RMI tool assigns to energy produced by the clean energy portfolio in excess of the output assigned to the Barry unit, correct?

A. For the net cost calculation, yes.

Q. Right. And according to the RMI study, RW-10, that value should be fifteen dollars, correct?

A. Not should be fifteen dollars but

that's the base assumption that RMI used in its modeling. They also state that that is very conservative and they compare that to cost in dollars per megawatt hour of output for a combined cycle unit of twenty-five dollars a megawatt hour. So this twenty dollar number is still below the production cost of a CC.

Q. All right. But to be clear, no less than seven times -- and we can count them but no less than seven times in RW-10 does the RMI report refer to the fifteen dollar assumed value for the excess energy?

A. That was RMI'S assumption, yes, and RMI looked at the entire United States as we saw earlier in that map of the regions that we examined and the cost per energy depends on the resource mix in each state or utility service territory and so that number will vary regionally.

Q. But you determined in your judgment to increase that assumed value from fifteen dollars to twenty dollars?

A. I did. And I will note that also in my deposition we talked about my figure -- and I don't see the number here but we had talked about it being

on a net basis. It's not actually. It represents the true LCOE which I assume we'll get into later as well.

Q. We will. Now this twenty dollars assumed value that you have, that's assigned to every megawatt hour of so-called excess energy produced by your clean energy portfolio, right?

A. In the net cost calculation, yes.

Q. Right. And that requires an assumption that on average all of those megawatt hours are going to have a value, a market value if you will of twenty dollars?

A. Yes.

Q. Isn't it true that in some instances energy produced by a solar resource can have a negative value?

A. In hours where that resource has to be curtailed or there's excess generation, then, yes, that's possible.

Q. Because being not dispatchable, the solar resource puts energy on the system when it puts energy on the system, right?

A. That's correct. But with solar, that tends to be in hours where the sun is shining which

might be a summer peak. And so given the penetrations on Alabama Power system, it seems very unlikely that we would experience negative pricing anytime soon.

Q. Well, it does produce energy when the sun generally is shining. If the sun is not shining, it's not producing energy, right?

A. Generally, no.

Q. It's not producing energy --

A. I mean there's some -- even with cloud cover, there is a tiny bit of solar penetration but, yes, that number is close to zero.

Q. All right. You're familiar with the load shape in the winter on the Southern system, are you not?

A. I'm familiar with the concepts of load shapes generally. I can't say that I know about Southern's systems specifically.

Q. Are you aware that there's a steep morning ramp in the morning in the winter around 7 a.m. and then the load declines and there's actually a trough in the middle of the day and then an evening peak as well? Are you generally familiar with that?

A. That can often be true in utilities. It's not specific to Southern Company.

Q. And in situations in that middle of the day trough, if you will, units can sometimes be at minimum, can they not?

A. What types of units?

Q. Operating -- dispatchable units may be at their operating minimum level?

A. I suppose that's possible. It would depend how many are turned on and what the load is.

Q. If the system has units at minimum and then the renewable resource is dumping energy into the system, can that create operational issues for the system?

A. If there's no place for that energy to go, then that's possible but this is where the economics of battery storage resources become very important because storage resources can store that excess energy so that we avoid exactly this type of situation and dispatch it in the hours when it's most needed which would be that steep morning ramp where the sun isn't shining and that solar energy can then have value in those hours.

Q. In situations where there's energy being produced that the system can't handle because, for

example, units are at minimum, then the system has the choice of either having to get rid of the energy possibly by asking its neighbors to -- possibly by having to pay its neighbors to take the energy or be confronted with de-committing a unit. Aren't those some of the operating choices that might have to be made?

A. Those are some of the choices, yes, and that depends on the amount of thermal capacity on a utility system and how that thermal capacity is being committed in other hours of the day.

Q. Have you done any sort of an analysis regarding the Southern system and the operation of its units and its system and other factors that you have to take into account to test the validity of your twenty dollar assumption?

A. I haven't and I think that I've stated that I haven't done that type of dispatch analysis here. To my knowledge, Alabama Power or Southern Company, neither of them have done that analysis either.

Q. Line 26 on this same page talks of the NGCC average capacity factor. Again that's plant Barry, right?

A. That's right.
Q. And it shows seventy-five percent?
A. Correct.
Q. Mr. Looney testified that according to the system production cost model, which is a more granular analysis, the capacity factor was more like 80 percent. Are you aware of that?
A. I heard that yesterday and it's my understanding that the -- that particular study that Mr. Looney referenced didn't also take into account the other resources that are being proposed here which namely are the solar and storage resources. That might have an effect on the capacity factor if that were taken into consideration.
Q. If the capacity factor for plant Barry were higher than what you've modeled here, that would increase the megawatt hours in the denominator of the LCOE calculation, wouldn't it?
A. That's right.
Q. And that would reduce the LCOE value, wouldn't it?
A. That's right.
Q. Now the last line here, line 50, talks

about the top load hours, correct?

A. Yes.

Q. Now this is part of the -- this is part of the requirements that the tool imposes that the renewable portfolio has to produce enough energy to match the resource in the top 50 load hours?

A. Correct.

Q. And this refers to FERC 714, correct?

A. So this has two sources here and it says use regional load data from Reinventing Fire rather than FERC 714 in calculating that load for capacity constraints. FERC 714 data has hourly generation data historical for different utilities. We did try to use FERC 714 data in this tool, and for some reason, the tool was producing an error. And so what this column says is to instead use regional load data from Reinventing Fire, which is what was done here.

Q. Did you investigate why the tool was producing an error message?

A. I didn't. That's something we have to the take up with RMI who developed the tool.

Q. So we've gotten error messages on the

true life of the Barry in it and we've gotten an error message over the use of FERC 714 data?

A. Those were the only two, yes. And again I don't offer this levelized cost analysis as being the sole data source on which Alabama Power should base a decision but it does look at a portfolio of clean resources compared to Barry Unit 8 which is being proposed here.

And it gives a cost comparison that demonstrates that a portfolio similar to the one that was constructed here is one that should be pursued by Alabama Power and at least evaluated as a possible least cost resource portfolio.

Q. Let's look on the next couple of pages of Exhibit 45, please.

A. I'm sorry. I don't have exhibit numbers. This whole thing is 45?

Q. Yes, ma'am.

A. Okay.

Q. And the first page there is the bar charts?

A. Yes.

Q. All right. And those are the same bar

charts that show up in your testimony on page 17, correct?

A. I think so. Yes.

Q. And those bar charts are a representation of some of the information that's on the next page, correct?

A. Yes.

Q. All right. Now the next page is your RMI tool outputs, correct?

A. That's right.

Q. So we have columns -- you've got all kinds of LCOE calculations here. The first one is described as the CEP LCOE, right?

A. That's right.

Q. And correct me if I'm wrong but that's the cost of the clean energy portfolio divided by the megawatt hours from plant Barry. Is that right?

A. Yes. The same number of megawatt hours that would be produced by Barry 8.

Q. All right. Then the next one says CEP true LCOE, right?

A. Yes.

Q. And if I understand your formulation,

that's again the cost of the clean energy portfolio divided by the total output of that portfolio, total megawatt hours?

A. That's right. The clean energy portfolio produces additional megawatt hours above what Barry 8 produces and so the denominator of that LCOE calculation is the total energy produced by the CEP.

Q. And it produces a lot more megawatt hours because there's a lot more capacity to do it, right?

A. That's right.

Q. Barry is, what, 1743 megawatts?

A. Correct.

Q. Do you know how many megawatts your clean energy portfolio comprises?

A. I can't recall offhand but we can sum some of these columns to arrive at that value.

Q. Would you accept, subject to check, it's a little over 2600 megawatts?

A. Yes. And I'll just point out again that that is because the capacity value given to renewable resources is lower than the capacity value given to thermal resources.

And we see oftentimes that because these renewable resources have low to no variable operating costs because there's no fuel costs associated with them, the cost to both build and operate a portfolio of renewable energy resources can oftentimes be lower than the cost to build and operate a terminal resource.

MR. MCCRARY: Your Honor, we can do this all day but I believe that my question was fairly specific and I believe we're getting a lot of color commentary. Perhaps we could narrow that down just a little bit.

ALJ GARNER: Let's keep it to an answer to a question. If you need to give a reasonable explanation, that's appropriate, but just a response beyond that when there's not a question on the table, we will be here all day.

THE WITNESS: Yes, sir.

Q. Now the next column we have here is column E and it talks about a CEP net LCOE, does it not?

A. Yes.

Q. And that's the result of the cost of the clean energy portfolio reduced by the excess energy

valued at your twenty dollars a megawatt in the numerator, correct?

A. Correct.

Q. Divided by the output of its -- associated with Barry?

A. That's right. The previous true LCOE changes the denominator and this net LCOE changes the numerator.

Q. And then the last formulation you have is BAU LCOE. That's an LCOE calculation for the Barry unit, is it not?

A. That's correct.

Q. Cost of Barry in the numerator divided by the assumed output at the 75 percent capacity factor?

A. Yes.

Q. All right. Now what you have depicted in your bar chart in your testimony and also shown in this exhibit, what you have shown as CEP, that's the result of the column D calculation, is it not? What you refer to as CEP true LCOE?

A. Yes.

Q. All right. And the one that's shown for Barry is the result of column F, the BAU LCOE, correct?

A. Correct.

Q. But if I look at the RMI report that you include in your testimony, RMI does not use your so-called true LCOE, does it?

A. RMI uses the net value, yes.

Q. So even though you point to the RMI study and you rely on the RMI study, you didn't follow the methodology that RMI follows, correct?

A. That's correct. And it's correct in certain instances. In other instances, I did follow RMI's methodology.

Q. As to these bar charts, this bar chart you have in your testimony is not the result of following the cost comparison approach set forth in RW-10, is it?

A. I did not use the net LCOE, so no.

Q. And again let's be careful about confidential information but I see in column R there's something called cost BAU CapEx?

A. I'm sorry. Let me -- this particular document isn't labeled confidential. I don't know if it should be confidential.

Q. I have intended the whole exhibit would

be confidential.

A. Okay. So I'm sorry. Column R?

Q. Yes.

A. Yes.

Q. And that's the value -- the cost shown for the Barry unit, right, the CapEx value?

A. That's correct.

Q. In 2019 dollars?

A. In 2019 dollars escalated to 2023 dollars and discounted back to 2019.

Q. All right. And then when I look back at page one of this same exhibit, I've got a dollar value in column D, line 5 for Barry that also purports to be the CapEx value for Barry in 2019 dollars, do I not?

A. That's correct. And we talked about this earlier when I said that it was unclear to me that the CapEx number was presented by Mr. Bush in 2023 dollars, and when you make that correction because you do it in both the numerator and the denominator, the net effect on the LCOE is zero.

Q. You're assuming, are you not, that that's offset by the effect of the FOM and VOM values?

A. The same types of methodology -- the

same methodology was applied to those numbers, and when I did that analysis in Excel, there was a net effect of zero.

Q. All right. If you're incorrect about the vintage year of the FOM and VOM values, then your adjustment, your assumed zero effect would be incorrect?

A. Can you say that again?

Q. Sure. You've assumed that the FOM and VOM values that are input here on the first page of this exhibit are as of 2019, are you not?

A. They're in 2019 dollars in this exhibit similar to the CapEx, yes.

Q. And if they are in fact 2023 dollars, then your calculation is in error, is it not?

A. So those are all considered as -- capital and fixed operating costs would be taken together, and when you apply -- when you make that same adjustment to the variable O&M and you divide, it's affecting both the numerator and the denominator. So the net effect of that change to all of those costs taken together is zero.

Q. The denominator has the megawatt hours in it, doesn't it?

A. Yes, but that -- in order to determine the total cost of the resource, then the variable operating costs are applied to those megawatt hours and escalated similarly as the fixed O&M in capital expenditures.

Q. Yes, ma'am. But my question to you is if the CapEx value and the FOM value and the VOM value all reflect those costs in 2023 -- that's when the unit would go into service, is it not?

A. That's correct.

Q. So if that -- if those costs are costs in 2023, then you have inappropriately entered a year of 2019, haven't you?

A. When I make the adjustment to 2023 dollars, the net effect is zero. I'm not sure how to restate that.

Q. Okay. Let's look at the results of your application of this tool in terms of total costs. Let's look over -- I'm back on the -- the particular page I'm looking at is tab one of nine.

A. Summary outputs, page 203?

Q. Yes.

A. Yes.

Q. So column M shows the total cost of your clean energy portfolio?

A. That's correct.

Q. And column O shows your calculation of the total cost of Barry?

A. Yes.

Q. And we may just have to agree to disagree about the accuracy of what you entered there, but for the sake of this discussion, we'll assume you've done it right. Isn't it true that in every one of those scenario runs you did, the total cost of the CEP is higher than the total cost of Barry?

A. Yes.

Q. In some instances, by as much as 25 percent?

A. That seems right, yes.

Q. And isn't it also true if I look over in column P at the capital cost only for your CEP portfolio and compare that to the capital cost only for Barry, in each and every one of those scenarios, your CEP has a higher capital cost?

A. That's correct.

Q. Generally by a factor of three times?

A. Yes. And that's a result of the additional capacity that's added in the CEP portfolio as we discussed earlier.

Q. Looking down at column AV where it has scenario energy discounted, that's the megawatt hours for plant Barry in a PV statement -- in a present value form, correct?

A. Well, I think as Mr. Looney mentioned yesterday, you don't discount gigawatt hours but that's the number of megawatt hours or gigawatt hours, yes.

Q. Okay. It says discounted?

A. In financial terms. So their discount refers to something other than taking a net present value of gigawatt hours.

Q. All right. We discussed that in your deposition. You said it's discounted some other way, not according to the discount rate used in the model but you just don't know what it is?

A. That's right.

Q. Okay. Be that as it may, they are the same -- it's the same amount of energy shown in each and every one of those scenarios --

A. That's correct.
Q. -- for plant Barry?
A. Yes.
Q. Except -- but Barry is a dispatchable unit, is it not?
A. That's right.
Q. Right. And one of your scenarios is even a high gas scenario?
A. Yes.
Q. And so that would suggest a higher cost, higher fuel cost for plant Barry?
A. That's right.
Q. And all things equal, wouldn't you expect plant Barry to respond to a higher gas cost by having a reduced output?
A. All things equal, yes, but as was stated yesterday, Barry 8 would be the most efficient gas unit in Alabama Power's generating portfolio and so there are other gas units that could potentially back off first and that's -- the operation of gas plants is also relative to the cost to operate other plants in the system. So it would also depend on how that gas cost related to coal costs at each of the

units.

Q. Right. I'm glad we're able to talk now about displaced generation because earlier when we were talking about CO2 emissions net versus gross, we had a hard time coming to grips with the possibility that these efficient gas-fired units might displace other higher-emitting resources but that's what you're referring to now is displacing energy from other resources?

A. Yes, and I wouldn't have classified our conversation that way. I just simply didn't estimate displacement and it can be hard to tell offhand without doing an actual production cost.

Q. Be that as it -- I'm sorry. I didn't mean to interrupt you.

A. No.

Q. Be that as it may, this tool, this LCOE tool denies the Barry 8 unit the opportunity to respond as a dispatchable unit would respond?

A. That's correct. This isn't a dispatch analysis so it doesn't adjust the output of the Barry 8 unit based on fuel cost or a price on CO2 emission.

Q. Let's turn to the next page of the

outputs. I have a few questions about the selection that your tool made of various so-called clean energy options.

A. Okay.

Q. Are you with me? This is page 3 of 3 on tab one.

A. Yes.

Q. All right. So I see that there are 1193 megawatts of solar selected, right?

A. Yes.

Q. That's --

A. That's column BH.

Q. Column BH.

A. Yes.

Q. Thank you. And that's stand-alone solar, right?

A. That's correct.

Q. You understand that this certification is for resources to deal with a winter reliability need?

A. That's right.

Q. And I think we agreed earlier that stand-alone solar doesn't do much for a winter reliability need. Didn't we agree on that?

A. For that morning peak, yes.

Q. And you are planning to meet the peak, are you not?

A. I believe we've also discussed that the RMI tool meets the top 50 hours for peak demands in its calculation.

Q. Okay. And then I also see that there's some wind. It shows some wind here, 317 megawatts of wind?

A. In some cases, yes.

Q. Right. And 39 megawatts of that wind in column BR, that's from domestic wind? That's like from Alabama Power service territory?

A. I can't recall. We talked about the -- I'm not sure. There is a transmission adder that gets applied if it takes it from out of a utility service territory or out of state.

Q. Right. But there's three different kinds of wind here in this tool. Under BR, there's wind, BS, there's offshore wind, and BT, there's imported wind, correct?

A. That's right. Yes.

Q. So BR, do you understand that to be local

wind?

A. Yes, it would appear so.

Q. All right. Where would local wind be sited in Alabama?

A. I don't know the answer to that but RMI's tool does take into account regional -- regional costs and capacity factors for wind. In column three, which is the portfolio that I discuss in detail, there's no wind shown. Sorry. Which is the fifty percent DSM CEP case.

Q. Because the tool assumes -- the base assumption is that 25 percent of the capacity required by the Barry unit would be met with DSM, correct?

A. That's right.

Q. And that assumption is fulfilled regardless of cost effectiveness measures that might be in place by this commission?

A. That's right.

Q. All right. Then in column BT, I see there's a lot of imported wind that the tool has selected?

A. There's some imported wind, yes.

Q. Okay. 278 megawatts in all but one of

the scenarios?

A. Yes. And the one scenario that doesn't have 278 megawatts is that 50 percent DSM case.

Q. Right. And we discussed earlier that Alabama Power actually solicited from the market wind proposals and received none?

A. That's right.

Q. And then in column BU, this is energy storage, right?

A. Yes.

Q. And that's a one hour battery?

A. That column is one hour, yes.

Q. Right. But that's not paired with solar, is it? That's just stand-alone battery?

A. Yes, the RMI will tool doesn't have -- doesn't utilize a paired resource as part of its portfolio from which it can choose.

Q. All right. So that wouldn't even be like the battery solar combinations that are included in the portfolio put forth here today? This is something different?

A. That's right. And there are some improved economics with those paired resources.

Q. And then just looking down at column CN, that's residential water heating. That's one of the energy efficiency choices that the tool made?

A. Yes.

Q. Is that like a direct load control for residential water heating?

A. It says DR which indicates to me demand response so I would think so but I'm not certain.

Q. All right. And so the tool assumes that we can get 422 megawatts of capacity by turning off residential customer's water heaters to meet a winter load?

