

BEFORE THE OHIO POWER SITING BOARD

In the Matter of the :
Application of American :
Municipal Power - Ohio, :
Inc. for a Certificate :
of Environmental : Case No. 06-1358-EL-BGN
Compatibility and Public :
Need for an Electric :
Generation Station and :
Related Facilities in :
Meigs County, Ohio. :

PROCEEDINGS

before Mr. Gregory A. Price and Ms. Kimberly W.
Bojko, Hearing Examiners, at the Public Utilities
Commission of Ohio, 180 East Broad Street, Room
Columbus, Ohio, Columbus, Ohio, called at 9:00 a.m.
on Wednesday, December 19, 2007.

VOLUME V

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1 Wednesday Morning Session,
2 December 19, 2007.

3 - - -

4 EXAMINER PRICE: Good morning. The Ohio
5 Power Siting Board has set for hearing at this time
6 and this place Case No. 06-1358-EL-BGN, In the Matter
7 of Application of American Municipal Power, Inc. for
8 a Certificate of Environmental Compatibility and
9 Public Need for an Electric Generation Station and
10 Related Facilities in Meigs County, Ohio.

11 I am Gregory Price. With me is Kimberly
12 Bojko. We have been assigned to preside at this
13 hearing, which is day 5.

14 Let's take appearances. The company.

15 MR. BENTINE: On behalf of applicant,
16 American Municipal Power-Ohio, Inc. the law firm of
17 Chester, Willcox & Saxbe, LLP. Our address and
18 information is previously on the record. With me
19 today is April Bott and Nate Orosz, and also make the
20 appearance of Stephen Fitch and Matthew White.

21 EXAMINER PRICE: Intervenors.

22 MR. FISK: Good morning, your Honor. On
23 behalf of the Citizen Groups Shannon Fisk from the
24 Natural Resources Defense Counsel, and also with me

1 today is Anjali Jaiswal.

2 EXAMINER PRICE: Staff.

3 MR. WRIGHT: On behalf of the Ohio Power
4 Siting Board, Ohio Attorney General Marc Dann, John
5 Jones, and William Wright will be joining us later.

6 MS. MALONE: Margaret Malone, and with me
7 is Christina Grasseschi, 30 East Broad Street,
8 Columbus, Ohio.

9 EXAMINER PRICE: Thank you.

10 EXAMINER BOJKO: Before we get started, I
11 believe Ms. Jaiswal has an exhibit.

12 MS. JAISWAL: Your Honor, the Citizen
13 Groups have Exhibit 7A. It's in color and limited to
14 the pages that you requested, and all have received a
15 copy.

16 (EXHIBIT MARKED FOR IDENTIFICATION.)

17 EXAMINER PRICE: Are you moving the
18 admission of 7A?

19 MS. JAISWAL: Yes, thank you.

20 EXAMINER PRICE: Any objections to the
21 admission of Exhibit 7A in lieu of Exhibit 7?

22 (No response.)

23 EXAMINER PRICE: 7A will be admitted.

24 Thank you.

1 (EXHIBIT ADMITTED INTO EVIDENCE.)

2 EXAMINER PRICE: Mr. Bentine.

3 MR. BENTINE: Yes, your Honor, at this
4 time the applicant would call Ivan Clark to the
5 stand.

6 MS. MALONE: May I ask for a
7 clarification? I thought we were going to rule about
8 Citizen Groups' 9, or did I make the note wrong?

9 EXAMINER PRICE: We will defer ruling on
10 Citizen Groups' 9 for a little while. We will
11 probably take it up when we take up the remaining
12 exhibits from Mr. Clark.

13 State your name and business address for
14 the record.

15 THE WITNESS: My name is Ivan Clark. My
16 business address is 1801 California Street, Suite
17 2800, Denver, Colorado, 80202.

18 MR. BENTINE: Your Honor, I would ask the
19 previously distributed Direct Testimony of Ivan Clark
20 be marked as AMP-0 Exhibit No. 4.

21 EXAMINER PRICE: It will be so marked.

22 (EXHIBIT MARKED FOR IDENTIFICATION.)

23 - - -

24

1 IVAN CLARK

2 being first duly sworn, as prescribed by law, was
3 examined and testified as follows:

4 DIRECT EXAMINATION

5 - - -

6 By Mr. Bentine:

7 Q. Mr. Clark, you have before you what now
8 has been marked as the direct testimony of Ivan
9 Clark, AMP-Ohio Exhibit 4.

10 A. Yes.

11 Q. And what is that document, please?

12 A. It is my testimony prepared for this
13 proceeding.

14 Q. Mr. Clark, do you have any additions or
15 corrections to this testimony?

16 A. Yes, I do. If I may clarify, on page 6,
17 question 16, during my deposition we discussed
18 adjustment to this. In the middle of that paragraph
19 in the answer with the sentence that starts with
20 "From a low of," that sentence should be changed to
21 read as follows: "For example, in the region of the
22 project the cost of electricity" --

23 MR. BENTINE: Why don't you start over
24 and read really slowly.

1 A. That sentence begins as follows: "For
2 example, in the region of the project the cost of
3 electricity is 5.5 cents per kilowatt-hour in" --

4 Q. So you're back to the text there.

5 A. Yes. Still in the same --

6 Q. And added the word "cents" after 5.5.

7 A. That's correct. "...in Kentucky" --
8 still in the same -- "where 92 percent comes from
9 coal..." That was that the original -- and I
10 inserted another short segment sentence -- "And West
11 Virginia is" --

12 MS. MALONE: Are we inserting before or
13 after the comma?

14 THE WITNESS: Following the word "coal,"
15 in that phrase.

16 A. And I've added "West Virginia is 5.02
17 cents per kilowatt-hour with 98 percent of generation
18 from coal," -- and then it goes back to the words
19 "...to a high of 20.7 cents."

20 Q. So would you now read from the beginning
21 of that sentence as now edited that used to begin
22 "From a low"?

23 A. Okay. "For example, in the region of the
24 project, the cost of electricity is 5 .5 cents per

1 kilowatt-hour in Kentucky where 92 percent of
2 generation comes from coal, and West Virginia is 5.02
3 cents per kilowatt-hour with 98 percent of generation
4 from coal, to a high of 20.7 cents per kilowatt-hour
5 in Hawaii where only 13 percent of generation comes
6 from coal."

7 Q. Thank you.

8 A. On that same page a minor correction in
9 the last paragraph, which starts with
10 "Exhibit IC-4 states "illustrates the cost of" and
11 delete the word "electricity" and insert "fuel to
12 electric generation," and the parenthesis per "2005
13 MMBtu" stays in, and then delete "as generated," so I
14 will restate what that phrase says. "Exhibit
15 IC-4 illustrates the cost of fuel to electric
16 generation by fuel type."

17 And I have one other minor adjustment is
18 the figure on page 14, it should be figure 1

19 Q. Any further modifications?

20 A. Those are the corrections I have made,
21 yes.

22 MR. BENTINE: Might I inquire, your
23 Honor, if anyone needs those detailed again before we
24 move on?

1 EXAMINER PRICE: Yes, please.

2 MR. BENTINE: Everybody got those?

3 MS. MALONE: Just a question, are the
4 corrected pages that have been submitted separately,
5 like revised IC-8 and the color version of 14 in the
6 testimony marked as AMP-Ohio Exhibit 4 or not?

7 MR. BENTINE: It should be because we
8 corrected those with the filing, so it should have
9 color copies in it.

10 Q. Mr. Clark, with those additions and
11 modifications, if I were to ask you the questions
12 that are contained in your direct testimony marked as
13 AMP-Ohio Exhibit 4 here today while you're under
14 oath, would those answers be true?

15 A. Yes.

16 Q. And would they be to the best of your
17 knowledge and belief accurate?

18 A. Yes.

19 MR. BENTINE: That's all I have on
20 direct. This witness is available for
21 cross-examination.

22 EXAMINER PRICE: Thank you.

23 Mr. Fisk.

24 MR. FISK: Thank you, your Honor.

— — —

CROSS-EXAMINATION

By Mr. Fisk:

Q. Good morning, Mr. Clark.

A. Good morning.

Q. If I could take you to page 6 of your testimony, that first paragraph, you were just discussing the correction to your text.

A. Yes.

Q. With regards to the sentence that you corrected you referred to the states of Kentucky and West Virginia, I believe --

A. Yes.

Q. -- and the cost of power in those states, correct?

A. Yes.

Q. If you could refer to Exhibit IC-1 to your testimony.

A. Yes.

Q. The cost of power in Kentucky is 5.5 cents per kilowatt-hour, correct?

A. Yes.

Q. And the cost of power in Idaho is 4.9 cents per kilowatt-hour, correct?

1 A. Yes.

2 Q. And the percentage of power from coal in
3 the state of Idaho is one percent, correct?

4 A. Yes.

5 Q. Turning briefly to construction cost
6 estimates, R. W. Beck did not do any cost of
7 evaluation of sequestering carbon for the proposed
8 AMPGS, correct?

9 A. No, we did not.

10 Q. And are you aware of the cost of \$20 per
11 ton for the cost of PowerSpan to capture CO2?

12 A. Yes, I am aware of that.

13 Q. R. W. Beck received a verbal estimate
14 from PowerSpan that this cost of capturing carbon
15 using their technology would be \$20 per ton.

16 A. That's correct.

17 Q. And R. W. Beck did not independently
18 evaluate that \$20 per ton cost, correct?

19 A. No, we have not.

20 Q. You are a principal at R. W. Beck.

21 A. Yes.

22 Q. And that makes you a shareholder of R. W.
23 Beck.

24 A. Yes.

1 Q. What is your hourly rate for work on the
2 project?

3 A. \$252 per hour.

4 Q. And R. W. Beck became involved in this
5 project in early 2007; correct?

6 A. Correct.

7 Q. And R. W. Beck's involvement in this
8 project is as owner's engineer.

9 A. Yes.

10 Q. As owner's engineer R. W. Beck prepared
11 the power supply plans for the AMPGS, correct?

12 A. Yes, that's correct.

13 Q. And as owner's engineer R. W. Beck
14 prepared the initial project feasibility study for
15 the AMPGS?

16 A. Yes.

17 Q. And as owner's engineer R. W. Beck
18 prepared the engineering procurement construction
19 contract request for proposals for the AMPGS.

20 A. Yes.

21 Q. And as owner's engineer R. W. Beck will
22 be reviewing the EPC proposes that are received,
23 correct?

24 A. Yes.

1 Q. As owner's engineer R. W. Beck will
2 assist in the project financing technical support for
3 the project.

4 A. Yes.

5 Q. And as owner's engineer R. W. Beck will
6 be participating in the construction monitoring of
7 the project.

8 A. Yes.

9 Q. And as owner's engineer R. W. Beck will
10 be involved in the test and start-up monitoring for
11 the project.

12 A. Yes.

13 Q. As owner's engineer R. W. Beck will be
14 involved in the initial project operation review for
15 the project; is that correct?

16 A. Yes.

17 Q. So R. W. Beck is providing at least eight
18 major services related to the AMPGS, correct?

19 A. Yes.

20 Q. And R. W. Beck has a very large contract
21 with AMP-Ohio for the AMPGS, correct?

22 A. Yes.

23 Q. In fact, R. W. Beck has over a
24 \$15 million contract for the proposed AMPGS?

1 A. The estimated cost for those services
2 that we just highlighted is over \$15 million,
3 two-thirds of which is probably the construction
4 monitoring.

5 Q. How far over \$15 million is the contract?

6 A. I think we originally estimated it in the
7 range of 17 million, but that's a preliminary
8 estimate.

9 Q. And you stated that approximately
10 two-thirds of that amount is for construction
11 monitoring, correct?

12 A. That's correct.

13 Q. And construction monitoring would not
14 occur if this project did not move forward; is that
15 correct?

16 A. That's correct.

17 MR. FISK: I have nothing further.

18 EXAMINER PRICE: Staff.

19 MS. MALONE: Nothing.

20 MR. WRIGHT: Nothing.

21 EXAMINER PRICE: Mr. Bentine?

22 MR. BENTINE: Might I have a moment, your
23 Honor.

24 EXAMINER PRICE: Off the record.

1 (Discussion off record.)

2 EXAMINER PRICE: Mr. Bentine.

3 MR. BENTINE: Yes, your Honor a few
4 questions.

5 - - -

6 REDIRECT EXAMINATION

7 By Mr. Bentine:

8 Q. First of all, Mr. Fisk's questions on the
9 low cost of coal on Exhibit IC-1 in your exhibit, do
10 you recall those questions?

11 A. Yes.

12 Q. The question he asked you with regard to
13 Idaho having one percent for coal, are you generally
14 familiar as to the power supply in the Northwest
15 area?

16 A. Yes. To clarify, the Northwest part of
17 the United States is heavily supported by
18 hydroelectric power, which is a very cheap source of
19 energy, and Idaho is certainly a part of that
20 Northwest area. That's the reason for their low cost
21 power and the low percent of coal capacity.

22 Q. Tell me this. With regard to
23 hydroelectric, are there regional differences in the
24 availability of hydroelectric and other alternatives?

1 A. Yes.

2 Q. And why is that?

3 A. In the Northwest the terrain is
4 supportive of having large dams that have -- and
5 relief, terrain relief in the sense you can dam water
6 and release it with a significant elevation change to
7 allow generation using that head -- an engineering
8 term -- from that. In the Midwest here the relief is
9 significantly less, much flatter; therefore, you
10 don't have the opportunity to generate a large amount
11 of power from hydroelectric. It's more like using
12 the existing rivers and developing hydroelectric
13 along those rivers, usually in a, quote, low head
14 application.

15 Q. Are there other regional differences that
16 might affect the cost of electricity in various
17 states?

18 A. Yes.

19 Q. And what would some of those other things
20 be?

21 A. A number of states have implemented a
22 deregulated market condition. For example, regions
23 have implemented such programs, for example, in
24 California and in the Northeast, both have gone to

1 some type of deregulated market, and as a result
2 power costs are affected by that.

3 Q. Could fuel sources in various regions
4 affect the price of power?

5 A. Certainly. An example, again, if you
6 look at Exhibit IC-1 and review areas such as
7 California, review areas such as Florida, and review
8 areas such as the Northeast part of the United
9 States, those areas heavily depend on natural
10 gas-fired generation for their source of energy, and
11 if you look at that exhibit, you see the higher costs
12 of retail power sales to customers in those regions.

13 EXAMINER BOJKO: Just to clarify your
14 statement, on this chart, the number, the cents per
15 kilowatt-hour, that's average regardless -- it's
16 based on total fuel for total electricity regardless
17 of the fuel source.

18 THE WITNESS: That's correct. It's
19 retail, that's correct.

20 EXAMINER BOJKO: Okay. It's not just
21 looking at the price with the percentage of coal.

22 THE WITNESS: That's correct. That's the
23 average retail price for that state.

24 EXAMINER BOJKO: Thank you.

1 Q. Now, could the average retail price in
2 the state also be influenced by customer application
3 in that state?

4 A. Certainly.

5 Q. We talked about fuel diversity and its
6 effect on price. For example, would the availability
7 of pet coke as biomass or other biomass affect the
8 regional prices of electricity?

9 A. It could, yes, and to the extent they're
10 used in terms of the generation sources in that
11 state.

12 Q. If you know, is biomass an available and
13 reliable and economic fuel to use for baseload needs
14 in Ohio?

15 A. For baseload needs it's going to be very
16 limited because biomass typically the source and
17 quantity available is usually not large. Biomass
18 generation typically you see in the smaller sized
19 projects of less than 50 megawatts, and that's a very
20 large biomass project. More likely biomass would be
21 down in the range of 10 megawatts or less. It's
22 difficult to develop a project that would have a
23 significant impact on baseload needs.

24 MR. FISK: Your Honor, I'd like to move

1 to strike. That's beyond the scope of my question.
2 I didn't ask anything about biomass.

3 EXAMINER PRICE: May I have the question
4 and answer read back.

5 (Record read.)

6 EXAMINER PRICE: We will allow it.

7 Let's not get too far afield,
8 Mr. Bentine.

9 MR. BENTINE: I'm trying to stick to
10 cross.

11 (Discussion held off the record.)