A. No. It assumes that you can use this residential water heating demand response measure to meet the top 50 hours. It's not necessarily -- not all of those hours in this tool occur in the winter.

Q. Okay. But be that as it may, if I add up all of the solar, the wind, the energy storage, the energy -- all the things that this tool chose, I would get, subject to check, 2602 megawatts of capacity, would I not?

A. Yes. I think we've already agreed on the number.

Q. Okay. Let's look at the next couple of pages in Exhibit 45.

A. We're on to a new staple, right?

Q. Yes, ma'am.

A. Okay.

Q. This is tab 2 of 9, BAX down at the bottom.

A. Yes.

Q. All right. And this -- we've been wanting to talk about the top 50 hours. This page has the top 50 hours, does it not?

A. It does.

Q. All right. In fact, the top 50 hours start on line 15 and carry over to line 64, correct?

A. Yes.

Q. All right. And we've already agreed that this is not the result of FERC form 714 data because you got an error when you tried to use that. It's drawn from something called Reinventing Fire?

A. That's right.

Q. What is Reinventing Fire?

A. It is another RMI publication.

Q. When was Reinventing Fire published?

A. Offhand I can't recall but sometime earlier in the decade.

Q. Like in the 2011 time frame?

A. I'd accept that.

Q. How did Reinventing Fire come up with loads for Alabama Power in 2020?

A. I don't know the specifics of that analysis or study.

Q. Okay. All right. Well, just -- we'll just skip past that issue. Let's look at the column D. Column D, these are the top 50 hours that the CEP is going to take care of, right?

A. Starting on row 15.

Q. Right. And would you just scan down that list -- it won't take long -- and identify for me the winter hours chosen by this tool?

A. I see June, July, and August so there would be no winter hours chosen.

Q. So the tool picks the top 50 load hours. We're here to deal with a winter reliability issue and the top 50 load hours selected and run through your model are all in the summer?

A. That's right. If the data are from the

2011 as we have agreed that they are, then that reflects a summer peak for Alabama Power as opposed to a recent shift to a winter peak.

MR. MCCRARY: Your Honor, can I have just a moment?

ALJ GARNER: Sure.

MR. MCCRARY: Thank you, Your Honor.

Q. Ms. Wilson, on page 21 of your testimony, you seem to suggest that gas-fired units are potentially exposed to gas transportation risks, do you not?

A. They can be, yes.

Q. Are you familiar with Southern Company's fuel policy and how it is applied to combined cycle units like those in the portfolio to address that risk?

A. I'm not familiar with that policy.

Q. You reference Gadsden units 1 and 2 and you say -- this is on page 21, lines 4 through 6. You say that Alabama Power has already experienced issues around winter gas supply in the operation of its units and you talk about gas transportation related to those units?

A. That's right.

Q. I think we learned in your deposition

that you are not familiar with the manner in which pipeline expansion costs are passed along to pipeline customers, correct?

A. I am not.

Q. So you wouldn't know, for example, if -- withdraw that. So if Alabama Power wanted firm gas transportation to these units, it may well be it can be obtained. It just might be obtained at a cost that doesn't make sense?

A. It's possible.

Q. Are you -- so you talk about gas transportation risk for combined cycle. Are you aware of any risk or challenges that might apply to ongoing reliance on renewables?

A. Can you give me an example of what you mean?

Q. No. I'm asking for an example. I mean this is a risk you say attaches to gas-fired generation and we can discuss ways that that's mitigated and whether that's a reasonable concern but I'm asking you are you aware of any challenges or risks that might attach somewhat uniquely to renewable resources in terms of relying on them going forward?

A. Well, they wouldn't have any fuel cost risk because they don't have a fuel associated with them. I suppose one potential risk could be tariffs, increasing tariffs on renewables coming from overseas, which is one of the policies of the current administration. That's one that comes to mind immediately.

Q. Okay. Having given this some thought, I wanted to run a few ideas past you and let me know what you think of them as far as sort of the risk that might attach to renewable resources somewhat uniquely. Would you consider landowner reaction to -- withdraw that. How many acres of land is required roughly for a megawatt of solar capacity?

A. I don't have that number off the top of my head.

Q. Would you accept, subject to check, it's something on the order of seven to ten acres?

A. Yes.

Q. So a large solar project is going to consume a large amount of land, correct?

A. It could.

Q. And are you aware of any reaction that

seems to be growing in the country to local opposition to having the land used in that way?

A. I think there can be local opposition for all types of generators. You know, NIMBY, not in my backyard, is a term that's been in the environmental community with respect to power generators for years. However, I think in Georgia in the recent IRP case, there was interest for rural communities in siting solar in those communities because of additional income that those solar generators provided and there are distributionable benefits to having solar sited at different places on the grid versus one large central generator like Barry Unit 8.

Q. Okay. Let me show you this article that I found that speaks to that issue.

ALJ GARNER: I take it you want this marked?

MR. MCCRARY: Yes, sir, please.

ALJ GARNER: It will be marked as Alabama Power Exhibit 46.

Q. And this is just an example of an article that I've seen. This one is entitled -- this one is

dated March 10, 2020. Angry U.S. landowners are killing off renewable energy projects. And, you know, the article speaks for itself, but on the second page, there's a particularly clear statement.

It says the conflict stems from the vacant land myth, the notion that there's plenty of unused land out there in flyover country that's ready and waiting to be covered with wind turbines, solar panels, power lines and other infrastructure. Do you see that?

A. I do.

Q. Would you please consider -- oh, and this talks about protests that are happening in New York and New England over wind turbines, I think, being put up in their area. Even protests in Germany about it, it says on the next page. Are you aware of this kind of opposition that might be growing to those types of facilities?

A. So this article mentions a proposed northern pass transmission line which I was familiar with which would bring hydropower from Canada to New England. I haven't heard about these wind protests but I will note, as you said, this article cites New

York and New England and the penetration of wind and solar resources is higher than it is here and so a lot of the best sites are already developed in those regions -- in that region.

Q. Okay. If you know, where are a lot of the component parts for solar facilities produced? Is there kind of a dominant source?

A. I'm not sure of the answer to that.

Q. Do a lot of the -- does a lot of the supply chain emanate out of China?

A. It has in the past and I'm not sure how those tariffs I mentioned earlier have changed that or if they have.

Q. All right. So just sort of a timely concern, reliance on China for the production of key components. Here's an article that I ran across that says the solar sector is suffering from coronavirus contagion, and while we can hope that the coronavirus won't be with us for an extended period of time, it does kind of highlight the supply chain issue of relying on China as a source of -- a key source of component parts, does it not?

A. Yes, that's true. And it also -- I

mean the first line of this references the fallout from the coronavirus outbreak on global oil demand and there are manufacturing components that also go into the construction of new thermal resources. There may be similar sourcing issues related to those as well. I don't know.

Q. All right. The favorable pricing that you identify for a lot of the renewable resources, particularly the solar, that's a product of them being produced at a low cost in China, isn't that true?

A. Yes, generally.

ALJ GARNER: And by the way, that is marked Alabama Power Exhibit 47, that article.

MR. MCCRARY: Yes, sir, Your Honor.

Q. And lest we think there is only one out there, here's another one and maybe we can include this in the same exhibit since it touches on the same topic. This one is called Wisconsin solar installations delayed because of coronavirus. Minnesota developers worried. Makes the same point, does it not, Ms. Wilson?

ALJ GARNER: While she's contemplating that, I'm going to need to give her a break in a minute.

MR. MCCRARY: Sure.

ALJ GARNER: Are we close to a break point?

MR. MCCRARY: I may be within fifteen minutes of being finished if that matters subject to her --

THE WITNESS: I'm happy to go on if --

ALJ GARNER: You're okay?

THE WITNESS: Yeah, that's fine.

A. Yes, this article does make that same point.

Q. And in a similar vein, I think one of the work papers that we were provided and I think you were listed as a sponsor was a Department of Energy publication that says State of Alabama energy sector risk profile. Do you recall that?

A. I don't.

Q. Here. Maybe this will refresh.

A. Thank you.

ALJ GARNER: It's a separate exhibit?

MR. MCCRARY: Yes, sir.

ALJ GARNER: This will be Alabama Power 48.

Q. Do you recall this document being among

those produced by Sierra Club?

A. No, I don't. I don't use this document in my testimony.

Q. Okay. Well, really there is only one thing I wanted to draw your attention to. On the front page on the right side, there's a chart that says annualized property loss due to natural hazards in Alabama. Do you see that?

A. I do.

Q. And what's the number one cause of property loss in Alabama?

A. Tornado.

Q. Right. Being from Massachusetts, have you ever heard us referred to as Tornado Alley? And we're not proud of it but it's a fact.

A. I've heard the term Tornado Alley. I'm not sure I realized that it was in reference to Alabama.

Q. Right. Unfortunately we have a lot of tornadoes as evidenced by this bar chart showing a lot of damage caused by tornadoes?

A. I see that.

Q. In fact, it's five times the second place

cause which is flooding, right?

A. In terms of damages, that's true. It looks like annual frequency of tornadoes is fourth on the list.

Q. Right. Do you think a solar array, acres and acres of solar panels would fair well in a tornado?

A. Probably not.

Q. Right. Lest people think we are picking on solar, I found another article that I think maybe we could talk about similarly as it relates to wind.

ALJ GARNER: You're quite the reader.

A. You also -- you gave me two. Should I hang on to this one?

MR. MCCRARY: Yes, two articles.

ALJ GARNER: Same exhibit?

MR. MCCRARY: Yes, sir.

ALJ GARNER: It will be Alabama Power 49.

Q. And this one is about --

A. Sorry. We're looking at Bloomberg Green?

Q. That's fine. We will put that one first. Both of these kind of go to the same point and it speaks of the landfill issue, the growing landfill issue that's

associated with wind turbine blades that can't be recycled. Were you familiar with that risk?

A. No, I was not.

Q. And turning back to really a number of different renewable technologies, let me draw your attention to this article --

ALJ GARNER: Alabama Power 50.

MR. MCCRARY: Yes, sir. Thank you.

Q. -- that speaks to the need for rare earth elements and their critical role in everything from solar panels to wind turbines to electric cars and consumer electronics. Do you see that?

A. I do see that.

Q. Were you aware of that dependence of the renewable industry on rare earth elements?

A. Generally, yes.

Q. Do you happen to know where most of the rare earth elements come from currently?

A. I could make a guess but I couldn't say for certain.

Q. Right. If we look over on page 4 of 13, at least that's how it's numbered here --

MS. CSANK: Respectfully, Your Honor, I'm

going to interject with an objection. I've allowed this for some time now but repeatedly Mr. McCrary keeps introducing documents that are hearsay and the witness identifies that she's never seen them before and then proceeds to ask a bunch of questions asking her to speculate about them. I don't see the value from an evidentiary prospective of proceeding this way.

ALJ GARNER: I will allow him to continue. I do hope he's kind of winding down with that.

MR. MCCRARY: Yes, sir, I am.

Q. This article says that rare earth mining is massively concentrated in just a few countries, particularly China which dominates 80 percent of the mining and nearly 95 percent of the refining. Do you see that?

A. I do.

Q. Would you consider China to be a particularly favorable country vis-à-vis the United States?

MS. CSANK: Objection.

MR. MCCRARY: I'll withdraw that question.

ALJ GARNER: All right.

Q. And you see on page two of this article, it says that according to a study done by the Dutch Ministry of Infrastructure, global production of several rare earth minerals used in solar panels and wind turbines especially -- and I'll never be able to say this -- neodymium, terbium -- do you know these words?

A. I'm not familiar with these words, no.

Q. Indium, dysprosium.

MS. CSANK: Your Honor, she just said she's not familiar with these terms.

MR. MCCRARY: I'm just trying to --

ALJ GARNER: Let's move on.

MR. MCCRARY: All right.

Q. Must grow twelve fold by 2050. Do you see that?

A. I do.

Q. All right.

A. The first page also mentions that we don't recycle them currently but I don't know if it says anywhere if that's -- if there's a potential for that or not.

Q. Right. Well, that's a good point and --

MR. MCCRARY: This is my last article, Your Honor.

Q. Here's another one that maybe can join that exhibit. This is called -- this is from Yale Environmental and Yale Environment 360. A scarcity of rare metals is hindering green technologies.

ALJ GARNER: And let's be clear. You're not introducing these to prove a particular point represented in the articles.

MR. MCCRARY: No, sir. I am however --

ALJ GARNER: You want this one attached to the last article?

MR. MCCRARY: Yes, sir.

ALJ GARNER: So this is part of 50.

Q. And this one does -- it makes much of the same point of the rare earth elements that are essential, but as to your recycling point, on the third page, it says recycling is a menial but intricate task that's often handed over to low paid workers in places like China or Nigeria?

MS. CSANK: Your Honor, may I just ask -- launch an objection, ask Mr. McCrary if he's not speaking to prove the facts, it's unclear that this

line -- what he's seeking to do with the hearsay.

ALJ GARNER: I would like to wrap that up so give a response and I think we should probably move on.

MR. MCCRARY: Well, Your Honor, the points is, I think, pretty obvious. There are risks that attach to every technology and this witness has spoken of some of the risks that attach to conventional generation such as combined cycle and I'm simply demonstrating that there are risks that attach to other forms of generation as well. Nothing is riskless.

THE WITNESS: That's true but I would also like to point out that we are in a time period of tremendous change and innovation with respect to both renewable technologies and storage technologies and so, you know, while these may in fact be risks that currently exist, it's not necessarily true that these are risks that will always exist.

Q. That's true. Technology will presumably advance, correct?

A. I would think so.

Q. All right. And it may advance, for example, in areas of carbon capture, correct?

A. It's possible.

Q. And it could advance, for example, with turbines that are able to burn hydrogen, correct?

A. That's possible though not costless.

MR. MCCRARY: Your Honor, that's all I have.

ALJ GARNER: All right.

MR. MCCRARY: Thank you, Ms. Wilson.

THE WITNESS: Thank you.

ALJ GARNER: Any redirect?

MS. CSANK: Yes, Your Honor. Just briefly.

ALJ GARNER: Are you still okay, Ms. Wilson?

THE WITNESS: I'm fine. Thank you.

REDIRECT EXAMINATION

BY MS. CSANK:

Q. Ms. Wilson, could you please remind us what was the nature and purpose of your testimony on risk related to resources?

A. It was simply to point out some of the risks that are associated with new and existing gas units that Alabama Power didn't take into

consideration in its analysis.

Q. And with respect to your testimony concerning risks associated with the proposed gas units, please remind us what is the magnitude of those units as compared to the solar battery projects in the petition?

A. There were 340 megawatts -- let me just confirm that number -- 340 megawatts of solar and storage projects proposed here and then 1896 megawatts of gas resources proposed.

Q. And did you, in your review for the purpose of this case, see the company do an analysis of risk associated with those various resources?

A. Of those gas resources you mean? No, I didn't see such an analysis.

Q. And with respect to specifically those climate damages, do you recall discussing that with Mr. McCrary?

A. I do.

Q. And what was the again sort of takeaway for this commission concerning that testimony?

A. That takeaway is that there are estimates of the dollar value associated with CO2 emissions and how that translates into climate

damages. Alabama Power didn't consider that in its analysis and I provide one such estimate for the commission to consider.

Q. And what about those values that Mr. McCrary showed to you from the current administration?

A. Alabama Power did not consider those values in its analysis either.

Q. So what value did it assign, if any?

A. Alabama Power didn't assign a value and therefore the assumption is that that value is zero.

Q. So I believe at some point, Mr. McCrary asked you about whether -- and I honestly didn't hear the question and answer. It was a question about whether LCOE is an appropriate basis for a resource decision. Do you recall that?

A. I do generally.

Q. Could you remind us what the question was and what your answer was, whether was it the sole basis or any basis? Do you recall?

A. I don't recall exactly what the question was but my response is that an LCOE analysis is part of a -- part of a -- it's a tool and it is one of the tools that a company would have at its disposal

in doing this type of analysis.

A handyman uses a tool. He has an entire toolbox of things that he would bring to a project. Southern Company similarly is one of the largest utilities in the United States and should have quite a sophisticated toolbox to be able to analyze a resource portfolio and its effects on both peak demand, annual energy, and things like CO2 emissions; however, it's my opinion that Southern Company chose to deploy a limited set of tools to examine its analysis and didn't include any sort of analysis related to alternative resource portfolios.

What it did do in its analysis is seemingly to assign the most value to resources that have longer useful lives. The company examined a range of PPA options as well as the purchase of Central Alabama Generating Station and the soft build of Barry 8. Those three resources were the longest lived assets in the range of thermal alternatives that the company was considering.

There is an adjustment factor that Alabama Power used in order to look at the benefit of not having to construct a CT further in time which

penalizes some of those shorter duration thermal resources relative to the construction of Barry 8, the acquisition of Central Alabama Generating Station or the PPA with Hog Bayou.

So it seems to me that the company is willing to back ratepayer money that it can build a CC that's going to last 40 years rather than assuming some -- or rather than persuing rather some of these shorter term resource options that can meet its projected peak in the 2023-2024 period and preserve some of that option value relative to the construction of a new natural gas combined cycle unit.

Q. And I think related to this shorter term set of options that you just referred to you received some questions from Mr. McCrary about the IIC, the intercompany interchange contract. Do you recall that?

A. I do.

Q. Do you have any other basis for your opinion that the company should re-examine and examine further its short-term resource procurement options?

A. I do. And I'm going to refer to my Exhibit 6 which is the order adopting the stipulation in the Georgia Power 2019 IRP case. And on page six

of that document, the commission states that part of its role in ruling on Georgia Power's IRP is that the commission must determine whether the plan adequately demonstrates the economic and environmental benefits to the state and customers of the utilities associated with the following possible measures and sources of supply.

A, improvements in energy efficiency. B, pooling of power. C, purchases of power from neighboring states. D, facilities that operate on alternative sources of energy. E, facilities that operate on the principle of cogeneration or hydro generation and, F, other generation facilities and demand side options.

Q. And in terms of your overarching recommendations on resource planning, best practices, what government authorities can you point to that have, for example, asked you to make presentations on such practices?

A. So --

MR. MCCRARY: Excuse me, Your Honor. If I might object, I didn't ask a single question about best IRP practices, nothing of that sort. I don't think

this is appropriate redirect.

MS. CSANK: Your Honor, may I reply?

ALJ GARNER: Yes. I'll hear what you have to say before I rule. Go ahead.

MS. CSANK: Mr. McCrary began a line with flawed inputs, flawed outputs and methodology. That was all about the appropriate practices in this context and integrated resource planning so that clearly opened the door to this line of questioning, which I will keep very brief.

ALJ GARNER: Keep it very brief because I really do think you're pushing the limits and I don't want to hear something that sounds more like a scripted response that's already been set up as opposed to something you're truly delving into on redirect. So let's keep it brief.

A. I'm a faculty member at the Institute of Public Utilities, Michigan State University and have presented on the integrated resource planning for the past three years. I've also pretty recently given that training to the Washington Attorney General's Office on integrated resource planning.

Q. Are your presentations available online?

A. I don't know quite the answer to that. Some of them might be but not all of them. Potentially not the most recent ones.

MS. CSANK: Your Honor, for the benefit of the record, there is at least one presentation that's here Sierra Club has available, and if it would be helpful for the record, we will gladly provide it.

ALJ GARNER: You can give me the cite. Do you have the cite? This is pretty unusual for redirect.

MS. CSANK: Your Honor, it's a February 2019 presentation titled Integrated Resource Planning and Washington Rules and Best Practices and Emerging Issues prepared for Washington State Office of the Attorney General.

ALJ GARNER: All right.

Q. Ms. Wilson, at some point, I believe you stated that in your clean energy portfolio analysis at times you applied the Rocky Mountain Institute methodology and other times you did not. Do you have any further explanation of that?

A. I reviewed RMI's assumptions and adjusted those that I thought were reasonable to

adjust in this docket.

Q. And in terms of a whole variety of issues that Mr. McCrary was pointing you to through these articles that he handed out, what kind of market test could the company use to identify or verify whether these types of issues are in fact present here in the market for resources available to it?

A. An RFP would certainly be such a market test.

MS. CSANK: No further questions.

ALJ GARNER: Thank you, Ms. Wilson. You are excused.

THE WITNESS: Thank you, Your Honor.

ALJ GARNER: Let's deal with the exhibits. We have Alabama Power 41 through 50. Objections other than those already noted, Ms. Csank?

MS. CSANK: Yes, Your Honor.

ALJ GARNER: Any objection to the admission of Alabama Power Exhibits 41 through 50?

MS. CSANK: I think I stated my objection to these --

ALJ GARNER: The articles?

MS. CSANK: -- these articles and

preserve those for the record, Your Honor.

ALJ GARNER: So you want to make sure the record notes your objections to 46 through 50 which is all the articles --

MS. CSANK: Yes, sir.

ALJ GARNER: I'm going to go ahead and admit them but with your objections noted.

MS. CSANK: Thank you, Your Honor.

ALJ GARNER: Alabama Power 41 through 50 are admitted as is Ms. Wilson's prefiled testimony and exhibits.

MS. CSANK: Thank you, Your Honor.

ALJ GARNER: All right. Who is the next witness? Is that Mr. Detsky? Let's take --

MS. CSANK: If I may, I personally need a brief break.

ALJ GARNER: Let's take about a ten minute break and we will come back.

(Brief recess.)

ALJ GARNER: For the record, we are ready for the testimony of Mr. Detsky. I'm going to swear him and then we will proceed.

MARK DETSKY,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. CSANK:

Q. Good afternoon. Please state your name for the record.

A. My name is Mark Detsky.

Q. Where and by whom are you employed?

A. I'm employed with Dietze and Davis, P.C., Boulder, Colorado.

Q. Did you cause to be -- and on whose behalf are you testifying in this case?

A. On behalf of the Sierra Club.

Q. Did you cause to be filed testimony and exhibits in this case?

A. I did.

Q. And did you have any errata to that testimony?

A. I did. That was filed previously.

Q. And subject to that errata if I were to ask you the same questions today, would your answers remain the same?

A. Yes, they would.

Q. And have you prepared a short summary?
A. I have.
Q. Would you please state that now?
A. Thank you, Your Honor. Commissioners. I have three points to summarize my testimony. First, the company's IRP base case put its thumb on the scale in terms of the company's approach to the market in three ways.

First, by manipulation of the model by precluding the model from even considering renewable energy technologies in its base case. It then used this result of that base case to determine its capacity need and its capacity RFP. And then third, it based its bid evaluation on the base case output by comparing that with individual bids.

Secondly, an all source IRP was not conducted. By all source, I refer to more than just the RFP but the bid evaluation process. Strategist is the model used by Alabama Power and centers on PROVIEW which is a modeling tool that optimizes for creating least cost portfolios based on bids that are submitted by running scenarios but Alabama Power did not use this function of their own model to evaluate bids and

provide alternative portfolios.

Analyses of bids were conducted on a one-off basis. Here the model did not do its job so we don't know what the true best mix of resources is to meet the capacity and the energy needs of the system.

My recommendation is to integrate the company's planned and ordered renewable RFP which is set to take place this year according to the RGC docket 32382 which has not been factored into its IRP and then to defer the acquisition of the Central Alabama plant which is the most expensive least efficient gas unit proposed.

The transaction is not intended to close until later this year. That transaction should be deferred in order to analyze the results of resources that are bid into the renewable RFP and the acquisition can be decided upon at that time.

The RFP conducted later this year should be expanded to allow the capacity of bids greater than 80 megawatts and to allow bids to interconnect to the Southern system as opposed to the Alabama transmission system only. This will let the

market decide the best choice for Alabama Power ratepayers.

Going forward, I recommend that the RGC in Docket 32382 be extended for another six years and that all source bid evaluation bid process be acquired in the next IRP.

MS. CSANK: Your Honor, we would move for Mr. Detsky's prefiled testimony and exhibits to be entered into the record.

ALJ GARNER: Mr. Detsky's prefiled testimony and exhibits will be entered into the record subject to cross-examination.

MS. CSANK: We tender the witness for cross-examination at this time.

ALJ GARNER: Cross-examination from the intervenors? Seeing none. Alabama Power.

MR. GROVER: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. GROVER:

Q. Mr. Detsky, how are you?

A. Good.

Q. Good. I'm Scott Grover. We met before in Boulder at your deposition. In a reversal of trend,

you are a lawyer?
A. That is correct.
Q. And you are however only licensed in the state of Colorado, correct?
A. That is correct.
Q. Okay. And you were licensed there in 2003, correct?
A. Yes, sir.
Q. Okay. And that being the case, you are not here as Sierra Club's lawyer, correct?
A. That's correct.
Q. Your engagement by Sierra Club was to review the IRP and form opinions about the IRP and the RFPs that were conducted in the fall time frame of 2019, correct, by Alabama Power?
A. I was engaged in the fall of 2019. Is that what you're referring to?
Q. You were engaged and that was to form opinions on the IRP and the RFPs that were conducted, correct?
A. Yes, sir.
Q. Okay. Thank you. And earlier in -- and just for point of reference, that took place, like I

said, in the fall of 2019. Sorry. It's been a long week. So earlier in 2019, you were engaged by the Southern Alliance for Clean Energy and the Southern Renewable Energy Association to give testimony in connection with the Georgia IRP proceeding, correct?

A. Georgia Power, yes.

Q. Georgia Power. Thank you very much. And in that case, your opinions -- when was that delivered? Was that in the spring of 2019?

A. The hearing was held in May of 2019.

Q. Okay. Spring. And your opinions there, if I recall from your deposition, were largely identical to those here save the distinction being that Alabama Power has performed RFPs already while Georgia Power had not yet performed any such IRP?

A. There's some overlap, yes.

Q. Yes. I mean but I recall there not being a whole lot of distinction between the two other than the timing of the RFPs in that Alabama Power has performed its and Georgia had not performed its?

A. The major similarity being Georgia Power used a similar screening method in its base case.

Q. Right. Not trying to compare Georgia Power and Alabama Power in that context. Rather your opinions there versus your opinions here. The overlap was largely the same except insofar as you're opining on RFFs that have been performed rather than RFPs that have not yet been performed?

A. In the Georgia Power case, they were also considering whether or not to retire the plant Bowen units and so there was some different opinions around that. The opinions that were similar were on the subject of conducting an all source RFP.

Q. Correct. Thank you. And as I understand your testimony as informed by our deposition, the sort of described basis for your expertise is your representation of independent power producers in connection with proceedings before the Colorado Public Service Commission, correct?

A. In terms of my experience in other resource planning?

Q. The experience you would bring to bear to this commission respecting Alabama Power's petition derives from your experience in proceedings before the Colorado Public Service Commission?

A. I have in the last two or three ERP cycles of the major Colorado utilities represented independent power producer interests.

Q. Right. That's the basis for your expertise is that representation?

A. Some of it, yes.

Q. If there's more to it, please tell me.

A. Just in terms of my working with independent power producers over the last fifteen years and gaining experience in various ERP proceedings where I was not necessarily counsel to a party as well.

Q. Okay. And when we say independent power producers, that could theoretically cover a gamut of generators. Your work though is largely, if not exclusively, isolated to power producers utilizing renewable generation, solar, wind, hydroelectric, correct?

A. Yes. I've also represented natural gas producers.

Q. Okay. You have represented one but I recall in the deposition the number of those was few and far between?

A. Correct.

Q. Okay. And just so people in the audience are clear, you're saying ERP in connection with the Colorado Public Service Commission as opposed to the IRP which is what is utilized by Alabama Power here, correct?

A. Yes, my apologies.

Q. No, no, no.

A. Interchangeably.

Q. And that's electric resource plan?

A. Yes, sir.

Q. As opposed to the integrated resource plan?

A. Correct.

Q. Thank you. Based on the representation for the two entities that I spoke of a minute ago in Georgia, do you have an understanding that Georgia Power is a summer peaking utility?

A. Yes.

Q. Okay. And from your work in Colorado, do you have an understanding of what, say, the Public Services Company of Colorado is in terms of when it peaks on a seasonal basis?

A. Also summer peaking.

Q. So with that in mind, it's fair to say, is it not, that your experience in terms of representing independent power producers and your experience in front of public service commissions leaving aside Georgia Power and what I'll acknowledge is some work you told me about with respect to an RFP conducted in Ohio, your experience has been west of the Mississippi?

A. Yes, sir.

Q. And so to that extent, you've done no work for independent power producers in the SERC regional entity, correct?

A. Correct.

Q. Okay. And do you know -- do you have an understanding of what states comprise the SERC regional entity?

A. I do not.

Q. Okay. And in your testimony, you discuss -- actually you just mentioned a second ago in your introduction familiarity with respect to the Strategist model?

A. Yes, sir.

Q. And that experience comes from your

representation of your clients in the proceedings we described, correct?

A. Yes.

Q. You're not an engineer, right?

A. Correct.

Q. You're not a modeler or a statistician?

A. Neither of those things.

Q. Okay. And you've never been employed directly by an electric utility or an electric supplier?

A. Correct.

Q. Okay. You, yourself, have not done any sort of resource planning for any of the two entities I just mentioned?

A. I have not worked for an electric utility.

Q. Right. So to that extent, you've done no work for an electric utility all encompassing?

A. Correct.

Q. Okay. And I think when we discussed it at your deposition, you have not ever drafted a request for proposals, an RFP, yourself, correct?

A. No, I have not drafted it.

Q. Now turning to Alabama here, you offer

opinions in your testimony with respect to the Docket 32523. Is that right?

A. The RGC?

Q. Yes, sir.

A. I believe 32382.

Q. That's a lot of threes. Correct. The RGC. Just so the record is clear, you were not participating for Sierra Club or any entity in connection with that proceeding, correct?

A. Correct.

Q. Your understanding of the RGC is based on what I think is included as an exhibit to your testimony, the order of the commission, correct?

A. Yes, sir.

Q. Okay. And at the time of the deposition, you had reviewed the company's petition or --

A. Correct.

Q. You had reviewed. Okay. And at the time of the deposition, you had not reviewed the transcript in that proceeding, correct?

A. Correct.

Q. Have you since had a chance to look over that transcript?

A. I have not.

Q. Okay. Is it fair to say that in terms of administration and implementation of that certificate, any changes to it would be best determined by this commission, correct?

A. Any changes to the order?

Q. Yes, sir.

A. Yes, sir.

Q. And you're aware, are you not, that there were RFP guidelines included with the renewable generation certificate order, correct?

A. Can you clarify what you mean by guidelines?

Q. As in like guidelines, talking about how RFPs would be performed.

A. You mean in terms of the 80 megawatt limit?

Q. I'm talking about there were several pages of guidelines, not necessarily limited to that. I think there were more than one page of guidelines and procedures.

A. There were some conditions placed on the RFPs, yes.

Q. Okay. Do you have an understanding of how those guidelines compared to the commission's existing guidelines for conventional generation procurements?

A. I am aware of the guidelines that were put forth by the company in the capacity RFP and how those differed from the renewable RFP in 2018.

Q. What about the existing guidelines that predated the RGC?

A. No, I have not reviewed those.

Q. You have not reviewed those. Okay. And just to confirm this, in connection with the opinions that Sierra Club asked you to form, you were not asked to develop a view on the quality or the draftsmanship of any of the contracts that are before this commission for certification, correct?

A. Correct.

Q. And indeed among them, I recall you telling me you have not even reviewed the Barry contract documents?

A. The EPC contract?

Q. Yes, sir.

A. Correct.

Q. Which I will concede is a big document.
A. It is a large document, yes.
Q. And to that extent, you also haven't been asked to develop an opinion with respect to the intercompany interchange contract or the IIC, correct?
A. Correct.
Q. Going back to Strategist for a moment, I believe we discussed for all that Strategist can do, Strategist does not solve for impacts to the transmission system as the result of the addition of a resource to a company generating portfolio, correct?
A. Correct. Strategist is a production cost model.
Q. Right. Now I believe you told me you can figure out what the cost impacts might be and put them into the model but obviously you would have to know what that was first to do that, correct?
A. Correct.
Q. That would be discernment of the cost associated with adding the resource to the portfolio, right?
A. The transmission impacts?
Q. Yes, sir.

A. You could put an estimate of transmission interconnection costs, for example, attribute them to a certain bid and then input those into Strategist is my understanding.

Q. Right. And you'd have to develop a basis for that first before you did that, right?

A. Yes, sir.

Q. Okay. And just with respect to transmission impacts, I don't want to limit it. That's true also with respect to impacts to the distribution system, correct?

A. Yes.

Q. Okay. And when I say impacts, I don't necessarily mean costs limited to some sort of, you know, damage or remediation but we're also talking about upgrades or capacity expansions on those respective systems. You would agree with that?

A. Things that would be associated with interconnecting a project to the grid.

Q. Correct. Strategist does not solve for that?

A. Correct.

Q. And lastly, Strategist does not capture

the extent to which the integration of a resource might have some impact to existing customers that are already receiving electric services from the company, correct?

A. Strategist can -- if you have a cost input that you can add to it, then Strategist can consider that.

Q. But Strategist isn't going to tell you that if I integrate this resource on the system, it's going to create flicker and cause potential damage to a large industrial customer's operations?

Q. Correct. Flicker would be a transmissions study.

Q. Yeah. Let me turn briefly to your testimony. I wanted to clarify a few things. On page 15 -- you've got your testimony in front of you?

A. Yes, sir.

Q. So I'm really focused -- you're discussing sort of the lack of use of the PROVIEW model as I think you referenced earlier in introduction. As you discussed that in your testimony in there, you reached the observation that the activities that were taken by Alabama Power led, in your words, to a flawed review into how the Alabama Power system should expand,

a problem you go on to say that was exacerbated because Alabama Power based its decision to hold a capacity RFP for only gas units. Do you see those words?

A. Yes, sir.

Q. Okay. And I think as we discussed in your deposition and as later pages in your testimony illustrate, the capacity RFP was not in fact limited to just the solicitation for gas units, correct?

A. Well, I did have a chance to review the capacity RFP since our deposition and the capacity RFP is all set forth in terms of gas units. If you go to page 30 of 40 some odd pages, there's a Q and A where it said could a solar resource bid in and the answer was, yes, if it was paired with storage. But otherwise, if you go down the categories and look at -- page through the document, all you would see is reference to CCs or CTs.

Q. Okay. That's fine, but you do acknowledge -- and you will save us and accelerate the efficiency here. The capacity RFPs specifically acknowledge that bidders could propose storage resources -- strike that and reverse it -- could propose intermittent resources or nondispatchable resources as

long as they were paired with some sort of storage capability, correct?

A. Correct.

Q. Okay. And I know we talked about some of the limitations of the RGC. I must circle to that in a second. The minimum size requirement for the capacity RFP, do you recall what that is?

A. It was increments of a hundred megawatts, I believe. I don't remember what the lowest -- a hundred I guess was the lowest.

Q. Okay. Very good. And I mean in your experience as an independent power producer representative, is there some economies scale sweet spots between 80 megawatts and a hundred megawatts?

A. For renewables?

Q. Yes.

A. I would say that renewables tend to get an economies scale as you get up to increments of a hundred megawatts.

Q. Thank you. Now I heard you say it and you observe that the renewable RFP, which is a by-product of the RGC, required that projects be located in Alabama and interconnected with the Alabama Power

transmission system, correct?

A. Yes, sir.

Q. Okay. And I looked for you yesterday. I wanted to say hi but you were not here, were you?

A. In this room yesterday? No, I was not.

Q. Okay. So you didn't hear testimony from some of the witnesses with respect to the purpose and intent behind the RGC, correct?

A. Correct.

Q. Do you have any understanding as to the extent to which an RGC project was expected to have some nexus with a customer?

A. Can you explain -- clarify what you mean by nexus with the customer?

Q. In other words, that the project was desired by and/or supported by an individual customer perhaps to fulfill some sort of sustainability goal or resiliency goal?

A. I do recall that in the order it was noted that there was a letter of support from the governor as well as certain military installations.

Q. So with that in mind, does the requirement or condition that facilities be located in

Alabama -- I mean that's a reasonable condition to help fulfill that, correct?

A. I can't say if it's a reasonable condition to help fulfill that in light of the some of the testimony we heard earlier, for example, of wind resource that might be better located. In SPP, for example, there's lots of benefits that may accrue to Alabama even if the physical facility was not located in Alabama.

Q. But again -- and this is true on the capacity side of the equation. The capacity RFP for intermittent resources paired with a storage feature, they could bring it to the Southern system for delivery, correct?