12 Q. (By Mr. Bentine) And, if you know, did
13 AMP-Ohio through its consultant investigate the
14 availability of biomass here in Ohio for a baseload
15 plant?

16 MR. FISK: Your Honor, I object.

17 EXAMINER PRICE: Sustained.

18 Q. Mr. Fisk asked you some questions or at
19 least a question whether or not you made cost
20 estimates on sequestration, and I believe you
21 answered that R. W. Beck did not.

22 A. That's correct.

23 Q. And I also believe he asked you some
24 questions about the \$20 a ton estimate from

1 PowerSpan.

2 A. Yes.

3 Q. Did R. W. Beck review any information
4 with regard to the projected costs of aqueous ammonia
5 use for carbon capture?

6 A. We did to the extent in reviewing the
7 technology, which is a part of the record here and is
8 a part of the initial feasibility report appendices.
9 In reviewing that report, one of the things that we
10 observed there and have commented on to AMP-Ohio is
11 that this technology has the upside benefit of being
12 in position to move forward with carbon capture to
13 the extent legislation has passed, and by reviewing
14 the process, we at least acknowledge and understood
15 that the advantages it would have as compared to
16 other technologies that may be used for conventional
17 pulverized coal technologies that do not have
18 PowerSpan. So from that sense we did observe and
19 review how the PowerSpan process could carry forward
20 with CO2 capture.

21 Considering that, when we heard the
22 number of \$20 per ton for carbon capture, we observed
23 that that sounded in line with what we've seen in
24 other technologies and it would be less costly than

1 conventional amine scrubbing processes that are
2 applicable to PC technology.

3 Q. Did some of the literature indicate the
4 cost per ton of capture for an aqueous ammonia system
5 that were in line with the \$20 a ton?

6 A. That appears to be in the range because
7 the reason we say that, the systems that will be in
8 place at AMP-Ohio for PowerSpan will includes ammonia
9 handling systems that are important and an
10 infrastructure requirement for aqueous ammonia
11 operation of a scrubber.

12 I guess the other comment I should make
13 also is PowerSpan did explain to us the integration
14 concept that they would utilize for the carbon
15 capture, and that was the fact that having ammonia
16 being used in an SO2 scrubbing process, the ammonia
17 solutions and gases can be integrated with the carbon
18 capture, and that's some of the upside benefits of
19 having PowerSpan in as a whole project process there
20 at the plant.

21 Q. Mr. Fisk asked you some questions with
22 regard to R. W. Beck's contract and what it might
23 bring to R. W. Beck in terms of the cost charged. Do
24 you recall that?

1 A. Yes.

2 Q. How long have you been in the business,
3 Mr. Clark?

4 A. Over 35 years.

5 Q. Is anything that you have opined in your
6 testimony or any other work you've done for AMP-Ohio
7 in any way biased by the prospect of being owner's
8 engineer on this?

9 A. No. As an engineer, I'm a professional
10 engineer. The firm R. W. Beck operates, regulates as
11 an independent engineer for many, many projects so in
12 our role it's critically important to make judgments,
13 to provide opinions, and to provide evaluations that
14 are accurate and complete.

15 Q. Did Burns and Roe review R. W. Beck's
16 work on this project at least as far as the
17 feasibility study?

18 A. Yes, they did. And I heard the testimony
19 yesterday that confirmed much of the evaluation we
20 have done in our feasibility report and other
21 evaluations.

22 Q. Prior to the engagement of R. W. Beck on
23 this project, did AMP-Ohio have other engineering
24 firms that reviewed and gave it advice with regard to

1 its project and the costs of the project and the cost
2 of alternatives?

3 A. Yes. My understanding there were a
4 number of other assignments early on in the
5 development of the project that were reviewed with
6 respect to alternatives. One example, I know the
7 Black & Veatch study that looked at the potential for
8 AMP-Ohio to buy into other projects in the region as
9 a participant.

10 Q. And Black & Veatch, who is Black &
11 Veatch?

12 A. They're a national architect engineering
13 firm.

14 Q. And they are experienced in the electric
15 utility industry?

16 A. Yes.

17 Q. Are they well-known in the electric
18 industry?

19 A. Yes.

20 MR. FISK: Your Honor, I'm going to
21 object. This goes beyond. I didn't ask about any
22 studies by Black & Veatch or any studies in this
23 project.

24 EXAMINER PRICE: On your

1 cross-examination you were questioning his
2 credibility or arguing he was biased because of his
3 pecuniary interest. What is wrong with them asking
4 to rehabilitate this witness whether unbiased
5 engineers looked at this?

6 MR. FISK: Well, I think it goes beyond
7 the scope to talk about other engineers.

8 EXAMINER PRICE: Overruled.

9 Q. Do you recall the question?

10 A. I think I answered.

11 MR. BENTINE: Can you restate the
12 question and answer.

13 (Record read.)

14 Q. And the Black & Veatch report did an
15 independent evaluation of whether or not AMPGS was
16 the appropriate alternative for AMP-Ohio after a
17 review of a broad range of alternatives; is that
18 correct?

19 A. That's correct.

20 Q. R. W. Beck reviewed that report and
21 concurred in it, correct?

22 A. Yes, we did review that.

23 Q. Now, who is Sargent & Lundy?

24 A. Sargent & Lundy was contracted by

1 AMP-Ohio early in the development of the project as
2 the conceptual design engineer supporting the early
3 permitting activities and development activities.

4 Q. And Sargent & Lundy came to certain
5 conclusions with regard to the construction of AMPGS,
6 did it not?

7 A. Yes.

8 Q. And did R. W. Beck review their work?

9 A. Yes, we did.

10 Q. And Sargent & Lundy's conclusions were
11 that AMPGS was an appropriate and reasonable option
12 for AMP-Ohio, correct?

13 A. That's correct.

14 Q. Does Sargent & Lundy have any continuing
15 work on this project?

16 A. Yes. They've supported the licensing
17 efforts in preparation of documents throughout this
18 past year.

19 Q. And other than supporting those licensing
20 documents, are you aware, do they have any continuing
21 duties with regard to the construction of this plant?

22 A. I'm not aware of whether they have
23 specific duties as to the next phases.

24 Q. And Black & Veatch, are you aware of

1 whether or not they have any continuing duties?

2 A. I'm not aware. I do not think so.

3 Q. Now, Sargent & Lundy, who exactly is
4 Sargent & Lundy?

5 A. They're another large architect
6 engineering firm, very experienced in the power
7 industry in the United States.

8 EXAMINER BOJKO: Sargent & Lundy and
9 Black & Veatch, could they be the operating engineers
10 on a project of this size?

11 THE WITNESS: Well --

12 EXAMINER BOJKO: Are they more the design
13 aspect up front?

14 THE WITNESS: To answer your question,
15 Black & Veatch was invited as a potential EPC
16 contractor for this project, but they declined
17 because of workload.

18 EXAMINER BOJKO: Okay. What about
19 Sargent & Lundy?

20 THE WITNESS: Sargent & Lundy chose not
21 to propose on the EPC contract.

22 MR. BENTINE: That's all I have on
23 redirect, your Honor.

24 EXAMINER PRICE: Thank you.

1 Recross.

2 MR. FISK: One minute, please.

3 Thank you, Your Honor.

4 - - -

5 RECROSS-EXAMINATION

6 By Mr. Fisk:

7 Q. Mr. Clark, if could you turn back to
8 Exhibit 1 of your testimony, if you could look at
9 Ohio, the cost of power there is 7.71 cents per
10 kilowatt-hour.