A. Correct. The capacity RFP allowed resources to basically connect anywhere.

Q. Okay. And then one other thing we talked about in your deposition -- I was hoping maybe you had a chance to remember -- was what I think you understood to be a restriction on developers in that they were, in your words or in your view, required to have fee title or full ownership of the land on which they wanted to locate their development. Do you recall that?

A. Yes, sir.

Q. Okay. And we discussed whether that requirement was in fact limited to interconnection facilities and was not, say, a condition on entities who wanted to cite a proposal and enter into a power purchase agreement?

A. Yes. The errata changed that word to interconnection facilities in my testimony.

Q. Okay. You've caught me not having seen your errata so thank you for correcting that. All right. I want to switch gears with you and look at a couple of documents. Do you have your Exhibit 4 with you?

A. I don't believe I do.

Q. That's okay.

A. Oh, wait, I do. Sorry. Lazard.

Q. Yes, yes. And really there's just one thing about this I want to focus on. Before I do, I need to get your testimony. You describe -- in your testimony, you describe this Lazard analysis as being sort of a respected capture of the levelized cost of sort of energy. Is that right?

A. Yes, sir.

Q. Okay. Look at page one of that document for me, will you. Not the cover page.

A. Okay. Introduction?

Q. Yes, sir. It's that bottom paragraph that I want you to look at with me. And in terms of this sort of levelized cost of energy analysis, there's a note here at the bottom that reads, at the start, other factors would also have a potentially significant effect on the results contained herein but have not been examined in the scope of this current analysis. These additional factors, among others, could include -- and it goes on to list quite a few including capacity value versus energy value, network upgrades, transmission congestion or other integration-related costs. Did I read that correctly?

A. That snippet, yes.

Q. There's more and there's actually a part of the bottom, too. At the bottom, it says the analysis also does not address potential social and environmental externalities. And then it lists several including the social costs and consequences for those, the rate consequences for those who cannot afford distributed generation solutions as well as the long-term residual

and societal consequences of various conventional generation technologies that are difficult to measure. And then it gives some examples including nuclear waste disposal, air-borne pollutants, and greenhouse gases?

A. Yes.

Q. Okay. Having introduced this document along with your testimony, do you disagree with this statement in any form?

A. No.

Q. Okay. Let me now show you -- and I will acknowledge that this is not the complete document because the complete document is 160 pages or maybe 80 pages with two pages on a page but it's your Exhibit 5, which is the annual energy outlook for 2019.

MR. GROVER: It's in the record but this is a snippet so, Judge, I'll defer if you would like it or not.

ALJ GARNER: No. It's already in the record. Just reference it in the exhibit.

Q. Please. This is MDD 5 and I again acknowledge that it's an excerpted MDD 5. And again you haven't been with us the last few days perhaps rightly or exercising your legal acumen but there was a lot of

talk about gas supply and risk of gas availability and I wanted to talk to you about this report. Do you understand who prepares the AEO or this annual energy outlook?

A. Yes, sir.

Q. And that is whom?

A. The U.S. EIA.

Q. And the U.S. EIA -- we talked about this in your deposition. The EIA is not an advocacy organization, correct?

A. Correct.

Q. All right. They are dealing in data, correct?

A. Yes, sir.

Q. All right. So with respect to that data, if you would turn I think to the first page after the cover which -- maybe that's actually the orientation page so turn one more. I apologize -- which says sort of what is the reference case?

A. I'm there.

Q. You see that? And would you please read that, just the start of that first bullet for me?

A. The AEO 2019 reference case represents

EIA's best assessment of how U.S. and world energy markets will operate through 2050 based on many key assumptions. For instance, the reference case projection assumes improvement in known energy production, delivery and consumption technology trends.

Q. Okay. And then one, two, three bullets down, there's an acknowledgment about what is not included in the reference case and can you see that? It says "the potential impacts of."

A. The potential impacts of proposed legislation, regulations or standards are not included in the AEO 2019 cases.

Q. And then the bullet that follows that says the reference case should be interpreted as a reasonable baseline case that can be compared with the cases that include alternative assumptions. Did I read that right?

A. Correct.

Q. Okay. So turn with me now to the next page, and if you will humor me, what's the page number at the bottom?

A. Twelve.

Q. Make sure I'm following along. So actually the third bullet there that starts "natural gas prices," can you read that?

A. Natural gas prices remain comparatively low during the projection period compared with historical prices leading to increased use of this fuel across end use sectors and increase liquified natural gas exports.

Q. Okay. Would you turn to the next page in your sheet? And at the top there, does your page start with "the United States"?

A. Yes, sir.

Q. All right. Could you read what the EIA states in summary form here?

A. The percentage of dry natural gas production from oil formations increased from 8 percent in 2013 to 17 percent in 2018 and remains near this percentage through 2050 in the reference case.

Q. Okay. I wasn't clear in what I asked you. At the top there in sort of a bigger font in the color blue starts with "the United States continues," do you see that?

A. Yes.

Q. What does that say?

A. The United States continues to produce large volumes of natural gas from oil formations even with relatively low oil prices.

Q. And then it goes on to observe this will put downward pressure on natural gas prices?

A. Yes, sir.

Q. Okay. And for a point of reference for the audience, do you have a sense of what, based on the AEO's outlook, the time horizon is captured here?

A. 2050.

Q. 2050. Okay. And can I get you to turn to the next page in your little packet, and at the top there, can you tell me what that says?

A. Electricity generation from natural gas and renewables increases and the shares of nuclear and coal generation decrease as lower natural gas prices and declining costs of renewable capacity make these fuels increasingly competitive.

Q. And one thing I want to point out, the chart there that captures electricity generation from selected fuels in the reference case includes production both -- or not both from but from natural gas

facilities, nuclear facilities, renewable facilities, and coal facilities, correct?

A. Yes.

Q. Okay. So it's projecting out into 2050 the continued utilization of coal at approximately a 17 percent level. Is that what that projects?

A. That's what this says, yes.

Q. All right. And there's one more page I'm interested in. If you could turn to -- what's in your packet?

A. Thirty-four.

Q. Perfect. Yes. Does that show on the right side sort of projected assumptions of natural gas prices?

A. At the Henry Hub.

Q. Yes. And I'm interested actually in two things. One, looking at that chart, what does the reference case show for expected natural gas prices in the 2050 time frame?

A. The reference case?

Q. Yes, sir.

A. So these are 2018 dollars per million British thermal unit. It's showing five.

Q. And then above that in sort of what I would tell you is EIA's projection of a higher gas cost projection, I realize there's not sort of a real discreet marker there but does that value look to be just slightly north of eight dollars?

A. On the -- where are you?

Q. Just above the reference case in the same chart you were looking at. I think it's an orange line.

A. Low oil and gas resource and technology?

Q. Yeah, that case.

A. Yes.

Q. And it shows in 2050 it being just above eight dollars?

A. Yes, sir.

Q. And is there one more sheet in that?

A. Seventy-two.

Q. Okay. And this was where I think if you had been here -- you started to say it. It's the statement that U.S. natural gas consumption and production, dry natural gas consumption and production increase in most cases. That's what it says at the top?

A. Yes.

Q. And it follows by observing that with production growth outpacing natural gas consumption in all cases. Did I read that correctly?

A. Yes.

MR. GROVER: Okay. That's all I have, Your Honor.

ALJ GARNER: All right. Any redirect of Mr. Detsky?

MS. CSANK: Perhaps simply this.

REDIRECT EXAMINATION

BY MS. CSANK:

Q. Mr. Detsky, in your experience working on these subjects of resource planning and related price forecasts, has it been your experience that there has been no regulation or legislation or regulatory standards that have changed over such a long period of time as what these projections are that you just went over with Mr. Grover?

A. So in my experience, the projections made about long-term gas prices, for example, cannot be very reliable but instead what I would say is that a prudent resource planning exercise is one that hedges against different types of future outcomes.

So in the portfolio selected by Alabama Power here, they lean heavily on some particularly aging units like Central Alabama and it does a comparatively smaller acquisition of renewables that is not hedging very well against the potential increased costs of natural gas and having this renewable RFP in 2020 in place could add some extra hedge value to the system.

Q. And you refer to -- you had a conversation with Mr. Grover about the capacity RFP and how it allowed for solar bids when paired with storage. Do you recall that?

A. Yes.

Q. And could you just explain your recommendation on what you're saying the company should do differently in its resource procurement with regard to specifically soliciting those types of resources?

A. Yes. The capacity RFP mentions in a Q and A that they accepted solar when paired with storage, but in discovery, they did not show any bids and all of the bids that they did have were -- would be renewable RFP analysis.

So it wasn't clear to me -- it's very

likely that the market for solar and storage just did not even see that Q and A on page 30 that this RFP talking about gas would have also accepted solar and storage and so I don't think it was a good canvas of the market.

So what I would recommend is that in the all source RFP context that they put out specific target proposals for solar with storage that would get a potentially better response from the market. The capacity RFP would still be a good way to solicit it in terms of having solar with storage at 200 megawatts, 300 megawatts. You're going to see a lot cheaper pricing which was already at -- 80 megawatts was by far the cheapest resources selected here.

Q. What examples specifically would you point the commission to in terms of how the company could operationalize the recommendation for such procurements?

A. In terms of how to operationalize the procurements, what I would suggest is that they first of all integrate the upcoming RFP into this IRP and they compare the results of that RFP with in particular this Central Alabama plant.

Going forward, what I would suggest they do is in their base case IRP allow the technologies on the market to be evaluated because particularly the solar and storage resources, it's not just a capacity question. It's also the price of energy and solar on a day-to-day basis is going to provide cheap energy to the system and it's going to make the overall gas usage go down, overall system costs go down over time and that's how they can factor these into their operations.

Q. And one more question. What examples or precedents of such procurement can you point the commission to?

A. In my testimony, I discuss Public Service Company Colorado which Mr. Grover has got my primary experience. There in 2017, they did a renewable RFP, a semi-dispatchable, which was renewables paired with storage and then a dispatchable. They took all those different RFP bids and they modeled them using the Strategist PROVIEW and they had the model optimize hundreds of least cost alternative portfolios and that's what the model tool does if you use it.

And by doing that, they can select what portfolio best meets capacity and energy needs. So that's why I recommend going forward that there be an IRP that is all source, meaning that the model is allowed to perform its function and show the commission alternatives --

Q. And you're familiar with Mr. Kelley's rebuttal testimony in this regard related to the PS Co 2017 solicitation?

A. Yes, I am.

Q. And you reviewed the exhibits that he included with his rebuttal testimony?

A. Yes, I did.

Q. Do you recall whether that exhibit included all of the RFPs that you just identified?

A. I don't recall as I sit here without seeing if it had all the RFPs but the major point that Mr. Kelley missed in his rebuttal was that different RFP documents are okay. You can't have a solar putting in gas plant information.

So it's okay to have different RFP documents but what an all source RFP does is evaluate those bids together and optimize among which mix of

the bids is going to best meet not only the capacity need but also the energy need, which is what is required to keep the system's lights on day to day.

MS. CSANK: No further questions.

ALJ GARNER: Thank you, Mr. Detsky. You are excused. Appreciate your testimony. Mr. Detsky's prefiled testimony and exhibits will be admitted. For the record, the exhibit that was discussed fairly extensively on cross, MDD 5, was marked as Sierra Club 30.

ALJ GARNER: Sierra Club, does that conclude your presentation other than perhaps addressing the stipulation of the six witnesses that were agreed upon? You want those testimonies entered into the record, I believe, don't you, Mr. Dillard?

MR. DILLARD: We do, Your Honor.

ALJ GARNER: And that's in agreement with the company?

MR. GROVER: Subject to the terms of the stipulation. So with that in mind, yes.

ALJ GARNER: Sure. Yes. Okay. And that's going to be -- make sure we're clear on that.

MR. CAGLE: Your Honor, is that all six

of Sierra Club's witnesses?

ALJ GARNER: Yes. Well, it's Mr. Stetson, Ms. Davis, Mr. Womack, Ms. Lowe, Ms. Jones and Ms. Fralich.

MR. CAGLE: Pending that agreement, I have some questions I would like to ask Mr. Stetson. He is situated differently than the other witnesses.

ALJ GARNER: I don't even know if -- is Mr. Stetson here?

UNIDENTIFIED SPEAKER: Yes.

ALJ GARNER: The stipulation only is between Alabama Power and Sierra Club. Any thoughts, Mr. Dillard? Any objection?

MS. CSANK: If we can confer for a moment, Your Honor.

ALJ GARNER: Sure.

MR. DILLARD: If we may have a moment, it's a little bit of a surprise.

MR. CAGLE: Your Honor --

ALJ GARNER: He's conferring at the moment.

MR. MCCRARY: I'm sorry. Can we have just a moment?

ALJ GARNER: Sure. Let's let them talk and then we will address it. All right, Mr. Dillard.

MR. DILLARD: Your Honor, our position would be the stipulation has been admitted between the petitioner and Sierra Club for the purposes for which its terms describe.

ALJ GARNER: Expand on that.

MR. DILLARD: Exactly. And while Mr. Cagle may desire to question Mr. Stetson, that notice to us is untimely, and on that basis, we would object.

ALJ GARNER: All right. Mr. Cagle, I will allow you to respond.

MR. CAGLE: If I had been aware that that stipulation was being made, I would have directed my questions at other Sierra Club witnesses.

MR. DILLARD: In that respect, Your Honor, the stipulation was electronically filed and we obtained service on all the parties at the time of its filing.

ALJ GARNER: And so do you have questions regarding standing?

MR. CAGLE: No, sir.

ALJ GARNER: I'm trying to review very quickly what was in Mr. Stetson's testimony. It was fairly brief.

MR. CAGLE: He's an employee of Sierra Club and isn't a member of the Sierra Club as the other five.

ALJ GARNER: And is your -- are your questions related to this case?

MR. CAGLE: Yes, sir, his testimony, again which is right in line with the testimony the other Sierra Club witnesses have filed.

MS. CSANK: Your Honor, if we may just supplement and provide further explanation, the terms of the stipulation were such that the Sierra Club waived its ability to present all six of those witnesses. To just call upon one would be prejudicial to us insofar as those other five witnesses are not able to also take the stand and testify and present live testimony to this commission. So on that additional basis, we would object.

MR. CAGLE: Your Honor, if I can respond to that, to Ms. Csank's testimony -- or her questions and you have given great latitude in response to those

questions.

ALJ GARNER: I'm just trying to figure out the probative value of what you want to do here and the fact that this was filed on the 2nd. So, you know, we're over a week and I haven't seen anything from you regarding the stipulation so the timing is not good.

MR. CAGLE: Well, I withdraw my request and (inaudible).

ALJ GARNER: Another Sierra Club witness?

MR. CAGLE: No, sir, since there's not one.

ALJ GARNER: That's it for today. I'm not sure what you mean by that. You're throwing me for a loop here.

MR. CAGLE: I could withdraw my request if you're having reservations.

ALJ GARNER: Yeah. Well, I just don't know about the probative value of what you want to do given the fact that this has been filed and agreed upon, discussed in a conference call, and so now it's just being brought up. So I do question the probative value of what you're trying to accomplish.

MR. CAGLE: I think it relates to other

testimony that's been filed. There's been a lot of talk about the climate change and I think he's well-suited to answer questions related to that.

ALJ GARNER: But I don't think he's been presented as a witness in that regard so I just don't know the probative value of that.

MR. CAGLE: Okay.

MR. DILLARD: And that, Your Honor, was the basis of our objection.

ALJ GARNER: Right. With that, I'm going to deny your request.

MR. CAGLE: Okay.

MS. CSANK: Thank you, Your Honor.

ALJ GARNER: With that, we will introduce those six testimonies --

MS. CSANK: Thank you, Your Honor.

ALJ GARNER: -- into the record. And that's Mr. Stetson, Ms. Davis, Mr. Womack, Ms. Lowe, Ms. Jones and Ms. Fralich. All right. Does that conclude Sierra Club's presentation?

MR. DILLARD: Yes, sir.

ALJ GARNER: Brings us to Energy Alabama and GASP and do you have the order of your witnesses?

MR. JOHNSTON: Yes.

ALJ GARNER: What is that?

MS. TIDWELL: Mr. Wilson and Mr. Rabago and Mr. Howat.

ALJ GARNER: Ready with Mr. Wilson?

MS. TIDWELL: Sure. Energy Alabama and GASP calls James F. Wilson to the stand.

JAMES WILSON,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. TIDWELL:

Q. Please state your name and full business address for the record.

A. James F. Wilson, 4800 Hampden Lane, H-a-m-p-d-e-n, Suite 200, Bethesda, Maryland 20814.

Q. Mr. Wilson, by whom are you employed?

A. I'm an economist and independent consultant doing business as Wilson Energy Economics.

Q. On whose behalf are you testifying?

A. In this proceeding, Energy Alabama and GASP, Inc.

Q. Did you prepare and cause to be prefiled

in this docket a public and redacted version of 71 pages of direct testimony in question and answer form?

A. Yes, I did.

Q. Did you also cause to be prefiled along with your testimony 39 exhibits marked Exhibit JFW 1 through JFW 39?

A. I'll accept that.

Q. Do you have any changes to your prefiled direct testimony or exhibits at this time?

A. I do. I have two errata.

Q. And what are those errata?

A. On page 4, lines 18 to 19 where it says with five of the past six years falling within a 190 megawatt range, it should read with six of the past seven years falling within a 190 megawatt range. And the second one, page 30, footnote 31, it reads SCLC GR2 I01K. It should read I01H.

Q. Other than those changes if I were to ask you the same questions that appear in your prefiled testimony at the hearing today under oath, would your answers be the same?

A. Yes, they would.

MS. TIDWELL: Your Honor, I move to

have Mr. Wilson's direct prefiled testimony and exhibits entered into the record as if given orally from the stand.

ALJ GARNER: Mr. Wilson's prefiled testimony and exhibits will be entered into the record subject to cross-examination.

Q. Mr. Wilson, did you prepare a summary of your testimony?

A. Yes, I did.

Q. Will you go ahead and read it?

A. Yes, I will. Thank you. Good afternoon. My testimony in this case addresses the two key elements of Alabama Power's claimed future capacity needs, the winter peak load forecast, and the winter reserve margin.

With regard to the winter peak load forecast over the past several years, the company's weather normal winter peak loads have been flat, as I just mentioned, with a 190 megawatt range and the winter peak load forecast from the company's peak demand model, also known as PDM, forecast tool is also quite flat and consistent with the weather normal trends.