11 A. Yes.

12 Q. And it's 86 percent of power comes from
13 coal.

14 A. Yes.

15 Q. The cost of power in Virginia is 6.85
16 cents per kilowatt-hour, correct?

17 A. Yes.

18 Q. And the percentage that comes from coal
19 is 47 percent.

20 A. Yes.

21 Q. And North Carolina the cost of power is
22 7.54 cents.

23 A. Yes.

24 Q. And the percentage of coal is 60.

1 A. Yes.

2 Q. And in South Carolina the cost of power
3 is 7.02 cents, correct?

4 A. Yes.

5 Q. And the percentage from coal is
6 40 percent.

7 A. Yes.

8 Q. In Alabama the cost of power is 7.03
9 cents.

10 A. Yes.

11 Q. And the percentage from coal is
12 55 percent.

13 A. Yes.

14 Q. In Tennessee the cost of power is 7.05
15 cents, correct?

16 A. Yes.

17 Q. And the percentage from coal is
18 65 percent, correct?

19 A. Correct.

20 Q. And Illinois the cost of power is 7.11
21 cents, correct?

22 A. Yes.

23 Q. And the percentage from coal is
24 48 percent.

1 A. Yes.

2 Q. In Minnesota the cost of power is 6.96
3 cents, correct?

4 A. Yes.

5 Q. And the percentage from coal is
6 62 percent.

7 A. Yes.

8 Q. In Arkansas the cost of power is 6.91
9 cents, correct?

10 A. Yes.

11 Q. And the percentage from coal was
12 46 percent.

13 A. Yes.

14 Q. And in Oklahoma the cost of power is 7.23
15 cents.

16 A. Yes.

17 Q. And the percentage from coal is
18 50 percent, correct?

19 A. Yes.

20 Q. And in Nebraska the cost of power is 6.06
21 cents.

22 A. Yes.

23 Q. And the percentage from coal is
24 65 percent.

1 A. Yes.

2 Q. And in South Dakota the cost of power is
3 6.72 percent, correct?

4 A. Yes.

5 Q. And the percentage from coal is
6 46 percent.

7 A. Yes.

8 Q. And in Montana the cost of power is 6.87
9 cents, correct?

10 A. Yes.

11 Q. And the percentage from coal is
12 60 percent.

13 A. Yes.

14 Q. And in Washington State the cost of power
15 is 6.15 cents.

16 A. Yes.

17 Q. And the percentage from coal is
18 6 percent, correct?

19 A. Yes.

20 Q. And in Oregon again the cost of power is
21 6.54 cents, correct?

22 A. Yes.

23 Q. And the percentage from coal is 4
24 percent, correct?

1 A. Yes.

2 Q. And all those states I just listed have
3 cheaper power than Ohio, correct?

4 A. Yes.

5 Q. And all of them use less coal than Ohio,
6 correct?

7 A. Yes. I can comment further.

8 Q. Just a yes or no question.

9 A. Okay.

10 EXAMINER PRICE: Let me comment on what
11 an admirable job Mr. Fisk did in getting the states
12 correct without any problem whatsoever. I'm not sure
13 I would get as many of those states correct.

14 THE WITNESS: He was testing my
15 geography.

16 MR. FISK: Thank you.

17 Q. Just turn briefly to the discussion
18 regarding Sargent & Lundy. Did you personally review
19 the Sargent & Lundy studies?

20 A. I reviewed some of them. Our staff
21 reviewed them, the team we have working on the
22 project.

23 Q. You did not personally review all of
24 them.

1 A. I did not personally review all of them,
2 that's correct.

3 EXAMINER PRICE: When you say your staff,
4 are they people that you supervise or people that
5 work on the team with you?

6 THE WITNESS: It's the people that are on
7 the team working on this project, that's correct.
8 That's several people.

9 Q. How many studies did you review?

10 A. I reviewed the technology part, the study
11 part of this project.

12 MR. BENTINE: Could we have -- I'm not
13 sure we have a connect on what "you" means. If he
14 can say "what did you personally review," if that's
15 the question, rather than R. W. Beck.

16 MR. FISK: Yes.

17 Q. You personally, how many did you
18 personally review?

19 A. I reviewed the technology portion of this
20 project. There are other parts, for example, fuel
21 that we have not reviewed -- that I did not review
22 but my staff reviewed, and I'm aware of the results
23 of those reviews.

24 Q. Did you personally review the PowerSpan

1 cost estimates?

2 A. Yes. I reviewed that as part of the QAQC
3 of that whole report.

4 EXAMINER BOJKO: QAQC?

5 THE WITNESS: Quality assurance/quality
6 control of the report as we finalized it.

7 MR. FISK: No further questions.

8 EXAMINER PRICE: Thank you.

9 Staff.

10 MS. MALONE: No questions.

11 EXAMINER PRICE: Thank you.

12 Mr. Bentine.

13 MR. BENTINE: I have re-redirect on
14 recross.

15 MR. FISK: We don't get re-redirect.

16 EXAMINER PRICE: We didn't do re-redirect
17 yesterday. In other instances we may have allowed,
18 but yesterday we didn't allow it.

19 MR. BENTINE: I don't think anybody asked
20 yesterday. Did they?

21 EXAMINER PRICE: Actually, they did not
22 ask.

23 Your Honor, my understanding is we didn't
24 have re-redirect in this proceeding at all.

1 MR. BENTINE: I don't think anybody's
2 asked. My belief I'm entitled to go to redirect
3 after the recross.

4 EXAMINER BOJKO: And they have
5 re-recross?

6 MR. BENTINE: If that's the case.

7 MR. FISK: I mean, we have been
8 operating, our understanding of the rules is there is
9 no re-redirect. There was cross, redirect and
10 recross. It would now be inconsistent to allow
11 re-redirect.

12 EXAMINER PRICE: Sorry, Mr. Bentine, we
13 will not allow re-redirect at this time.

14 Mr. Clark, you're excused.

15 (Witness excused.)

16 MR. BENTINE: May we go off the record.

17 (Discussion held off the record.)

18 EXAMINER PRICE: Back on the record.

19 Mr. Clark, you need you to return to the
20 stand, please

21 MR. BENTINE: I don't need to put him on,
22 your Honor. I believe the rules allow a short and
23 concise statement by the attorney of what would be
24 elicited, and I'm fine with that rather than putting

1 him on the stand.

2 EXAMINER PRICE: Proceed.

3 (Offer of Proof by Mr. Bentine.)

4 EXAMINER PRICE: Thank you. We accept
5 your offer of proof.

6 Mr. Fisk.

7 MR. FISK: Mr. Bentine had the
8 opportunity to discuss these statements in his
9 redirect and did not. We would continue to object to
10 any re-redirect here that has not occurred previously
11 in this proceeding.

12 EXAMINER PRICE: I understand. I believe
13 Mr. Bentine will argue in his brief that my ruling to
14 not allow him to re-redirect was erroneous, and if he
15 wins that before the Board, then his offer of proof
16 will be part of the record.

17 MR. FISK: Currently it is not part of
18 the record no.

19 EXAMINER PRICE: Currently it is not part
20 of the record.

21 Mr. Bentine, do you have motions for
22 admission at this time.

23 MR. BENTINE: Yes. I move AMP-0
24 Exhibit 4 at this time?

1 EXAMINER PRICE: Objections.

2 (No response.)

3 EXAMINER PRICE: AMP-O Exhibit 4 will be
4 admitted.

5 (EXHIBIT ADMITTED INTO EVIDENCE.)

6 EXAMINER PRICE: We have a pending motion
7 for motion for admission of Citizen Groups' 9, and
8 that exhibit will be admitted.

9 (EXHIBIT ADMITTED INTO EVIDENCE.)

10 EXAMINER PRICE: With that, let's take a
11 break until 20 after 10:00.

12 (Recess taken.)

13 EXAMINER PRICE: Back on the record.

14 State your name and business address.

15 THE WITNESS: Jon, J-O-N, Pawley. The
16 business address is 180 East Broad Street, Columbus,
17 Ohio, 43215.

18 - - -

19 JON PAWLEY

20 being first duly sworn, as prescribed by law, was
21 examined and testified as follows:

22 DIRECT EXAMINATION

23 By Mr. Wright:

24

1 Q. Mr. Pawley, by whom are you employed?

2 A. The State of Ohio, Public Utilities
3 Commission.

4 Q. Do you also have responsibilities with
5 the Ohio Power Siting Board?

6 A. Yes. The division in the PUCO that I
7 work for is facility siting and environmental
8 analysis, and that serves the staff of the Ohio Power
9 Siting Board.

10 Q. Would you tell me a little bit about your
11 educational background, please?

12 A. I have three degrees, an Associate's in
13 architectural technology in 1986 from SUNY Alfred
14 Tech, Bachelor of Environmental Design, 1991, from
15 the University of Buffalo, and a Master's degree in
16 city and regional planning from the Ohio State
17 University in 1993.

18 Q. Now, Mr. Pawley, could you describe what
19 your role was in this case?

20 A. In this particular case my role was as
21 project lead for staff.

22 Q. I'm sorry, project?

23 A. Project lead.

24 Q. Could you explain a little bit what you

1 mean by that?

2 A. There were a number of staff and also, of
3 course, the Board is made up of various agencies,
4 various agencies and staff involved. I guess I was,
5 I guess you could say, the point person, the contact
6 person for this case for the proceeding, the
7 application review. That involved ensuring
8 timeliness, meeting deadlines, and coordinating
9 investigation activity, which included fuel
10 investigations and sort of the clearinghouse, if you
11 will, for staff of the various permit applications
12 that were also filed with the different entities,
13 different agencies.

14 Q. Mr. Pawley, could you briefly describe
15 what the scope of the staff's investigation was in
16 this case?

17 A. The scope of staff's investigation
18 entailed the application as submitted by AMP-Ohio and
19 supplemented through various supplements, there were
20 field visits for verification purposes that were done
21 by staff and interviews with AMP-Ohio personnel.

22 Q. Is the investigation broader than just
23 this particular case?

24 A. Yes. As mentioned, there are a number of

1 permits that are in the process of being reviewed by
2 the agencies that -- some of the different agencies
3 that comprise this Board.

4 Q. Have you had any participation and/or
5 responsibility in any of those permit cases?

6 A. No. I did -- staff did go to the air PTI
7 hearing but didn't participate.

8 Q. You were there as a spectator?

9 A. I was not, but a member of staff was.

10 Q. Okay. How is the staff's investigation
11 reported?

12 A. The investigation is a condensed version
13 or form of the application to fit into the statutory
14 criteria and is reported in the Report of
15 Investigation. In this case it was docketed
16 October 16, 2007.

17 MR. WRIGHT: Your Honor, at this time I
18 would like to have marked as Staff Exhibit 1 the
19 Staff Report of Investigation Mr. Pawley just alluded
20 to.

21 EXAMINER PRICE: It will be so marked.

22 (EXHIBIT MARKED FOR IDENTIFICATION.)

23 MR. WRIGHT: I would mention that copies
24 have been provided to parties.

1 Q. Do you have in front of you what has just
2 been marked as Staff Exhibit 1? Would you identify
3 that?

4 A. Yes. It's the Staff Report of
5 Investigation to the Ohio Power Siting Board docketed
6 October 16, 2007.

7 Q. Okay. This is the report of the staff's
8 investigation in this case; is that right?

9 A. Yes.

10 Q. Now, Mr. Pawley, the staff report, Staff
11 Exhibits No. 1, contains a number of conditions; is
12 that correct?

13 A. Correct.

14 Q. Generally what is the purpose of
15 conditions, of these conditions?

16 A. Well, if the Board were to grant a
17 certificate, in this instance, if this facility were
18 to be constructed, these are staff's conditions that
19 we would recommend be placed on that project.

20 Q. Do you have any changes to the staff
21 report today or revisions?

22 A. The revisions to the conditions, yes.

23 Q. Okay.

24 MR. WRIGHT: Your Honor, at this time we

1 would like to have marked as Staff Exhibit No. 2 a
2 set of revised conditions. It is captioned
3 Recommended Conditions of Certificate. Again, all
4 parties and the Bench have been provided with a copy,
5 and I would like to note for the record these
6 actually were provided a week and a half ago,
7 thereabouts, to the parties.

8 EXAMINER PRICE: It will be so marked.

9 (EXHIBIT MARKED FOR IDENTIFICATION.)

10 MR. WRIGHT: Actually the 10th of
11 December, to be exact.

12 Thank you your Honor.

13 Q. Mr. Pawley, do you have in front of what
14 has just been marked Staff Exhibit No. 2.

15 A. Yes I do.

16 Q. Would these be the revised conditions
17 that you alluded to?

18 A. Yes.

19 Q. What is the purpose of Staff Exhibit
20 No. 2?

21 A. After the staff report was docketed,
22 there were certain modifications, basically
23 clarification type items, clean-up, if you will,
24 recommended -- that staff is recommending replace the

1 conditions that are in the staff report.

2 Q. So it's your recommendation -- it's your
3 intention that these would replace in Staff
4 Exhibit 2, would replace the conditions that appear
5 in the staff report itself.

6 A. That's correct.

7 Q. Did all the conditions in the staff
8 report change?

9 A. No.

10 Q. Is it unusual that conditions change from
11 the time the staff report is published?

12 A. No.

13 Q. Could you explain why that is?

14 A. Well, particularly for clarification
15 purposes, as I understand it, the parties were
16 invited to discuss the conditions and raise any
17 concerns that they may have.

18 Q. Could you for the record highlight what
19 in your mind would be a couple of the significant
20 changes?

21 A. Yes. Within No. 7, for example, one of
22 the condition was recommending a preconstruction
23 conference prior to the commencement of construction
24 of the facility, which is typically done to clarify

1 or to make sure engineering drawings, et cetera, are
2 in line with the terms of the certificate.

3 In this particular instance, staff is
4 recommending three separate preconstruction
5 conferences for the three separate primary areas of
6 development of this site, which would be the
7 landfill, the power isle and the docking facility. I
8 think it's a more restrictive condition. It
9 restricts or it prohibits the company from beginning
10 construction in those areas without specifically
11 having a preconstruction conference addressing those
12 areas.

13 Another example would be condition 5 in
14 the context of the staff report. Staff identified
15 some concerns with -- there were some ecological
16 issues associated with what we have labeled pond 2 in
17 the landfill area, so there was some concern about
18 the ordering of the landfill phasing, and the revised
19 condition is more restrictive condition where the
20 applicant is not to utilize cell 2A, 2B or any
21 portion of cell 3A, basically the cells that would
22 drain to pond 2 without filing an amendment before
23 the Ohio Power Siting Board. Those are two examples.

24 Q. Is it your belief, Mr. Pawley, the

1 revised conditions, Staff Exhibit No. 2, that hose
2 are stronger conditions than originally in the staff
3 report?

4 A. Yes.

5 Q. And, again, you are sponsoring Staff
6 Exhibit 2 as a replacement for the conditions in the
7 staff report; is that correct?

8 A. Correct.

9 Q. Okay.

10 EXAMINER BOJKO: Just to be clear, you're
11 replacing section 6 of the staff report, pages 58
12 through 64, with Staff Exhibit 2 .

13 THE WITNESS: That is correct.

14 Q. Mr. Pawley, I believe that you identified
15 that the investigation is ongoing, if you will, and
16 encompasses a number of cases before other bodies,
17 permitting cases; is that correct?

18 A. Correct.

19 Q. Is there a condition in the staff
20 report -- in Staff Exhibit No. 2 that specifically
21 addresses that?

22 A. Condition No. 4 is an extensive list of
23 permits that are either ongoing or will be required.
24 So staff is saying that the applicant shall obtain.

1 and comply with all permissible permits as
2 appropriate, and some of the permits will be acquired
3 prior to construction, and then some of them will
4 entail authorizations from agencies, not necessarily
5 permits, per se.

6 Q. And, again, just so we're here on the
7 record, the purposes of the conditions is what?

8 A. Well, it's staff's recommendation that if
9 the facility is to be constructed, that these
10 conditions be placed on any granting of the
11 certificate from the Board.

12 Q. And the purpose for the recommendation
13 that they be imposed on the certificate, the
14 conditions being imposed on the certificate is what?

15 A. The purpose?

16 Q. Yes.

17 A. To be part of the record, part of the
18 Staff Report of Investigation, the conclusions by
19 staff.

20 Q. What is the purpose of the conditions
21 themselves? Maybe I didn't ask that very clearly.
22 That's my question, the purposes of the conditions is
23 what?

24 A. In staff's view to minimize the impact

1 the facility would have on this site.