The company has tried various dates and calculation methods to get some higher values for the recent weather normalized peak loads. This is an invalid approach. The company has also applied some upward adjustments to the forecast. These adjustments are also unwarranted.

So the bottom line is the peak demand model winter peak load forecast without the unwarranted adjustments is consistent with the recent weather normal trend and far lower than the company's adjusted forecast as shown in figure JFW 1 of my testimony.

On the reserve margin, the company's reserve margin study substantially overstates the necessary winter reserve margins by making a number of flawed assumptions, in particular the impact of extreme cold on load and the likely frequency of very extreme cold in the coming years are overstated. As a result of these and other flawed assumptions, the winter reserve margin is overstated by at least five percentage points.

I conclude that overall through flaws in the load forecast and reserve margin the alleged

winter capacity deficit in 2023 is overstated by at least 1400 megawatts. Thank you for your time and I would be happy to answer any questions.

MS. TIDWELL: Mr. Wilson is now available to answer questions, Your Honor.

ALJ GARNER: All right. Questions from the intervenors? Mr. Cagle.

MR. CAGLE: Yes, sir, Your Honor. Can I borrow one of your seats?

MR. HILL: Mine.

MR. CAGLE: Thank you.

CROSS-EXAMINATION

BY MR. CAGLE:

Q. I'm Patrick Cagle and I'm the president of the Alabama Coal Association whom I'm representing in this proceeding. So you were hired by Energy Alabama and GASP in this proceeding, correct?

A. Well, I was hired by Southern Environmental Law Center and those are the two clients, yes.

Q. On their behalf. I assume you're being paid to be here?

A. That's correct.

Q. What's your rate per hour?
A. My hourly rate is 290 dollars per hour.
Q. How much income do you expect to earn for your total work related to this proceeding?
A. It will be about forty thousand dollars.
Q. What is the scope of the services you were asked to provide as it relates to this proceeding?
A. As described in my testimony, I was asked to review the load forecast and reserve margin and to give my opinions on those.
Q. The work you billed for, did it include anything outside of what you actually offered an opinion on? Did you review anything else?
A. I may have reviewed other documents that were peripherally related but the focus of my work was on those two key elements of the claimed capacity needs.
Q. I'm going to ask you to read several parts of your testimony if you will. I've got a highlighter. It might be a little easier if you want to use it. We'll try it and see. Would you please turn to page seven of your prefiled testimony and read lines 12

through 16?

A. Please summarize your conclusions with regard to the RM study analysis. I find -- 12 through 16?

Q. Yes, sir.

A. I find that due to various flawed assumptions, the RM study has substantially overstated their reserve margin necessary to satisfy reliability or economic objectives. Winter risks and reserve margins are especially overstated primarily due to assumptions that exaggerate the likely future frequency and magnitude of extreme winter temperatures and peak loads.

Q. Thank you. All right. Would you please turn to page eight now and read -- starting on line one, part one of your answer which ends at the middle of page -- of line six.

A. Lines one through six?

Q. Yes, sir, the middle of six.

A. The RM study has greatly exaggerated the likely frequency and magnitude of extreme winter peak loads by, one, using a data set back to 1962 which reflects a relatively high frequency of extreme

temperatures in the early years that have not been seen at all or only rarely in recent decades.

And, two, projecting onto those extreme temperatures extremely high loads based on an over-simplified approach that incorrectly extrapolates based on a single date for a polar vortex in 2014.

Q. Again, sir, you covered what I was asking for, the part one. All right. I've got two more. All right.

A. That ended with a semicolon.

Q. Yes, sir. It was three part sub answer so -- all right. Would you turn to page 49 and read lines 1 through 6? Actually I withdraw that request and I'll just go right to the last one which is -- all right. Page 55, I believe. Fifty-five. Would you please read lines 1 through 7?

A. That's the middle of a sentence in my copy.

Q. Page 55?

A. Yeah.

Q. Page 55 starting with line 1, it starts with a question?

A. Okay. Maybe my pagination is a little

different. What are the words?

Q. I will give you one.

A. What's the -- read the beginning of the sentence.

Q. It's a question. You've explained the RSM model -- I'll give you the same thing.

ALJ GARNER: Cut to the chase.

MR. CAGLE: I've got it.

A. Okay. You have explained that the RM study -- start there?

Q. Yes.

A. You have explained that the RM study applied a flawed approach using PALFs to associate loads with extreme temperature. Now please describe the range of temperatures modeled in the RM study. Continue?

Q. Yes.

A. The data set used in the RM study included many instances of very extreme cold that have not been seen or only rarely for decades, paren, data through 2015 was used, data through 2016 was provided through discovery, end paren. This calls into question how likely such extreme cold really is going

forward. In particular -- and there's a footnote.

Q. And that's it. Thank you. And that's the part I want to get to. So again is it fair to say that part of the underlying documentation, part of your testimony, a key part is that you don't expect temperatures going in the future for us to experience extreme colds in the future over the next 40 years that we experienced over the past 58 years?

In other words, you pointed out the extreme colds in the model from 1962 to 1985 and said that that overstates the extreme cold that we've experienced since. Is that correct?

A. Well, to clarify, there was some extreme cold in 1982 and 1985 as discussed elsewhere in my testimony and also in some of the rebuttal. 1962 and 1963 were also a couple of years with extreme cold.

If you go back to the '40s, the '40s and '50s didn't have extreme cold like '62 and '63, and if you go from as I describe right here from about '86 to the present, there was very little of that extreme cold.

So the particular time frame that was

chosen was very much cherry picked in order to have a lot of very extreme cold and I'm simply pointing out that that kind of extreme cold has not been seen very often.

And if you look at Mr. Carden's rebuttal work papers, which I guess I'm not supposed to talk about because they're confidential, but they suggest that the selection of the historical time frame makes a huge difference on that recommended winter reserve margin.

You pick one date. You pick a few years earlier and get a very, very different result. So I'm not taking a position on climate change if that's where you're going.

Q. That's my next question.

A. I'm simply pointing out that in that model the results are very much driven by some very extreme cold that as the rest of this page describes hasn't been seen for decades.

Q. Well, what is your position on climate change?

A. Where are you pointing to in my testimony?

Q. Well, you've offered an assessment that you expect temperatures going forward to be less cold, less extreme cold than we have experienced in the past.

MS. TIDWELL: Your Honor, we object to this. What is the relevance of this line of questioning when he's clearly pointed out his explanation in his testimony?

ALJ GARNER: Yeah, I think the witness has stated he's not taking a position on climate change. He just made an assessment of temperatures based on which the power company's case is based in the forecast.

Q. What about the polar vortex? Do you think that was in any way associated or a result of climate change?

MS. TIDWELL: Same objection, Your Honor.

MR. CAGLE: I'd argue this one is relevant.

ALJ GARNER: I'm not seeing it. He stated again he's not taking a position. If you can refer me to anywhere in his testimony that he has taken a position on climate change, we may go in a different direction.

MR. CAGLE: I believe he's taken a

position against it because he stated that it's unlikely we experience extreme colds in the future.

THE WITNESS: No. I'm sorry. That's not in my testimony.

Q. Well, that last line we read, this calls into question how likely such extreme cold really -- cold is going forward. Is that not your testimony?

A. Yes. The fact that the model is heavily driven by some extreme cold that hasn't been seen since 1986 but including that in the model drives the reserve margins much higher. But the fact that those numbers haven't been seen since '86 calls into question how much weight should be placed on those numbers in the reserve margin study.

Yes, I'm calling into question whether that weighting that drives the reserve margins higher is appropriate. And again the time frame is cherry picked in order to pull in a lot of extreme cold which hasn't been seen for a long time.

Q. All right. Thank you. So do you expect us to experience more events like the polar vortex in the future?

A. Well, the polar vortex as I point out

here isn't one of the big ones in driving the reserve margin higher. What was it? Sort of seven percent where we've got 21 percent in there. So it's not -- it's not a driver. Yes, we'll probably see more polar vortex type events but those aren't the ones that drive the reserve margins 25, 26 percent.

Q. So if the polar vortex is associated with climate change and I recognize you haven't taken a position on that, but if it is and we expect the climate becomes -- we see more extremes both in terms of cold and other aspects of climate change, would you -- do you think that could impact the testimony that you provided that we won't see as extreme colds moving forward?

MS. TIDWELL: Your Honor, I object. This exceeds the scope of his testimony. As we've just discussed, it's more questions about climate change.

ALJ GARNER: Yeah, I'm having a hard time seeing the relevance of your questions. I think you're just creating a distraction holding us up for the day. This is not the place for that debate.

MR. CAGLE: Yes, sir, Your Honor. I understand. Well, I'll leave it there. Thank you.

ALJ GARNER: Thank you, sir. Any further

cross from intervenors? Alabama Power.

MR. MCCRARY: Yes, sir. Thank you.

CROSS-EXAMINATION

BY MR. MCCRARY:

Q. Hello, Mr. Wilson. Just a moment ago, you made a comment about cherry picking weather data. Do you recall that?

A. Yes.

Q. Is it your understanding that the use of the data going back to 1962 is solely a function of the availability of reliable data and no other reason?

A. I don't know why '62 was chosen. Weather data is available much further back than '62.

Q. What evidence do you have of cherry picking?

A. Well, I looked at the temperatures in the fifteen years before '62 and there was like one cold day out of that period. '62 and '63 were extremely cold and then I think maybe '58, but other than that, it was a whole bunch of mild years. So if you had gone further back, you would have gotten a much lower reserve margin.

Q. If in fact the period back to '62 was

chosen simply because of the availability of reliable data, would that have been an acceptable data set to use for purposes of the reserve margin study?

A. I guess if that's true but the weather data is available very far back.

Q. Is it your understanding that hourly weather data is available prior to 1962?

A. Yes.

Q. Where?

A. From NOAA.

Q. All right.

A. I downloaded it last week.

Q. I think this already has been established but you're a paid consultant, are you not?

A. Yes.

Q. And I've looked at your resume, Exhibit 1, and it looks like the testimony that you've presented, especially in the more recent periods, has primarily been on behalf of environmental and consumer advocacy groups. Is that true?

A. I have a number of different clients but I have done a fair amount of work for environmental groups and consumer advocates recently.

Q. I also took a look at your client list on the website and it doesn't appear to include any public utilities. Do you do any work for public utilities?

A. Yes.

Q. Which ones?

A. I've done lots and lots for Pacific Gas & Electric Company.

Q. I'm sorry. I didn't mean to interrupt you.

A. Especially back in the '80s and '90s, did a lot of work with various utilities around the country.

Q. More recently say in the last fifteen or twenty years, have you done work for public utilities?

A. Yes, a lot of work for PG&E in the last twenty years.

Q. Is that the last company that you've done -- the last public utility you've done work for?

A. I don't know. I'd have to review my resume for that.

ALJ GARNER: Make sure you speak directly into the microphone, Mr. Wilson.

THE WITNESS: Sorry.

Q. Your work for PG&E in whatever time frame that was, was that in connection with the development of reserve margins?

A. I don't believe it was. There were a number of projects on both the electric and natural gas side having to do with a number of matters. I don't remember if it involved that. I don't believe it did.

Q. Okay. So sitting here today, you can't recall doing work for a public utility in the development of reserve margins?

A. I'd have to review my CV for that.

Q. The PG&E that you have done work for, is that the one that's now in bankruptcy?

A. Pacific Gas & Electric Company. Yeah, I believe they are in trouble right now.

Q. I took a look also at the list of testimony that's included in your resume and I was trying to -- and I spent some time looking at those dockets and I have been unable to locate any instance in which you were hired to review a load forecast and your conclusion was that the load forecast was reasonable and you recommended no change. Did I miss something?

A. Yes.

Q. Which one did I miss?

A. I believe in North Carolina, I was pretty good with their load forecast.

Q. Can you point to me which case that was, please?

A. I don't know which iteration. There might have been a few iterations there. A number of times -- I mean recently especially now that we have ten years of post-recession history, a lot of utilities are focusing their load forecasting on just that post-recession history, that kind of stable ten years, and getting load forecasts that are actually quite reasonable.

So we are in a period now where a lot of load forecasts are pretty stable and pretty reasonable. But I think in the Duke case, I have a couple of iterations there. I was pretty okay with their load forecasts. And of course, I've been involved with PJM's forecast loads year after year, and if I recall, there was one year when I thought they had it right, too. And other than that, I don't know. I'd have to go back line by line.

Q. All right. Same question with regard to reserve margins. I tried looking through your list of cases here and I was unable to identify an instance where you examined a public utility's reserve margins and concluded that it was reasonable and you agreed with it?

A. Well, I wasn't too critical of the summer reserve margin in this case and in some other cases. The unfortunate reality is that utilities like to try to justify high reserve margins, and so usually if you look carefully at the work underlying the reserve margin, you find six or seven thumbs on the scale and usually can pick on two or three of those thumbs because there's a few big ones. And then if you, you know, correct just the really biggest flaws, it comes way down and then it's probably still too high but it's in a range of reasonableness.

So I think it would be unusual for an intervenor to take a look at a utility reserve margin when they have every incentive to want to inflate it and not find that indeed they have inflated it and in some instance some of the assumptions that they've relied on to inflate it are pretty obviously not, you

know, valid.

Q. So it's your belief that utilities exaggerate the risk or reliability events in order to drive up the reserve margins. Is that your testimony?

A. Not necessarily. There's other ways to drive up reserve margins by typically just using very conservative assumptions rather than -- I mean the fundamental concept is usually one day in ten years, 0.1 LOLH.

So it's supposed to be a probabilistic analysis, and if you built a very complex model and represented everything probabilistically, then the result of your model would theoretically be, you know, calculating the capacity needed for that one day in ten years but instead usually there's only a couple of things represented probabilistically, and the other things that aren't represented probabilistically, usually an extremely conservative assumption is used, which if you represented it probabilistically would represent a whole lot more of that, whether it's merchant capacity, transmission from neighbors, assistance available from neighbors, demand response, price response of demand. You know, there's many

other things that in a complicated model you would have all these things going on.

So for instance after the polar vortex, the president of PJM talked about how there were resources coming out of the woodwork he said. When prices get high, when the system gets tight, there's a lot of things that kind of can, you know, work, show up and work in your favor, and a lot of times, all those details, all that richness is not represented.

Q. So is it your conclusion then in those instances the target reserve margin is exaggerated and higher than it needs to be? Is that your testimony?

A. It's often the case that the reserve margin is exaggerated and higher than it needs to be. And if you look around the country, how often do we see one day in ten years? I mean the polar vortex, even then, we didn't have lost load in those places.

So I think the evidence supports the fact that the reserve margins that are supposed to be one day in ten years are actually probably providing a lot more reliability than that and a lot more than necessary.

Q. Let me hand you a document. It's a NERC

document, 2016 probabilistic assessment. Are you familiar with that?

A. Yes.

ALJ GARNER: Do you want this marked as an exhibit?

MR. MCCRARY: Yes, Your Honor.

ALJ GARNER: Alabama Power 51.

Q. And in this document, NERC is assessing the likelihood of a reliability event over a future time frame, is it not?

A. Well, for the most part, they collect information from utilities and compile it.

Q. So let me -- but NERC is doing an assessment of loss of load probability in this document, is it not?

A. I'm not sure. I mean usually what they do is they collect those from utilities and create a document that summarizes them all. So I don't -- I don't recall of actually -- I don't think they did in this document.

Q. Okay. So the utility is doing the assessment, they provide the information to NERC, and NERC produces the document?

A. That's my understanding.

Q. Okay. Let's look, if you would, at page six.

A. Roman?

Q. No. Arabic six.

ALJ GARNER: MISO?

MR. MCCRARY: Yes, sir.

Q. And the monthly reliability measure for January under the 2018 base, what was the probability of LOLH?

A. Well, it says there zero hours per month.

Q. Right. And EUE, zero?

A. Yes.

Q. And then there's --

A. I don't know what this is. I'd have to read the document to see what we're looking at right now.

Q. Does that suggest to you that the analysis yielded a zero chance of a reliability event?

A. I would want to read the document to see what I'm looking at here.

Q. I thought you said you were familiar with

this kind of a document?
A. I am.
Q. But you don't know what this means?
A. I would want to read what MISO submitted. Every utility applies a completely different approach here. So I'd be familiar with it if it was PJM's. With MISO, I would want to read the documentation here, which is only three pages long, before I have an opinion on what those numbers meant.
Q. All right. Go ahead, please.
A. Okay. This is MISO's resource adequacy analysis from that time.
Q. And it is indicating a zero probability of a reliability event in January of 2018, correct?
A. Well, I think what they're reflecting is they had a huge amount of excess capacity at the time.
Q. Okay. And let's look over at page 33. Do you have that?
A. Yeah.
Q. And then SERC north, that's TVA?
A. Apparently so and some other public utilities.

Q. And I'm looking at the upper portion of the chart on page 33.

A. Okay.

Q. And similarly for January of 2018, TVA was projecting a zero chance of a reliability event, was it not?

A. To three decimal places.

Q. Yeah.

A. Of course, this is resource adequacy. Outages do occur for other reasons and this is typically what's called copper sheet or zonal which means they're not including the possibility of outage due to very local transmission constraints, for instance. So, you know, things happen that fall outside of the scope of these studies.

Q. All right. And below that, SERC Southeast, that's Southern Company, Southern BA?

A. I believe you.

Q. And again for January of 2018, a zero expected reliability event?

A. Yes.

Q. And finally over on page 36 for SPP --

A. These are single digits.

Q. Still zeros?

A. Well, we don't know. It could be 0.4 and they rounded it down to one digit zero.

Q. What's shown here is zero?

A. Yes.

Q. All right. So at least for purposes of those presentations, the utilities there were not exaggerating the risk of a reliability event, were they?

A. Well, this is based on their current mix, I assume, but that's their forecasting based on their current reliability mix. So, you know, those numbers are pretty small but I don't know. I'd have to take a look at their study to see exactly what all is going on there.

Q. But as it turned out, as it turned out, there was a reliability event in January of 2018, was there not?

A. Let's see.

MR. MCCRARY: Your Honor, I only have one more. I'll show it to counsel.

ALJ GARNER: Sure. That's fine.

Q. You're familiar with this report, are you not?

A. I did see it at one time, yes.

Q. And this was a report done by the FERC and the NERC staff in response to a cold weather bulk electric system event January 17, 2018, correct?

A. Yes.

ALJ GARNER: The document is marked as Alabama Power Exhibit 52.

MR. MCCRARY: Thank you, Your Honor.

Q. And this report documents, does it not, Mr. Wilson, that there was not an actual loss of load on this day but a very near miss because of the cold weather that occurred in the region at that time?

A. Yes, there was extreme cold over quite a bit of the country and a lot of other contingencies, so, yes, it was a near miss.

Q. And if you look over at page 20 of that exhibit, page 20 of 153 --

A. Uh-huh.

Q. -- in the paragraph that's below the chart, it says none of the affected RCs forecast having a shortage of generation to meet their winter peak loads. MISO, SPP, TVA, BA and SERC all provided resource adequacy projections for their entire

footprints for the winter 2017-18 as part of NERC's 2017-18 winter reliability assessment. That's the document we just looked at, correct?

A. Right.

Q. Then continuing on, it says which ranged, the resource adequacy projections ranged from 32 percent to 67 percent resource reserve margins excluding planned and expected unplanned generation outages well above their reserve margins of 12 to 17 percent. Do you see that?

A. Yeah.

Q. So despite the fact that these utilities are not projecting any sort of resource adequacy issue and despite the fact they had reserves that were actually from 32 to 67 percent, there was a near miss in the Southeastern United States on this day, was there not?

A. Right. I mean that should have been the one day in ten years and they still didn't have an outage because, you know, they had so much capacity but I mean it's similar to the polar vortex in 2014 and PJM. There's a lot of lessons learned with winterization and such. The temperatures were very

extreme over a very broad area here.

So, you know, there are a lot of lessons learned but they still didn't have an outage even under very extenuating circumstances which suggests to me that we're not at one day in ten years. We're a little better than that.

Q. Indeed in response to this near miss, NERC in this hundred and fifty something page report issued a host of recommendations addressing many of the same risks that are reflected and discussed in the Southern 2018 reserve margin study. Isn't that true?

A. There's always a lot of learning from a close call. We don't have very many of them but we learn a lot from each one.

MR. MCCRARY: Just a moment, please. No more questions, Your Honor.

ALJ GARNER: Redirect of Mr. Wilson?

MS. TIDWELL: Just very quickly.

REDIRECT EXAMINATION

BY MS. TIDWELL:

Q. Mr. Wilson, what's your opinion about the Alabama Power's peak demand model forecast in this case?

MR. MCCRARY: Your Honor, I would object.

I asked no questions about the peak demand model.

ALJ GARNER: I don't remember a question about that.

MS. TIDWELL: Your Honor, he was asking questions about whether Mr. Wilson ever found a load forecast reasonable.

ALJ GARNER: Okay. Connect the dots for me to a question that --

MS. TIDWELL: Me?

ALJ GARNER: Yeah, you have to help me how that's related to the cross specifically.

MS. TIDWELL: Mr. Wilson's testimony addresses Alabama Power's initial peak demand --

ALJ GARNER: I got that. I understand that but -- be very quick.

Q. Do you recall what I just asked you, Mr. Wilson?

A. Yeah. No, you're right. I mean my recommendation in this case was that the peak demand, winter peak demand forecast as it is produced by the company's peak demand model should be used without the adjustments. They applied four adjustments which three were documents and my recommendation in this

case is that the peak demand model is giving you a reasonable forecast for the winter period.

MS. TIDWELL: Thank you. No further questions.

ALJ GARNER: All right. Mr. Wilson's prefiled testimony will be admitted including his exhibits, all 39 of them, and you are excused, Mr. Wilson. Thank you, sir. Any objection to the admission of Alabama Power Exhibits 51 and 52? I see none. They are admitted.

MS. TIDWELL: Thank you, Your Honor. You admitted Mr. Wilson's exhibits as well?

ALJ GARNER: Yes, all 39. Ready for Mr. Rabago?

MR. JOHNSTON: Yes, Your Honor. Alabama Energy & GASP calls Karl Rabago to the stand.

ALJ GARNER: Moves quick around here, Mr. Rabago.

KARL RABAGO,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. JOHNSTON:

Q. Mr. Rabago, please state your name and full business address for the record.

A. My name is Karl Rabago. My business address is 2025 East 24th Avenue, Denver, Colorado.

Q. And by whom are you employed?

A. I am self-employed. I have a Colorado, LLC, Rabago Energy.

Q. On whose behalf are you testifying today?

A. GASP & Energy Alabama and working with you, SELC.

Q. On December the 4th, 2019, did you prepare and cause to be prefiled in this docket a public and redacted version of 30 pages of direct testimony in question and answer format?

A. Yes, I did.

Q. Did you also cause to be prefiled along with your corrected testimony fourteen exhibits marked Exhibits KRR-1 through KRR-14?

A. Yes, I did.

Q. Do you have any changes to your prefiled direct testimony or exhibits at this time?

A. I do not.

Q. If I were to ask you the same questions

that appear in your prefiled testimony at the present hearing today under oath, would your answers be the same?

A. Yes, substantially the same.

MR. JOHNSTON: Your Honor, I move to have Mr. Rabago's direct prefiled testimony and exhibits entered into the record as if given orally from the stand.

ALJ GARNER: Mr. Rabago's prefiled testimony and exhibits will be admitted subject to cross-examination.

Q. Mr. Rabago, did you prepare a summary of your testimony?

A. Yes, I did.

MR. JOHNSTON: Your Honor, with your permission, I would like Mr. Rabago to read a summary, read his summary.

ALJ GARNER: Deliver it timely.

A. Your Honor and Commissioners, my testimony, which draws on 30 years of experience including as a public utility commissioner, a utility executive, and as an advocate, reviews the company's proposals and finds that in spite of having access to

solid planning and development tools through Southern Company and contractors, the company, Alabama Power Company, has failed to meet its burden of showing need and that its proposals -- and that its proposals aren't in the best interest of its customers, the commission and the state of Alabama.

With the exception of its solar proposals and the small poorly developed proposal for demand side programs, the company wants to further increase Alabama customers' already highest bills in the country by adding polluting, economy limiting and risky investments that are not in the public interest.

One major and fatal flaw in this proposal is that the company has not only allowed but created a winter peak problem through excessive gas generation and unreasonably proposes even more gas generation as effects.

Therefore I recommend among other things a denial and deferral of gas build and acquisition proposals and a commission rule making on peak processes. That concludes my opening statement.

MR. JOHNSTON: Mr. Rabago will now be available to answer questions from the bench by

cross-examination by the parties.

ALJ GARNER: All right. Any questions from the intervenors?

MR. HOOPER: Your Honor, we don't have any questions, American Senior Alliance, of Mr. Rabago.

ALJ GARNER: No one? All right. Alabama Power.

CROSS-EXAMINATION

BY MR. GROVER:

Q. Mr. Rabago, hi, I'm Scott Grover. How are you?

A. I'm fine. Thank you.

Q. Good. We've met before, have we not?

A. We have.

Q. Good. I want to start with this. You would describe yourself as a clean energy advocate, would you not?

A. I would and a free market green.

Q. A free market green. Let me get you to turn to your testimony. I want to do a little bit of housekeeping. Page 28.

A. I'm there.

Q. Okay. And it's the Q and A that begins

around line six. I ask you to be careful with the numbers because in retrospect I feel like what you may have quoted there may been confidential but just that statement and the answer to the question there is a recognition of what you believe could be recognized from the implementation of additional energy efficiency and demand side measures utilizing the total resource cost test, correct?

A. Yes. I indicated that there are a lot of resources available.

Q. Okay. And you go on to add that if the rate impact measure test is used in lieu of the total resource cost test, then those numbers would be significantly lower, correct?

A. Yes.

Q. Okay. And the report that you're drawing this discussion from is what's known as a technical potential study performed by Nexen --

A. Right.

Q. -- which you included as an exhibit to your testimony. Let me show you a page from that that was marked confidential but I have confirmed with my people that I can show you this. I will represent this

is a page from that study, page 20.

A. Okay.

MR. GROVER: Go ahead and include that, Judge.

ALJ GARNER: You want this marked as an exhibit?

MR. GROVER: If we can, Your Honor.

ALJ GARNER: Sure. It's not confidential?

MR. GROVER: Correct. I'd like to keep the remainder of that study confidential but that page is not.

A. Okay.

Q. And you see the section 1.4.2 which says rate impact?

A. Yes.

Q. Could you read that?

A. Yes, I read it.

Q. Okay. I mean -- and it's fair to say that, summarizing it, the statement by Nexen included with the study acknowledges that energy efficiency programs can cause electricity rates to rise faster than they would ordinarily and that the failure of the market

to accept programs can also impact rates and that if technology impacts prove less than estimated that the rate impacts could actually become severe?

A. Right.

Q. I've summarized it but that's generally what it says, correct?

A. That's what this section 1.4.2 says.

Q. Okay. Turn now to page 27. Actually I'm sorry. Twenty-six of your testimony.

A. Twenty-seven. Got it.

Q. I'm sorry. Twenty-six.

A. Twenty-six. I'm sorry. Okay.

Q. And here you should be looking at a chart that's labeled potential and actual peak demand savings in 2015 for utilities with leading demand response programs. Do you see that?

A. Yes.

Q. Okay. And you can characterize your testimony if I mischaracterize it. As I understand it here, you're commenting that Alabama's inclusion, Alabama Power's inclusion on this chart indicates that there is unrealized potential insofar as the orange portion of that bar is the demand response capability

whereas the blue portion of that bar represents what was actually utilized?

A. Yes.

Q. Okay. So two things. Number one, you do understand, do you not, that the entirety of the bar, the blue and the orange together, represents the demand response potential as a percentage of peak load, right?

A. Yes.

Q. Okay. And so in that, that's representative of the amount of demand response that could be called?

A. That could be called, right.

Q. Okay. Do you understand that the amount of demand response is captured by Alabama Power as part of its total aggregated portfolio of resources that are included in the IRP?

A. Yes, I do. I saw tables in the IRP document which included total amounts of megawatts under contract.

Q. Okay. And lest there be any confusion, anyone looking at this document shouldn't take from it that, say, North Carolina Eastern MPA has a greater potential demand response than the power company simply

by virtue of its location on the chart?

A. I believe it's a percentage. So it could be a smaller utility and the percentage, their percentage would be higher for their peak demand.

Q. But in terms of megawatts amounts relative to it --

A. Right. This is not an indicator of the megawatts. It's an indicator of the percentage.

Q. Great. Thank you, Mr. Rabago. So actually I want to ask you this now. On page four of your testimony, you list -- oh, you know what. I got ahead of myself. I apologize.

A. Okay. Here's page four.

Q. You know what. I'm sorry, sir. It's late in the day and I was going to do this entirely out of my head. Let me show you a document.

A. Okay.

MR. GROVER: And, Judge, I'm not going to admit this. This is a page from the reserve margin study. I just want to use it for illustration purposes.

ALJ GARNER: While you're handing that out, the excerpt on the Nexen study you just marked is

Alabama Power Exhibit 53.

MR. GROVER: Thank you, Judge.

A. All right.

Q. I direct your attention, Mr. Rabago, to the bottom of that page where it states that -- and I'll go ahead and say as a point of reference, let's go ahead and do ourselves a favor and stay away from the numbers highlighted in yellow that are confidential.

The statement at the bottom of the page discusses how interruptible services, that program is split into three blocks so that not all contracts are called simultaneously. Do you see that?

A. Let me see. Yes. Right.

Q. Okay. So in your testimony -- and maybe you can help me relocate it because I misplaced the location. You make an observation that the company's interruptible program can only be called as a third of the entirety of the program and I wanted to make sure we were clear that -- do you have any reason to doubt that rather than just being limited to one-third of the full amount as this is stating, the company can actually call on the program in blocks so as to not impose on a single customer a full amount of a reduction when in fact it

could spread that across participants in one-third increments?

A. Let me clarify if I understand your question. You're saying that notwithstanding the fact that there's a program designed that says they will never call more than one-third at a time, they could call more than one-third at a time? Is that what you're asking?

Q. That's exactly what I wanted to get to. You're very categorical statement there pointed to this document and this page and I'm trying to understand how you're drawing that conclusion when -- as I understand the program based on what I know, the program actually is called incrementally so that you don't necessarily impose the full obligation on a single customer. You spread it across the blocks. So ultimately in a given situation, you could perhaps call it all if demand need was that great?

A. Yeah. So drawing on personal experience when I was at Austin Energy, I had about 95,000 residential customers under my control and we routinely -- when we called them, we called them 20 minutes at a time and that actually served to sort of

manage the reductions across the grid and you didn't have sudden drops on feeders because it was residential customers.

I understand this to be a contract service where there's a contract between the company and the utilities. And I understand from the discussion of this service, the program, that the company is holding itself to never calling more than one-third of the potential capacity under contract.

And what I was referring to in my testimony is an opportunity to do even more if you needed it in one of those very extreme circumstances but that maybe the company had actually tied its own hands with its contractual relationship.

Q. And what is the basis for that understanding that the company has limited itself?

A. I just saw repeated assertions in the estimate of the value and the amount under contract and the description of the program that it was like you said here within the category, the programs are split into three boxes so that -- blocks so that not all contracts are called simultaneously.

Q. So again where -- you said you saw a lot

of stuff. What did you see?

A. Say again.

Q. You say you saw a lot of stuff. I'm asking what you saw.

A. I'm sorry. I can't do better than that because I just remember seeing that it would be called in thirds so maybe this is the only place I saw it. I should be careful with my words.

Q. Okay. So to the extent, you know, like commission staff or the commission or others have an understanding that this -- it says what it says which is that the third incremental calls are intended to keep from the entirety being called simultaneously --

A. Right.

Q. -- or that is at the same time, it's not a limitation that only one-third could be called?

A. I'm not ready to go that far with you. It sounded like the program design is not going to let more than one-third calls at any one time.

Q. But sitting here today, the only thing you can think of -- and I realize you're just sitting here today -- is what you're looking at right now?

A. Right.

Q. Let me get you now to turn to page four.
A. Where am I now?
Q. Page four. It's the top several lines there and you give a listing of sort of your recent testimony. Do you see that?
A. On page four. Which lines?
Q. Two through five.
A. Okay. Listing my recent testimony, yes.
Q. What I didn't see there is participation in recent proceedings regarding the certification of generation.
A. You're right. I didn't list that. Perhaps it was an economy of words. Perhaps it was an effort to get -- to make some key points but I have participated in some of those cases in a variety of capacities.
Q. And one of which is the Okeechobee certificate proceeding before the Florida Public Service Commission?
A. Yes.
Q. Do you recall that?
A. Yes, I do. I mean very generally.

It's been a while.

Q. Let me refresh your recollection.

A. Thank you.

MR. GROVER: Judge, I have a copying error so I will give you that when he's done with that if that's okay.

ALJ GARNER: You want it marked as Alabama Power 54?

MR. GROVER: Yes, sir.

ALJ GARNER: It will be so marked when I get it.

Q. Feel free to refresh yourself with that.

A. Do you want me to focus on anything in particular?

Q. In a second. I want to give you time to look at it.

A. Give me a second.

Q. Yeah, please.

A. Okay.

Q. Okay. So in this proceeding, Mr. Rabago, it appears that you were engaged by the Environmental Confederation of Southwest Florida. Is that right?

A. Yes.

Q. And if we look through this document, this is a pre-hearing statement on behalf of Eco Southwest Florida?

A. It's --

Q. That's what --

A. I believe it's an extract of that. I'm not sure. I don't know because I don't remember -- it's certainly not the full testimony so it's a summary of.

Q. Right. We will look at your testimony in a second.

A. Okay.

Q. I've got your statement here. And it lists the prefiled exhibits which include your resume and your testimony and a number of different exhibits. What I want to call your attention to though is starting on page five at the bottom.

A. Okay. I'm there.

Q. Okay. There's a statement of issues and positions?

A. Which one again?

Q. With that section that starts with E that says --

A. Oh, yeah. Okay, issues. Right.

Q. So and this basically ticks off, I think, the issues raised in the proceeding and the position of --

A. Yes.

Q. -- Eco Southwest Florida on whose behalf you were testifying, correct?

A. Right.

Q. Okay. And I won't go through every one but basically it seems like in response to the need for the Okeechobee facility, Eco Southwest Florida's position was no, the current system will meet appropriate reliability integrity standard orders without the unit?

A. Okay. I reviewed them.

Q. And just before I go on, do you have a recollection of how large the Okeechobee facility was proposed to be?

A. No, I don't.

Q. Would you have any reason to disagree with it being approximately 1600 megawatts if not larger?

A. Okay. I'll take your word for it

subject to check, whatever. Big plant.

Q. Big plant. And then if you turn to page -- actually before you do, I'm sorry. At the bottom, there's another issue. Are there any renewable energy resources and technologies or conservation measures taken or reasonably available to Florida Power & Light which might mitigate the need for Okeechobee?

And on the next position -- or the next page, Eco Southwest Florida's position is, yes, renewable energy and conservation measures could obviate whatever need would be met by the proposed unit and essentially these positions -- and again the document speaks for itself -- lays out the position of Eco Southwest Florida and you with respect to the need for that unit by FP&L.

A. Yes.

Q. Is that fair? Okay. And I mean suffice it to say, you did not support that unit?

A. No, I did not.

Q. And we will talk about it in a second. One of the critical bases on which you opposed the unit was the fact that the stated reliability need by FP&L giving rise to the unit was what you believe was a very

excessive reliability target?

A. Yes.

Q. Okay.

MR. GROVER: There you are, sir.

ALJ GARNER: This is Alabama Power 55.

Q. And familiarize yourself, please, Mr. Rabago, but I will represent this is your sworn testimony prefiled in that proceeding.

A. It appears to be that, yes.

Q. Okay.

A. Without going through it all. Okay. Let's dig in.

Q. So if you turn to page three starting at line eight along the lines of what I was alluding to a moment ago, you state here in your summary that you believe the company has created a system with outrageously low loss of load probability values guaranteeing that customers are paying for an over build system that unfairly burdens customers with unnecessary costs?

A. Yes.

Q. Is that what that says? As a point of just orientation, in Florida, they use this metric loss

of load probability?

A. Yes.

Q. But that is more or less equivalent to that loss of load expectation term we've heard --

A. Right. LOLE, LOLP are sometimes both used or separately used, yes.

Q. But here in Florida, that's consistent?

A. Yes.

Q. That's that one in ten --

A. Right.

Q. -- or .1 metric?

A. Right.

Q. Okay. Make sure we're talking about -- and I found this -- if you will go to page 7 starting about line 5, it appears that you had done a calculation where you had concluded that the reliability basis upon which Florida Power & Light was predicating its request was the reliability equivalent of, as you say it, risk of death caused by falling meteor?