2 Q. What is the staff's overall
3 recommendation in this case?

4 A. Again, that any certificate issued for
5 this facility incorporate these conditions.

6 MR. WRIGHT: The witness is available for
7 cross-examination. Thank you.

8 EXAMINER PRICE: Thank you.

9 Ms. Young.

10 MS. YOUNG: I have a process question
11 before we start.

12 EXAMINER PRICE: Sure.

13 MS. YOUNG: A lot of the pages that are
14 being replaced from the original staff report by this
15 revised staff report are things that I didn't have
16 time to compare and see what my revised concerns
17 might be because they may have addressed concerns
18 that I was going to raise or change those things. Do
19 we have any opportunity at a later point to address
20 any changes after there's time to review these since
21 we were just --

22 MR. WRIGHT: Your Honor, I would note for
23 the record that these were provided back on the
24 10th of December to all parties.

1 EXAMINER BOJKO: Did you receive a copy?

2 MS. YOUNG: If they sent it by e-mail, I
3 may have received. The only thing I can say in my
4 defense is my e-mail is sometimes every three days
5 for 15 minutes through the library.

6 MR. WRIGHT: My recollection we had two
7 e-mail addresses and we sent it to both. That was
8 back --

9 EXAMINER BOJKO: Why don't we ask the
10 questions and the witness can clarify if the
11 recommendation has changed based on the certificate.
12 I think the witness will be able to say your concern
13 has been addressed because of this change made in
14 pages 58 through 64.

15 EXAMINER PRICE: The more global answer
16 is no, there is not. Mr. Pawley will not be back on
17 the stand.

18 MS. YOUNG: Can we submit new concerns in
19 writing as a late filing?

20 EXAMINER PRICE: At the end of the
21 hearing everyone will have an opportunity to file a
22 post hearing brief. That should be your argument in
23 this case. When we conclude these hearings, the
24 evidentiary record will be closed, and whatever is in

1 the record at that time is in the record at that
2 time. If you want to raise questions that you think
3 need to be answered, the brief would be the perfect
4 place to view that.

5 MS. YOUNG: And you would review those
6 before we issue a determination.

7 EXAMINER PRICE: We will review the
8 briefs before the Board issues a determination.

9 EXAMINER BOJKO: Briefs, reply briefs.
10 You will have a chance to respond the other parties'
11 briefs. You have two written opportunities.

12 MS. YOUNG: Thank you.

13 EXAMINER PRICE: One thing I would like
14 to emphasize, the factual issues are closed. You
15 can't put new factual issues in the brief. If you
16 bring up new factual issues, that will be stricken.

17 - - -

18 CROSS-EXAMINATION

19 By Ms. Young:

20 Q. One of the concerns that I had in this
21 has to do with the cemeteries. We have a cemetery.
22 You can't walk through it without --

23 MR. BENTINE: Object to --

24 EXAMINER PRICE: Ms. Young you have to

1 ask questions. You had your opportunity to testify.
2 This is your opportunity to ask him questions. You
3 can't testify now.

4 MS. YOUNG: I'm not doing it out of
5 disrespect. I'm trying to figure out the process.

6 Q. On page 26 of this report, I don't think
7 that was a page that has been revised. There's a
8 reference to two cemeteries, and I'll read that.
9 No. 33, it says: "Two cemeteries are located within
10 a one-mile radius. A small family cemetery is
11 located approximately 4,000 feet northwest of the
12 facility and the Letart Falls Cemetery is located
13 approximately 2,000 feet south of the facility. The
14 Applicant has agreed to leave current vegetative
15 screening in place at the family cemetery and to
16 provide a substantial amount of additional screening
17 for the Letart Falls Cemetery."

18 Did the staff take into consideration
19 that the majority of these historic and family
20 history cemetery stones are sandstone and that they
21 react with sulfur dioxide emissions?

22 MR. BENTINE: Object.

23 MR. WRIGHT: Object.

24 MS. YOUNG: I can't ask if it was taken

1 into consideration?

2 EXAMINER PRICE: You can ask, but at the
3 very end you put in a factual assumption. You can
4 ask whether these sandstone headstones would react to
5 sulfuric emissions. You can't have a factual premise
6 in that question.

7 EXAMINER BOJKO: Try to break your
8 question into two things, did they consider and then
9 the other issue.

10 Q. What emissions did you consider in terms
11 of the impacts to these cemeteries?

12 A. In terms of specific emissions, I'm not
13 aware that staff looked -- I'm not aware that staff
14 looked at specific emission impacts on tombstones.
15 Staff did, however consult with the Ohio Historic
16 Preservation Office extensively in this process, and
17 no objections were raised or concerns were raised
18 regarding that, no specific issues were raised, as
19 far as I'm aware.

20 Q. Did you work at all with the local
21 historic preservation office?

22 A. No.

23 Q. Okay. Did anyone bring to your attention
24 a study that had been done by the local people I

1 believe it was about ten years ago by Karen Wary
2 where they did documentation of degradation of
3 cemetery stones from what they were exposed to?

4 MR. BENTINE: I'm going to object.

5 MS. YOUNG: I was just asking if they had
6 been presented that by either the state or local
7 people.

8 A. I'm not aware of that study.

9 Q. Okay. Do you know if sulfur emissions
10 were taken into consideration that these cemetery
11 stones would need to be protected from?

12 A. I'm not sure I understand your question,
13 Ms. Young.

14 Q. When you were looking at the emissions,
15 like you're talking about putting up protective
16 barriers and trying to do things that would protect
17 our local culture and history, was sulfur one of the
18 emissions or one of the things you were trying to
19 protect the cemetery from? Is that something you
20 took into consideration?

21 A. I believe our recommendations go to
22 screening the cemeteries, not emissions.

23 Q. Okay. And what kind of screening were
24 you talking about putting up around the cemeteries to

1 protect them?

2 A. Staff did not -- at this point staff
3 hasn't recommend specific tree types, mounding
4 height, that type of thing. I mentioned earlier
5 preconstruction conferences. That would be something
6 that staff would expect to see at a preconstruction
7 conference down the road. When the specifics of the
8 facility at that point from an engineering
9 perspective are laid out, and I believe that the
10 applicant indicated in the application that they
11 would mound and landscape, particularly adjacent to
12 the Letart Cemetery.

13 Q. Would that maybe be for other types of
14 particulates and not sulfur emissions?

15 A. Again, I'm not aware. In terms of your
16 emissions questions, there is an air permit to
17 install procedure that is going on at this time. I
18 believe the emissions would be addressed in that form
19 with the Ohio EPA.

20 Q. Okay. There was a report that we had in
21 court yesterday that had to do with our wellhead
22 protection studies done by the Ohio EPA. Did you
23 have an opportunity to see that?

24 A. No.

1 Q. No, okay.

2 MS. YOUNG: Then I guess what I would
3 like to do is raise the concerns that jumped out to
4 me that are in regard to that so that can either be
5 addressed now or a later time. Is that acceptable?

6 EXAMINER PRICE: You have to raise your
7 concerns in the form of a question.

8 MS. YOUNG: In the form of a question,
9 okay, I will do that.

10 Q. On page 23, staff report: "The water
11 intake structures would consist of two offshore
12 cylindrical wedge wire screens. These structures
13 would be located approximately 80 feet from the
14 riverbank and 15 feet below the normal pool levels."

15 Was the proximity of that construction
16 taken into consideration in terms of potential
17 migratory contaminants for direct impacts to our
18 drinking water wells?

19 A. As to my understanding from the
20 application, the primary source of water would be the
21 Ohio River, and I believe that there was an
22 indication that local aquifers would not be impacted.
23 That was my understanding from the application.

24 Q. I can't respond to that because I can

1 only ask you questions. Our drinking wells are
2 rehydrated from the Ohio River.

3 MR. WRIGHT: Objection.

4 EXAMINER PRICE: Sustained. Please
5 strike the last bit of testimony.

6 EXAMINER BOJKO: Ask if he knows things.
7 Don't make statements. Ask him if he knows.

8 Q. On page 23, under 20, 21: "The facility
9 will employ an oil/water separator in order to remove
10 oil from water which comes in contact with the power
11 block. The oil will be collected and sent off site
12 for disposal, while the remaining water will be
13 routed to an on-site settling basin prior to
14 discharge to the Ohio River."