A. Yes.

Q. And you did a calculation to determine that?

A. I can't remember how I got this but I

attached -- apparently I attached an exhibit that showed a calculation that said that, yeah.

Q. Okay. But you go on to say, do you not, in the question that's starts line 16 that in and of itself the LOLE -- I don't mean to confuse it -- the LOLP .1 metric in and of itself is not the wrong metric to use?

A. It's not -- in line 16, I say are you suggesting that the .1 LOLP is inappropriate. No, it is appropriate. I'm -- what I was talking to is that they were seeking to vastly exceed that.

Q. Right.

A. Right.

Q. And in that question and answer right there starting on line 16, you reference a document I think in support of the statement regarding the LOLP?

A. Yes.

Q. And who was the document developed by?

A. I'm sorry. Say again.

Q. Who is the document developed by?

A. I cited it here on line 19, a NARUC -- I'm sorry. It was co-written -- well, to be complete, it was a product written by a consulting firm for the

Eastern Interconnection States Planning Council and NARUC.

Q. And I think is says on line 18 who that consulting firm is?

A. Astrape.

Q. Astrape?

A. I don't know.

Q. You don't know?

A. Don't know.

Q. Okay. Would it surprise you to know that Astrape Consulting is in Mr. Carden's firm?

A. That's great. Good. Should have done more of that work.

Q. All right. Mr. Rabago, let me get you to turn to page 11.

A. Which page?

Q. Eleven.

A. Eleven. I'm there now.

Q. Okay. In all fairness, there's a question on the prior page.

A. Oh, okay.

Q. And in response to that question, you say that the company's application is characterized by

results-oriented arguments. It uses the reserve margin criteria as a vehicle for justifying a power plant building campaign. Did I read that correctly?

A. Yes.

Q. So to cut to the chase, did the Florida Public Service Commission accept your positions and that of Eco Southwest Florida?

A. No. The Florida Public Service Commission voted with FPL.

Q. They did? And let me ask you this. That was in the 2015 time frame?

A. Okay. I don't remember the exact date but, yes.

Q. Subject to check?

A. Yeah. Document 16.

Q. Do you have an understanding of whether Florida Power & Light returned to the Florida Public Service Commission approximately three years later?

A. I'm sorry. They what?

Q. Do you have an understanding of whether Florida Power & Light returned to the Public Service Commission of Florida about three years later with another request for new gas-fired generation?

A. I don't know. I don't know what they have done since that time.

Q. So you're not familiar with the Dania Beach facility?

A. I am not. I have not tracked it.

Q. So you have no reason to know one way or the other whether a second unit has been certificated by the Florida Public Service Commission?

A. I don't know.

Q. Okay. And all that is publicly available information out there.

A. Okay.

Q. All right. And lastly, do you have an awareness whether to what extent the Florida Public Service Commission in addition to Okeechobee and in addition to Dania Beach, subject to check, has also authorized Florida Power & Light to pursue a battery storage facility?

A. I do believe -- I heard something about a large battery project in Florida.

Q. Okay. So not aware of the gas-fired facility at Dania Beach but you are aware of the battery storage facility?

A. You know, Florida Power & Light adding another gas plant is not unusual but Florida Power & Light doing solar or large storage, that's unusual so that's probably why it stuck in my head.

Q. And would it surprise you, Mr. Rabago, that the combined megawatt addition of Okeechobee and Dania Beach is approximately 2800 megawatts?

A. No. I don't have any basis to be surprised or not surprised but --

MR. GROVER: Thank you, Mr. Rabago. That's all I have.

ALJ GARNER: Redirect.

MR. JOHNSTON: Got a few, Your Honor.

REDIRECT EXAMINATION

BY MR. JOHNSTON:

Q. At the beginning of Mr. Grover's cross-examination, he called you a clean energy advocate. Could you describe some of the work you've done in utility planning and the work you've done as a commissioner?

A. Sure. I guess my first experience was as a commissioner reviewing utility proposals, you know, applications. In Texas in those days, we had

notice of intent proceedings and then certificate of need proceedings as well as of course prudence, you know, in rate cases to follow.

After I left the commission, I did work at the federal government level as a deputy assistant secretary on the implementation of 1995 EPAC Energy Policy Act which included program work to help utilities and regulatory commissions do integrated -- implement integrated resource planning. We sponsored research and government studies and things like that that would help them do that.

Also as a utility executive much later at Austin Energy, I participated as part of the executive team and doing resource planning efforts, integrated resource plans, if you will. Like I say, I was part of the team and also through my role as being responsible for meeting certain of the objectives like delivering on the energy efficiency and the distributed renewables and helping advise on the large scale renewable contract procurements.

I have acted as an expert witness for the Virginia office of SELC on a number of dominion IRPs over the course of five or six years watching

that. So I've seen it from a lot of different places.

Q. And Mr. Grover just went through your experience down in Florida with FL&P, correct?

A. With what?

Q. With your experience in Florida in that --

A. FP&L.

Q. FP&L. Sorry.

A. Yes.

Q. And have you ever been involved in planning for natural gas plants?

A. I'm not recalling specifically. I know that new gas was on the table when we did the resource planning while I was at Austin Energy. It was something we considered but we didn't have to do it because we had been very successful with energy efficiency.

I know that -- I believe that some of the -- when I was at AES Corporation, we worked in 27 different countries on regulatory affairs and I have a recollection that one or two cases in one or two countries involved power plant approvals and construction and things but I can't remember any

specifics.

Q. Mr. Grover had directed your attention to one page of the Nexen study.

A. Yes.

Q. And he was discussing energy efficiency. He had you read the energy efficiency program piece there. Is that correct?

A. Yeah. This was the rate impact page?

ALJ GARNER: Alabama Power 53 for the record.

Q. The rate impact page. That's correct. And talking about energy efficiency. What's your understanding of energy efficiency programs at Alabama Power and how those rank with other utilities around the country?

A. Alabama Power does pretty poorly on energy efficiency. I cited it in my testimony as one of the factors that's contributing to this winter peak, that more could be done. I will also say on this particular paragraph, this is kind of like a disclaimer paragraph.

You know, I've commissioned technical potential and economic potential studies from

consultants like Nexen before and they always put in sort of, you know, actual mileage might vary kind of claims because they don't want a litigious utility to come after them and say you promised 50 megawatts in this program and we only got 49.

So what they're doing here is pointing out that it's an uncertain world we live in and that things can change and maybe you won't realize 50 megawatts. Maybe you only realize 49.

So the real question that comes up when looking at something like this is the relative risk of performance and the ability -- a term that was used earlier, the flexibility inherit in energy efficiency. And having run energy efficiency programs where I had executive responsibility for delivering megawatts every single year, I can tell you that you know what could drive things crazy. You look at it constantly but energy efficiency is a lot easier to adjust for than power plant construction.

MR. JOHNSTON: Your Honor, from the same study, I would like to discuss another page from that same study that Mr. Grover just pulled a page out of but he said the rest was marked confidential. I

would rather not clear the room to have Mr. Rabago review this page and provide his opinion on it but may I approach Mr. Grover and see if he will drop the confidentiality?

MR. GROVER: Well, before I even consider that, I feel like based on Mr. Rabago's answer there that we've strayed beyond redirect.

MR. JOHNSTON: I think we're still within redirect. He asked a question about the Nexen study and --

MR. GROVER: My specific question --

ALJ GARNER: Wasn't it a specific question though? I mean --

MR. JOHNSTON: It does relate to this specific question.

ALJ GARNER: Let me see what you've got. Talk to Mr. Grover first about the confidentiality and let me see what you've got.

MR. JOHNSTON: I only have one page here, Your Honor, but I would like to --

ALJ GARNER: Do I understand you don't object?

MR. GROVER: I do not object to it nor do

I object to the confidentiality. I will waive it on that document. I do want it admitted though as an exhibit.

ALJ GARNER: All right.

MR. GROVER: Thank you, Your Honor.

Q. Mr. Rabago, I'm going to have you read the first couple of lines from the conclusions there of that same Nexen report.

ALJ GARNER: That will be marked as Alabama Energy & GASP 62.

A. So you would like me to read this out loud?

Q. Yes.

A. Okay. This is page 19 of the study. It is section 1.4. It's titled conclusions. It says a potential for increased energy efficiency exists in Alabama where the economy could benefit from effects associated with reduced energy consumption. Participating customers could specifically benefit from any financial incentives that might be offered by programs intended to accelerate markets for the purchase and installation of high efficiency measures. It continues.

Q. Okay. That's it.

MR. JOHNSTON: Your Honor, if you would give me one second to confer with my colleagues.

ALJ GARNER: Can I get that sheet?

MR. JOHNSTON: Mr. Rabago, could you give --

ALJ GARNER: Can you hand that over your shoulder? We are informal here.

MR. JOHNSTON: No further redirect, Your Honor.

MS. CSANK: Your Honor, if I may just for the record, since there was questioning -- this witness was asked questions about a Florida docket. There was a companion docket in which that company, Florida Power & Light, sought and was granted an exemption from Florida's bid rule. That's a public record and Sierra Club would seek official recognition of that final order from the state of Florida.

I can -- I don't have a hard copy because I didn't anticipate this line but I think the record would benefit from that reference and again it's a government record.

MR. GROVER: Your Honor, my general

understanding is that you all, the commission, your staff can take notice of government records so I don't think there is a requirement one way or the other needing -- or any sort of special dispensation for Ms. Csank's request.

ALJ GARNER: I can take judicial notice of that.

MS. CSANK: If you would like, Your Honor, I can give you the docket number right now.

ALJ GARNER: Please do.

MS. CSANK: It's Docket 2017-0225-EI and I don't have the final order number but I can provide that.

ALJ GARNER: If you will provide that post hearing just so we have the correct reference, I can take judicial notice.

MS. CSANK: Yes, Your Honor, gladly.

ALJ GARNER: If there's nothing further of Mr. Rabago, you are excused. Thank you for your testimony. His prefiled testimony and exhibits are admitted and I believe we have Alabama Power 53 through 55. Any objection to the admission of those?

MR. JOHNSTON: We would move to have all

those exhibits admitted.

ALJ GARNER: Okay. Then they are admitted. And then we also have four -- the exhibit that was just marked, 62, the excerpt from the Nexen study.

MR. JOHNSTON: Yes, sir, we'd have that moved to be admitted.

MR. GROVER: No objection. Thank you.

ALJ GARNER: All right. And I need to get the document that I need to mark as Alabama Power 54. It is the position statement in the Florida case.

MR. GROVER: Yes. Thank you.

ALJ GARNER: I don't have a copy of that one.

MR. GROVER: You didn't run off with it, did you, Mr. Rabago?

MR. RABAGO: I think I left all my --

MR. GROVER: You did. Thank you. Here you go.

ALJ GARNER: This is 54?

MR. GROVER: Yes, sir.

ALJ GARNER: Be with you in just a minute, sir. Housekeeping here. You are Mr. Howat?

THE WITNESS: Yes, sir.

MR. EBERSBACH: We call Mr. John Howat.

JOHN HOWAT,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. EBERSBACH:

Q. Mr. Howat, if you would state your name and full business address for the record.

A. Sure. My name is John Howat. I am senior policy analyst at National Consumer Law Center, 7 Winthrop Square in Boston, Massachusetts.

Q. And by whom are you employed, sir?

A. National Consumer Law Center.

Q. If you would just make sure you speak into the mic.

ALJ GARNER: Yes. Please do, sir. It's late in the day.

Q. And you are here to testify on behalf of GASP & Energy Alabama?

A. That's correct.

Q. Did you cause -- did you prepare and cause to be prefiled in this docket public and redacted

testimony of 28 pages of direct testimony?

A. Yes, I did.

Q. Did you also cause to be prefiled along with that testimony seven exhibits marked Exhibit JH 1 through 7?

A. Yes.

Q. Do you have any changes to your prefiled direct testimony or exhibits at this time?

A. No, I don't.

Q. If I were to ask you the same questions that appear in your prefiled testimony under oath, would your answers be the same?

A. They would.

MR. EBERSBACH: Your Honor, we'd move to have Mr. Howat's testimony entered into the record.

ALJ GARNER: Mr. Howat's prefiled testimony and exhibits will be admitted subject to cross-examination.

Q. Did you prepare a summary of your testimony, sir?

A. I did.

Q. Would you please read it?

A. Sure. Good afternoon, Commissioners,

Your Honor. My name is John Howat. I'm senior policy analyst at National Consumer Law Center. That's a nonprofit organization that seeks to advance economic security for low income families.

Over the past 20 years at NCLC, I've managed regulatory, legislative, and advocacy projects across the country in support of low income consumers affordable access to utility services.

In this case, I found that while residential electricity prices in Alabama are close to the national average, usage expenditures and home electricity burdens are among the highest in the nation. High home electricity burdens in Alabama are driven not only by high expenditure levels but also by the prevalence of low household income and high poverty rates. In Alabama, households living at a hundred and fifty percent of the federal poverty level carries an electricity burden of nearly three times the national average.

In order to enhance affordability of electricity and the home energy security of low income Alabama customers, I recommend increasing energy efficiency offerings directly to these households and

systemwide. I wish to thank the commission for this opportunity to appear here today.

MR. EBERSBACH: Thank you, sir. The witness is now available for cross-examination.

ALJ GARNER: Cross from any other intervenors? Seeing none. Mr. McCrary.

CROSS-EXAMINATION

BY MR. MCCRARY:

Q. Good evening, Mr. Howat. How are you?

A. Good late afternoon to you, sir.

Q. When you compare data, would you agree with me it's important to do so on a consistent basis?

A. Yes.

Q. Could you give me a -- you understand the difference between median and average, do you not?

A. Median is one of generally three averages that people use to describe data. The median average is the midpoint in a series of data whereas the mean average -- when people just say average, they often refer to the mean average, which is the sum divided by the number of records.

Q. Very good. And since those two values are not the same -- I guess they could be but it would

be luck maybe. Since they are generally not the same, it would be inappropriate to mix those two values when comparing data. Would you agree with that?

A. Give me an example, please.

Q. I'm just trying to establish a principle.

A. Well, if you're using the median to describe one dynamic and the mean to describe the same dynamic and it's the same data set, yes, I would question that.

Q. On page eight of your testimony, you say that the average 2018 residential electricity price in Alabama was 12.18 cents per kilowatt hour, correct?

A. Yes.

Q. And you say then that that average statewide price is very close to the national median?

A. Right. And I suppose you could use the median or the mean and come up with the same conclusion.

Q. All right. Did you calculate the national average so that it would be reflective of the same number that you had for Alabama?

A. I'm sorry. Can you repeat that?

Q. Sure. What's the national average price

as opposed to the national median price?

A. Trying to go look at the data set I relied on here.

Q. And are you looking at Exhibit JH 2?

A. I am.

Q. Column -- well, the thing that says 2018 residential price per kilowatt hour?

A. Residential price. Yes.

Q. So if I wanted the national average as opposed to the national mean, I would have to add that column and then divide it by --

A. The number of records. That's correct.

Q. Would you accept, subject to check, that the national average is 13.63 cents?

A. Yes.

Q. So whereas you say Alabama's average electricity price is very close to the national median, if you compare it to the national average, the 13.63 cents, then would you accept, subject to check, that Alabama is approximately 11 percent below that national average?

A. If you want to use the mean average, subject to check, sure.

Q. Okay.

A. The point is that Alabama is sort of within the pack. It's within the middle on prices but not with respect to expenditures and usage.

Q. Yes, sir. In fact, you characterize Alabama's price as relatively modest?

A. That's correct. And I would -- you know, I would continue -- whether you use a mean or a median average in looking at both the Alabama price and the national price, I would -- I think that that holds. In Alabama, you're pretty much in the middle of the pack with respect to the per kilowatt hour residential price.

Q. And just for fun because some other witnesses in this case have liked talking about Colorado, we can look on your charts here and see that Alabama price of 12.18 cents is very close to the price indicated for Colorado, 12.15 cents, correct?

A. That's correct.

Q. But the usage in Alabama is considerably larger than the usage in Colorado, right?

A. It certainly is.

Q. In fact, if you're looking at usage, if I

were to pick out the top usage states, I'm seeing Alabama, Kentucky is 46, Louisiana is 50, Mississippi is 49, Tennessee is 51, Texas is 47. There's sort of a pattern of southern states there, is there not?

A. There is indeed.

Q. Do you think that might have anything to do with our hot humid climate?

A. It certainly has a lot to do with your hot humid climate and that's exactly what led me to the conclusion that in order to bring that usage level and therefore expenditure level and home energy or electricity burden level down that increased energy efficiency in low income homes would accomplish exactly that.

Q. But there are other contributors to usage in Alabama, are there not?

A. Other contributors to --

Q. To electricity usage besides the climate.

A. Other than heat and climate?

Q. Yes.

A. Sure. The energy efficiency of the equipment that's being used, the state of the building stock. There are a range of contributing factors,

some of which I think are within the control of the company and subject to policy and investment decisions that can improve that high usage and high burden level.

Q. You're aware having -- well, I don't know how long you've been here during this proceeding but have you been here in this proceeding and heard that Alabama Power is a winter peaking utility?

A. I have -- my work in this case hasn't focused as much on -- I'm looking at the dual peaking nature, the seasonal peaking nature. I haven't looked as much at reliability aspects of this case. I've looked more at expenditures among some of your most vulnerable and lowest income customers and the ways that some of those customers might benefit and see their energy insecurity, really, situations improved.

Q. Yes, sir. Are you aware that Alabama Power is a winter peaking utility and that one of the reasons for that is a high penetration of heat pumps among our customers?

A. I haven't -- I haven't examined that -- that usage.

Q. All right. You would have no reason to

dispute that, would you?

A. No.

Q. Customers have choices when they elect what kind of home heating to use, do they not?

A. I think that's complicated. It depends on whether you're a renter or a homeowner. It depends on the extent to which natural gas lines are available or not. So they're really -- I think there's more than a matter of customer choice involved with the answer to your question.

Q. All right. But to the extent a customer has electric heat for the wintertime, then they are obviously not consuming other fuels for heat, are they?