15 Do you know if transportation of this
16 by-product was taken into consideration in proximity
17 to our drinking water wells as either a direct or
18 migratory contaminant?

19 MR. WRIGHT: May I ask a clarification?
20 Taken into consideration by whom?

21 MS. YOUNG: By the staff.

22 MR. WRIGHT: By the staff, okay.

23 EXAMINER PRICE: He's the staff witness.

24 A. No. The answer would be no, but I am

1 under the understanding again this would be covered
2 by the permitting processes that are ongoing.

3 Q. I know you didn't have an opportunity to
4 see this report so I am bringing up these questions.

5 "Construction activities are expected to
6 produce both solid and hazardous waste materials.
7 Hazardous wastes are expected to include waste oils,
8 waste vehicle fluids, paints thinners, solvents, oily
9 rags, oil absorbent materials, welding materials, and
10 lead acid batteries. Hazardous waste products, such
11 as waste oils and paints will need to be disposed of
12 by an authorized hazardous waste company."

13 Do you know if these materials, either by
14 where they will be stored or by how they will be
15 transported, if that will impact our drinking water
16 as referenced in that report that we submitted
17 yesterday?

18 MR. WRIGHT: Your Honor, again, I guess I
19 would object to anything tied back to this report
20 because the witness indicated he has never seen this
21 report and does not know what it says; therefore, he
22 would have no context with which to be able to
23 address the question.

24 EXAMINER PRICE: I think that -- I note

1 your objection.

2 I think, Ms. Young, it would be helpful
3 to the witness if you can give him a copy of the
4 report and point to him in the report where this is
5 raised as well as in the staff report, and then he
6 has an opportunity to look at what the report says
7 and testify.

8 MR. WRIGHT: Well, your Honor, I wouldn't
9 expect, and I would hope the Bench wouldn't expect
10 Mr. Pawley to just pick up a document for the first
11 time and start answering questions about whoever
12 prepared this report, the manner intended or anything
13 else.

14 EXAMINER PRICE: I don't think she's
15 asking him to testify as to what it meant or
16 intended. I think she's asking whether he considered
17 the issues which she believes are relevant raised in
18 report. I understand staff does not believe the
19 issues in the report are relevant, but that's a
20 decision for the Board to decide.

21 I don't see why she can't cross-examine
22 him on what the report says. We have had plenty of
23 cross-examination the last few days reading issues
24 and reports in the record.

1 MR. WRIGHT: Note an ongoing objection as
2 to the report he has not seen.

3 MS. YOUNG: With the text I just read
4 from the report -- I guess I could ask it a different
5 way.

6 EXAMINER BOJKO: Go ahead, just ask.
7 You're supposed to be speaking to the bench and the
8 witness, not opposing counsel.

9 Q. Will you take these considerations for
10 hazardous waste storage and transport into
11 consideration in the protection of our water wells
12 for public health and safety?

13 A. I believe that those considerations will
14 be taken into consideration vis-a-vis the appropriate
15 permitting to do such activity.

16 Q. Will the staff take those things into
17 consideration that I just read in No. 20 and 21?

18 MR. WRIGHT: Objection, asked and
19 answered.

20 EXAMINER PRICE: Sustained. He answered
21 the question.

22 MS. YOUNG: Okay.

23 Q. On No. 24 it states: "Dredging is
24 expected to be necessary during the construction of

1 the barge docking and unloading facilities.
2 Construction of the barge unloading facility will
3 require dredging approximately 70,000 cubic yards of
4 material from within the Ohio River. This material
5 will be disposed of at on-site pond located in an
6 upland area. The Applicant has also requested from
7 the US Army Corps of Engineers permission to dredge
8 an additional 20,000 cubic yards of material for
9 maintenance purposes over the 10-year period."

10 EXAMINER BOJKO: Ms. Young, for the
11 record, can you indicate when you are reading where
12 you are reading and direct the witness to the
13 particular page so they can confirm or deny the
14 accuracy of your reading.

15 MS. YOUNG: I thought I had done that.
16 Page 24 and No. 24 on page 24.

17 EXAMINER BOJKO: Now ask the witness if
18 he has that page.

19 Q. Are you on page 24?

20 A. Yes.

21 EXAMINER BOJKO: That was accurately
22 read, that section?

23 THE WITNESS: Yes, it was.

24 Q. Okay. So my question, will the staff

1 consider how the dredging of this river will
2 potentially impact the quality of our water and the
3 species that might be impacted by this over the
4 ten-year period and once it's operational?

5 A. Right. The nature of the staff report --
6 I should point out because I don't know how much
7 you've been able to read of the staff report or
8 digest it, but the nature of the staff report, the
9 way it's set up and comprised is the nature section,
10 the section you're in right now, is staff's
11 itemization, if you will, of what we believe to be
12 impacts as taken from the application.

13 The next criteria, the next set in terms
14 of the staff report, I think it's chapter 3, looks at
15 minimizing impacts as associated in the nature
16 section. So there are sections in here in terms of
17 the minimizing of impacts on water intake and the
18 barge mooring facility.

19 And I think I'm not sure if you're asking
20 a specific question or if staff considered impacts.
21 Staff did consider impacts to the barge facility and
22 the dredging, and certainly through the Corps of
23 Engineers permitting process, we feel that they will
24 be minimized, yes.

1 EXAMINER PRICE: Is there a staff
2 condition that relates to the item she just raised?

3 THE WITNESS: I believe it would fall
4 under section 10, 404 permit, under the Army Corps of
5 Engineers consideration of dredge facilities and
6 barge traffic for that facility would be considered
7 through the application process.

8 Q. Okay. Below that on page 24, No. 25, it
9 says: "The applicant estimates that 329 acres of
10 vegetable crops and 105 acres of field corn were in
11 production within the proposed facilities boundary in
12 2007. A total of 434 acres of actively farmed land
13 will be impacted by the project. No Agricultural
14 District properties were identified on the site.
15 Five greenhouses on the plant site and one additional
16 greenhouse on the landfill property will be removed
17 permanently. There is no such plan to resume
18 agricultural activities within the facility boundary
19 after construction."

20 EXAMINER BOJKO: Do you see that,
21 Mr. Pawley?

22 Q. Do you see that Mr. Pawley?

23 A. I do.

24 MS. YOUNG: I'm just learning the

1 etiquette here.

2 EXAMINER BOJKO: Did I accurately read
3 that provision?

4 Q. Did I accurately read that provision?

5 A. I believe so.

6 Q. Were impacts to farmers who are off the
7 site but who would be impacted by the migration of
8 emissions or other chemicals from the facility taken
9 into consideration in there?

10 MR. BENTINE: Objection.

11 MR. WRIGHT: Objection.

12 EXAMINER PRICE: Grounds.

13 MR. BENTINE: It assumes there's going to
14 be an effect. If she says "potential," I have no
15 problem with it.

16 EXAMINER BOJKO: Can we reread that
17 question?

18 (Question read.)

19 MR. BENTINE: Withdraw the objection.

20 EXAMINER BOJKO: Mr. Wright, do you still
21 have an objection?

22 MR. WRIGHT: I believe as I heard the
23 question, my objection would stand on the same basis.
24 I think it assumed there would be impacts. Did the

1 staff take that into account.

2 EXAMINER PRICE: She did say "may," did
3 she not? Could I have the question again?

4 (Question read.)

5 MR. WRIGHT: Assumes that farmers off the
6 site will be impacted on some basis.

7 EXAMINER PRICE: Could you rephrase the
8 question to include potential impacts, potential
9 migration.

10 Q. Would farmers who are off site taken into
11 consideration for any potential migratory
12 contaminants through emissions or other chemical
13 waste that might come from the facility?

14 A. Again, under the structure of the
15 application and its contents, which directed staff's
16 investigation in this, the answer is no.

17 Q. Okay.

18 EXAMINER PRICE: Mr. Pawley, is it your
19 understanding that those potential emissions would be
20 covered under the air pollution permit?

21 THE WITNESS: Yes. I was not speaking to
22 emissions. I was speaking to agricultural impact.

23 EXAMINER PRICE: Okay.

24 Q. On page 20 and 21, No. 12, are you there?

1 A. Yes.

2 Q. Okay. It reads: "There are
3 approximately 39,400 linear feet of headwater streams
4 on the project site, the majority of which are
5 located on the eastern portion where the landfill is
6 proposed. The Applicant anticipates filling
7 approximately 10,359 linear feet of headwater
8 channels. The different types of impacted streams
9 are as follows:" And it gives a list.