A. If there's some sort of propane tank or propane auxiliary that's available, it's possible but I think in general you're right. If a customer has electric resistance heat in the home and there's no other source, then sure. They use electricity for both heating and other end uses including lighting, running appliances.

Q. So you say in your testimony that the reason why the electric bills are high is not because of the price because the price is modest. It's because of

the level of usage, correct?

A. I would -- yes, that's true and the high level of usage as we've been discussing is attributable to a number of different factors.

Q. And then on page nine, you do some calculations about what you characterize as average electricity burden and you do it in the context of homes with an annual income of seventy-five thousand dollars and then a household at a hundred and fifty percent of the federal poverty level and then a household at seventy-five percent of the federal poverty level, correct?

A. That's correct.

Q. And so you calculate an average electricity burden for the seventy-five thousand dollar income home of 2.4 percent, right?

A. Yeah, and for clarification, I used the words average and median interchangeably here. Going back to our discussion earlier, I consider median to be an average. Some people look at that term as just referring to a mean, but as used in this context, these are all median calculations of energy burden -- of electricity burden. Beg your pardon.

Q. Previously when we were talking about it, did you consider median and mean to be interchangeable?

A. No, not at all. I used the median because of the number of outliers and the level of outliers when looking at usage and expenditures and I think using a median under those circumstances is a more appropriate approach.

Q. So you calculate a 2.4 percent burden you say on line three and then you say that a household living at a hundred and fifty percent of the federal poverty level carries a burden of 7.3 percent, three times higher than the 2.4 percent, right?

A. That's correct.

Q. And then you do a further calculation for households at seventy-five percent of the federal poverty level and you say that's six times higher?

A. That's correct.

Q. Is that a unique burden relationship for Alabama?

A. Burden relationship? No. The electricity burden is a calculation of the proportion of household income devoted to electricity, home electricity service, and so if income -- if we're

talking about the same size household -- use as an example a two person household, income at a hundred fifty percent of the poverty level is twice that at seventy-five so doubling the burden level, assuming the expenditure level holds and stays the same, that follows and that's not unique to Alabama.

Q. Right. So I could take any of these percentages that you have in the far right side of your Exhibit 2 and do the divisions between the seventy-five thousand and the hundred and fifty percent and the seventy-five percent as described for any state in the nation and I would get the same three times relationship and six times relationship you've laid out here for Alabama?

A. That's very true but the difference between Alabama and the other -- and most of the other states reflected in that table is that the baseline for Alabama, that electricity burden level whether it's seventy-five percent of poverty or a hundred and fifty is very, very high and it's within the realm of programs and policies to try and reduce that high burden level and bring it closer into line with other states reflected on the chart.

Q. You have a definition of home energy security on page ten of your testimony, do you not?

A. It appears that I do.

Q. All right. Would you consider reliability to be a component of home energy security?

A. Yes, I would. The definition here is uninterrupted access to necessary service. That's a component of it and I would agree with you that reliable service fits in with that definition.

Q. In the next Q and A on that same page, you talk about -- the question is what are some of the consequences of high electricity burdens and unaffordable utility bills. Do you see that?

A. I do.

Q. So when you say utility bills, I mean utilities, that covers a wide range of services, does it not?

A. Sure.

Q. I mean there are electricity utilities, there's gas, there's water, there's sewer, there's telephone. All of those are utilities?

A. Sure.

Q. So is that what you're referring to here

in this question?

A. I am referring primarily to electric utility bills in the context of the answer to this question. This refers to the consequences of high electricity burdens.

Q. Right. And then in the answer, you say the consequences of high home energy burdens. So now we're back talking about energy. We were talking about electricity. Then we start talking utilities and now we're talking about energy. There are other forms of energy, are there not?

A. Of course.

Q. And do you try to capture energy burdens in any of your calculations here or are you limiting yourself to electricity?

A. This is an electric utility case. I'm talking about electricity burdens in this testimony and proposing programs specific to this electric utility in order to lower those energy burdens among some of the most vulnerable of your residential customers.

Q. Then later in that answer, you refer to the residential energy consumption survey, do you not?

A. I do.

Q. And that's an east, south, central census division?

A. You can sort the direct data by census divisions, census regions. Depending on the vintage of the survey, you can even get more granular than that.

Q. Okay. But what you have presented here is calculations based on the east, south, central census division. Is that right?

A. That's correct. From the 2015 residential energy consumption survey results.

Q. Sure. Comprising it looks like in footnote 13 of Kentucky, Tennessee, Mississippi and Alabama?

A. Right.

Q. So when you have the calculation 10.6 percent of households that reported a service disconnection notice, how many of those are in Alabama?

A. I can't answer that.

Q. And do you know whether data reflects notices for all utility suppliers or all energy suppliers or only electricity suppliers?

A. Subject to check, this is electric service suppliers, electric distribution companies. I would have to look again at the wording of the question on the survey but my recollection at this point is that that's electric services providers.

Q. Backing up to page nine, line eight, you make a reference to a national median home electricity burden?

A. Yes.

Q. Where does that come from?

A. That's a calculation using residential energy consumption survey variables. The nature of the calculation is -- assuming that's your question.

Q. Sure.

A. But you can get a total electricity expenditure that's one of the variables in the recs. In the 2015 survey, there are household income brackets and the way I calculated this burden number is to take the midpoint of those income brackets as the component of the ratio of expenditure to income and then you take number of households and go from there.

Q. So this is a calculation that you did

somewhere and you just provided the results here?

A. I created the burden variable. It's a calculated variable using existing recs variables. Happy to provide that documentation if that's of interest.

Q. On page 13 of your testimony, you make reference to the EIA Form 61?

A. Yes.

Q. And this you indicate are the 51 electric utilities in Alabama. This is data from the 51 electric utilities in Alabama?

A. That's correct.

Q. And on lines 6 and 7, you say you found that in 2018 Alabama Power reported an average price of twelve dollars and eighty-one cents which is about 11.5 percent higher than the statewide median price of eleven dollars and forty-nine cents, right?

A. That's correct.

Q. So is that median a real median or is that a median that's really an average?

A. The median is correct but the Form 861 provides -- this is their terminology -- average price in cents per kilowatt hour in the exhibit I provided

along with that but again I used the median in order to create this ranking.

Q. Would you accept, subject to check, that the average is really 11.66 cents?

A. Sure. I would accept that. Is that a weighted average or is that just a straight average because I think it's very important to weight this given the high number of customers Alabama Power serves in which case I'd like to -- you know, I would, you know, want to back up a little bit if I may. I accept that the unweighted mean average is what you said it was.

Q. Yes, sir.

A. But I would suggest that's an inappropriate -- an inappropriate measure here in light of the fact that Alabama Power serves, I believe, a majority of the residential customers in the state.

Q. Looking back on page 8, you indicate that the average residential price in Alabama is 12.18 cents, correct?

A. Where are you? I'm sorry.

Q. Line 13.

A. Okay. Thank you. Yes.

Q. But yet the average of these 51 utilities gets you 11.66 cents. How come those numbers are not the same?

A. So you're going back to 11.66 being the mean average of the -- of all the prices you see listed in this exhibit?

Q. Yes, sir.

A. Again I don't think that's an appropriate measure to use a mean average without weighting it but -- so you're saying 12.18 is different than -- you say 11.66.

Q. Well, 12.18 you indicate on page 8 is the average 2018 residential electricity price in Alabama, do you not?

A. 12.18.

Q. That's on line 13 of your page 8.

A. Oh, my. As we're going through this, I see the need for a correction in my testimony. On the table that I provided as an exhibit, the average Alabama price as reported in Form 861 is 12.81 cents per kilowatt hour, and in testimony on page 8 here, what I wrote down dyslexically perhaps was 12.18 cents

per kilowatt hour.

Q. So are you saying the line 13 should be 12.81 instead of 12.18?

A. Yes.

MR. MCCRARY: Just a moment, Your Honor.

Q. Mr. Howat, let me ask you -- the number that you just changed on line 13, is that an Alabama Power price or is that a state of Alabama price?

A. That -- according to the information Alabama Power provided, the energy information administration is the average residential price of electricity for 2018.

Q. Yes, sir, but my question is, is that the in the state of Alabama or is that for Alabama Power?

A. Alabama Power and that's the number I used to come up with the rankings you see reflected in testimony, the in-state rankings.

Q. Well, does the value shown on your Exhibit JH-2 -- is that an Alabama Power? It says state. It doesn't say Alabama Power.

A. JH-2 is a different exhibit.

Q. Right.

A. That is an exhibit reflecting each of the states, the state residential prices and expenditures.

Q. Right. That's the exhibit you are referring to on page 8, line 13, is it not?

A. No. I'm referring to Form 861 data provided by Alabama utilities.

Q. If it was provided by Alabama utilities, it would be statewide, would it not?

A. What is this exhibit number, please, so I can refer to it?

ALJ GARNER: Do you need your prefiled to refresh your memory? Is that what you're looking for?

MR. EBERSBACH: Looking for the exhibit.

ALJ GARNER: I've got it here. Yeah.

THE WITNESS: Thank you.

ALJ GARNER: That's your prefiled.

ALJ GARNER: JH-2, correct.

MS. TIDWELL: I think he has a copy.

ALJ GARNER: And for the record, that will be Energy Alabama GASP 64.

A. The exhibit is JH-7 where you see that table. That JH-7 lists each of the Alabama instate utilities, that file Form 861.

Q. Okay. But over on page 8, you're talking about average electricity price in Alabama and you refer to a ranking of 25 among U.S. states. Is that not a reference to JH-2?

A. That's a reference to JH-2.

Q. All right.

A. Both are based on Form 861 filings. One is simply the Alabama utilities. JH-7 and JH-2 reflects a compilation by the energy information administration of all the filings from around the country sorted by state.

Q. So why on line 13 would you include an Alabama Power specific price and connected that with a statewide ranking among other states and the District of Columbia?

A. What line are you referring to?

Q. Line 13, the one that you changed a moment ago. I submit you had it right the first time.

A. On page 13, that's not where I'm making a change.

Q. A moment ago, I believe you changed the number on page 8?

A. Yes. Page 8, that number was 12 point -- should be 12.81 rather than 18 but now you have me on page 13 so --

Q. Let's go back to page 8.

A. All right.

Q. Line 13. That whole answer is referring to JH-2, is it not?

A. Yes.

Q. And what's the average 2018 residential electricity price in Alabama shown on JH-2?

A. 12.18.

Q. Which is what you had a moment ago before you changed it?

A. That's correct.

Q. Can we agree that the value on line 13, page 8 was correct as it was originally presented as 12.18?

A. Yes, and I apologize for the confusion. The Alabama Power price is 12.81.

Q. It's not helpful the numbers are so close, is it?

A. Yes. It's not. And again it's late. I apologize for the confusion.

Q. Comparing -- well, withdraw that. The entities shown on JH-7, Alabama Power is the only investor-owned utility shown there, is it not?

A. That's correct.

Q. And there are differences in the cost of service that an investor-owned utility would have as opposed to governmental entities. Isn't that true?

A. Well, you have to pay shareholders. There are structural differences between cooperatively-owned and municipally-owned utilities versus an investor-owned but the fact is the prices fall out where they do with Alabama Power higher than the statewide median.

Q. Right. But some of the governmental entities, for example, may not have to pay taxes that would affect their price, would it not?

A. You know, I can't really speak to the taxation differences between cooperatives, municipalities and IOUs.

Q. So you don't know?

A. I'd have to take a closer look at it to

comment on it.

Q. All right. Similarly they may have the ability to issue tax-free bonds?

A. Sure.

Q. And they may be organized in such a way that they offer multi-utility services and there may be some cross subsidization between or among the departments --

A. I can't speak to that. I imagine that's a case-by-case basis with respect to those.

Q. -- your recommendation that Alabama Power make an annual investment in energy efficiency equal 2.7 percent revenue in sales, what does that turn into in terms of an annual expense amount?

A. Subject to check, it would be over a hundred million dollars.

Q. Would you accept, subject to check, it's more like a hundred and fifty million dollars?

A. Okay. I will accept that.

Q. And that would be an annual expenditure under your proposal, correct?

A. Right, which would bring Alabama Power into an expenditure level consistent with many of the

large investor-owned utilities in the nation. You would not be a unique outlier were you to invest to that level or that proportion of your revenues into energy efficiency.

Q. Are you aware of the cost effectiveness measures employed in Alabama with respect to energy efficiency in demand side management programs?

A. Somewhat. My understanding is there's a heavy reliance on the REM test or sometimes called the no losers test in Alabama.

MR. MCCRARY: No further questions, Your Honor.

ALJ GARNER: All right. Redirect.

MR. EBERSBACH: Yes, Your Honor. Just a few.

REDIRECT EXAMINATION

BY MR. EBERSBACH:

Q. Mr. Howat, there was a lot of discussion a moment ago -- most of the discussion I think was about -- most of the discussion was about the price of electricity, Alabama Power versus statewide median versus mean. Do you recall that discussion generally?

A. I certainly do.

Q. Is your testimony a critique of the price of electricity in the Alabama Power service territory?

A. No, it's not.

Q. Or were you more concerned about the lack of energy efficiency and its availability to manage energy burden?

A. Yes. And the purpose of my testimony was to highlight the high home energy burdens among low income Alabamians and to suggest that energy efficiency is a solution, help rectify that situation.

Q. And there was also a discussion about the issue of high electric usage in Alabama and Mr. McCrary asked you about contributors to that factor. Do you recall that?

A. Yes.

Q. And he also noted that Alabama Power is winter peak, correct?

A. Yes, he noted that and I noted that I wasn't -- I hadn't studied that issue personally.

Q. He asked you about the high penetration of heat pumps, for example, in the Alabama Power service territory?

A. Yes.

Q. Would incentives offered by the utility for the adoption of things like heat pumps, would that also be a contributor to high usage particularly in winter?

A. Depending on how, you know, how the incentives were structured and response and so forth, it certainly could contribute to increased winter peak.

Q. Would a declining block rate also be such a contributor?

A. Yes.

Q. You were also asked about electricity burden or energy -- well, let's say electricity burden in other areas of the country. Do you recall that?

A. Yes.

Q. Does the fact that energy burden exists elsewhere make it any less of an issue in Alabama?

A. No.

Q. You were also asked about the reference in your testimony to home security. I believe Mr. McCrary asked you if reliability was a component of that?

A. Yes.

Q. And you agreed that it was?
A. Yes.
Q. In your view, should measures taken to ensure reliability nevertheless be the lowest cost of the options available?
A. Absolutely.
MR. EBERSBACH: Your Honor, I think that's all I have. We would just move for admission of the exhibits attached to Mr. Howat's testimony which I think would be Energy Alabama GASP 63 through 70.
ALJ GARNER: You're spot on.
MR. EBERSBACH: Thank you, sir.
ALJ GARNER: Actually I think it's 69.
MR. EBERSBACH: Right.
ALJ GARNER: 63 through 69. His prefiled testimony and prefiled exhibits are admitted. Thank you, Mr. Howat. You are excused. Thank you for your testimony. By my estimation, this concludes all the prefiled testimony.
MR. GROVER: Yes, Your Honor.
ALJ GARNER: All right. I am not inclined to have closing statements given the lateness

of the hour. At one point in time, I think we had built into the schedule post-hearing briefs.

MR. GROVER: Yes, Your Honor.

ALJ GARNER: Is there a desire for submission of post-hearing briefs?

MR. HILL: Yes.

MR. DILLARD: We have been confused because a later order didn't include all of that and we would like some clarification if we may.

ALJ GARNER: It's because the schedule got moved around and didn't see how that shook out.

MR. DILLARD: We are part of that, too. We understand.

ALJ GARNER: Right, right, right. The original schedule had a definitive time frame for post-hearing briefs. So because of the movement though, it was left open-ended so we're going to close that loop. The transcript won't be ready for I think ten business days is the contract and we didn't expedite because of the cost and all. This transcript is going to be voluminous.

Just looking at the dates, I would throw out April 17th and I would probably prefer, unless the

parties have a different perspective, that the briefs be submitted in the form of proposed orders. That would be preferable to the commission. That's more helpful to the staff in particular.

MR. MCCRARY: Yes, sir. I believe -- if I'm remembering correctly, I believe that was the way you described it in your original scheduling order.

ALJ GARNER: I can't remember exactly how it was laid out but it probably was because that's always the preference and that's the most helpful. So any objection or any comments to that, briefs in the form of proposed orders?

MR. HILL: No objection.

All right. I know I threw out the 17th of April is the date for those to be submitted to the commission.

MR. GROVER: No objection here, Your Honor.

ALJ GARNER: No objections. Okay. All right. And we would welcome post-hearing briefs in the form of proposed orders to be filed with the commission no later than April 17, 2020.

MR. MCCRARY: Yes, sir.

MR. GROVER: Thank you, Your Honor.

ALJ GARNER: Anything else we need to address before we close out? I would note that, Mr. Hill, I think you are going to get some clarification on the AIEC and, Manufacture Alabama, you still want to provide some clarification on that post hearing or are we set with what you established on the record today?

MR. HILL: I will be glad to provide that if you would like it, Judge. I feel confident that all the members listed support our position. If you would like me to demonstrate that, I will.

ALJ GARNER: I don't need any other papers so, you know, if you're not inclined to, I'm good leaving it where it is.

MR. HILL: Okay.

ALJ GARNER: All right. And Sierra Club is going to get me clarification on the Florida order that you wanted me to take judicial notice of.

MS. CSANK: Do you have any direction how would you like me to --

ALJ GARNER: By letter and copy all the parties. That should do it. All right. Anything else

we need to address before we close out? Let me express my appreciation to the parties for working around the confidential information. That was very helpful. We only had to clear the hearing room a couple of times so thank you for your professionalism and working around that and I thought everybody did a very good job of presenting their cases.

So thank you for your participation. A lot of hard work has gone into it and we have a lot of hard work to do. So if there's nothing further to be added, the matter will be taken under advisement and that will conclude the hearing. Thank you all.

(Whereupon, the proceedings concluded at 6:05 p.m.)

END OF PROCEEDINGS

C E R T I F I C A T E

STATE OF ALABAMA)
MOBILE COUNTY)

I hereby certify that the above proceedings were taken down by me and transcribed by me and that the above is a true and correct transcript of the said proceedings given by said witness.

I further certify that I am neither of counsel nor of kin to the parties nor in anywise financially interested in the outcome of this case.

JAN A. MANN
COMMISSIONER - NOTARY PUBLIC
ACCR NO. 321

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