10 "Due to the extent of the proposed
11 disturbance and the quality of some of the headwater
12 streams (Class III being the highest class), the
13 impact to headwater habitat is one of the most
14 significant ecological impacts associated with the
15 proposed project."

16 EXAMINER BOJKO: Do you see that,
17 Mr. Pawley?

18 Q. Do you see that, Mr. Pawley?

19 A. I do.

20 Q. In the staff's report did you consider
21 the cumulative impacts to headwaters from the
22 multiple industries that are being proposed or just
23 this particular facility?

24 MR. BENTINE: Objection.

1 EXAMINER PRICE: Grounds.

2 MR. BENTINE: I think it assumes facts
3 not in evidence.

4 EXAMINER PRICE: Could we reread that.
5 (Question read.)

6 EXAMINER PRICE: Overruled.

7 A. An extensive piece to the staff report
8 and the conditions deals with stream impacts. In
9 terms of -- are we speaking about off-site
10 industries?

11 Q. The Ohio Power Siting Board issued
12 another permit for an IGCC power plant.

13 MR. WRIGHT: Objection.

14 A. The term "other industries" was used and
15 I'm just looking for clarification on that.

16 EXAMINER PRICE: Could you clarify what
17 other industries you're talking about?

18 MS. YOUNG: The other industries that are
19 proposed in that end of the county currently are an
20 IGCC power plant, proposed mining. They're planning
21 on mining for 40 years. The first permit is for a
22 2,000-acre permit that would impact three high
23 quality streams.

24 MR. BENTINE: I'm going to object to the

1 testimony.

2 MR. WRIGHT: Join, same basis.

3 EXAMINER PRICE: Your witness asked for
4 clarification. She's trying to define what she
5 means. No, I'm overruling the objection.

6 Mr. Pawley, you can answer the question

7 MR. WRIGHT: Can we have the original
8 question read? I'm confused as to where we are now.

9 (Question read.)

10 MR. WRIGHT: Thank you.

11 EXAMINER PRICE: Answer the question,
12 Mr. Pawley.

13 THE WITNESS: Okay.

14 A. In terms of the staff report, we looked
15 at the impacts this application would have at this
16 site, and it's my understanding there are permitting
17 processes with the EPA, and I cannot speak to what
18 they would pick up or not or cover or not --

19 Q. Okay.

20 A. -- dealing with headwater streams.

21 EXAMINER PRICE: Okay. Can you reread
22 the second question we had following that, please?

23 EXAMINER BOJKO: There is no other
24 question pending. Just ask another question.

1 Q. In the report -- I'm sorry, I don't have
2 the page noted. It refers to --

3 EXAMINER BOJKO: In the staff report?

4 MS. YOUNG: In the staff report.

5 Q. It refers to potentially relocating
6 endangered species. Did the staff when they made
7 those recommendations in this report -- are you
8 familiar with the part I'm referring to where it said
9 there may have to be mitigation to relocate
10 endangered species?

11 A. Yes.

12 Q. Okay. Did the staff look at -- I'm not
13 sure how to word this -- cumulative impacts to
14 multiple habitats that are currently being looked at
15 being removed as preconstruction and construction
16 work moves forward?

17 MR. BENTINE: Objection.

18 EXAMINER PRICE: Grounds.

19 MR. BENTINE: I think the question is
20 incomprehensible.

21 EXAMINER PRICE: Overruled.

22 Mr. Pawley, you may answer the question

23 MR. WRIGHT: Could I have it read back?

24 EXAMINER PRICE: Mr. Wright, we are going

1 to be here all day if you ask every single question
2 be read. Your witness has not said he doesn't
3 understand the question. If Mr. Pawley doesn't
4 understand the question, I can accept that.

5 We will read that back, but we will not
6 read every single question back.

7 MR. WRIGHT: That was a lengthy question.
8 I'm not trying to delay anything.

9 EXAMINER PRICE: Please read the
10 question.

11 (Question read.)

12 A. I do not understand that question.

13 EXAMINER PRICE: Could you please
14 rephrase your question?

15 MS. YOUNG: I'll do my best.

16 Q. In looking at relocating -- potential
17 relocating endangered species and looking for
18 appropriate habitat for them to be relocated to in
19 the area, in the immediate area, are we looking at
20 things as they currently stand now, or what habitat
21 will be left after all of the preconstruction and
22 construction for the multiple industries being
23 proposed are completed?

24 MR. BENTINE: I object. There's one

1 species in this report that has been identified on
2 this site, not multiple species. There's a
3 mitigation plan about that. The questions on that I
4 think are fine. This goes well beyond that. I don't
5 even know what we are talking about with other
6 industries.

7 EXAMINER PRICE: How many endangered
8 species are in this report, Mr. Pawley?

9 THE WITNESS: There's a number of
10 endangered species investigated.

11 EXAMINER PRICE: How many impacted?

12 THE WITNESS: One has been identified.

13 EXAMINER PRICE: Please respond to that
14 question for that one species.

15 A. I refer you to revised condition No. 17.
16 Staff is working with the Ohio Department of Natural
17 Resources on a mitigation plan for this. We are
18 aware of that, and we are working with ODNR
19 specifically to address that vis-a-vis a mediation
20 plan. I don't know where that stands in the process.

21 EXAMINER BOJKO: Thank you.

22 EXAMINER PRICE: Mr. Pawley, what is the
23 Eastern Spadefoot? I just want to know what it is.
24 Is it a frog, a bat? I'm just curious.

1 THE WITNESS: Page 22, Reptiles and
2 amphibians: The Eastern Spadefoot toad, a state
3 endangered species, is found in sandy soils and
4 riverbeds.

5 EXAMINER PRICE: It's a toad, thank you.

6 MS. YOUNG: We still have minis and toads
7 down there.

8 EXAMINER PRICE: Ms. Young.

9 Q. On 30, I'm sorry I don't see a number
10 that goes with it, but it begins on paragraph 3.

11 EXAMINER BOJKO: Page 30 of the staff
12 report?

13 Q. Page 30 of the staff report,
14 paragraph 3 and 4, it states -- are you there on that
15 page?

16 A. Yes.

17 Q. Okay. "During operation, the coal
18 handling system would be a source of fugitive dust
19 emissions. The Applicant intends to control the
20 fugitive dust emissions from the coal handling system
21 through the use of enclosed conveyors, enclosed
22 transport points, dust suppression methods such as
23 water spray, forced air dust collection systems, and
24 good compaction and handling practices on the coal

1 pile.

2 "Emissions created during operation will
3 originate from several sources, including pulverized
4 coal boilers, auxiliary natural gas boiler, cooling
5 cells, coal and limestone receiving/handling/storge
6 facilities, fertilizer plant, coal crusher system,
7 gypsum and fly ash conveying/handling /storage
8 systems, roadways and the landfill."

9 When the staff was looking at doing --

10 EXAMINER PRICE: Did Ms. Young read that
11 correctly in it entirety?

12 THE WITNESS: Yes.

13 EXAMINER PRICE: Thank you.

14 Q. And then two paragraphs down from that,
15 the fifth full paragraph, are you there?

16 A. Yes.

17 Q. It makes mention of using SCR and NOx
18 control. It says: "As covered in the Air PTI, the
19 Applicant proposes to limit air emissions by using an
20 SCR unit for NOx control."

21 MS. YOUNG: How do I word that?

22 EXAMINER BOJKO: Do you see that,
23 Mr. Pawley?

24 Q. Do you see that, Mr. Pawley?

1 A. Yes.

2 MS. YOUNG: I know what I want to say. I
3 don't know how to say that is acceptable.

4 EXAMINER PRICE: Shoot for simple.

5 Q. Are you aware of the issues that these
6 things -- that the problems that SCR caused at the
7 village near Cheshire, Ohio?

8 EXAMINER PRICE: I'm going to object to
9 that one, not even waiting for an objection. What
10 happened at Cheshire is not in the record of this
11 case. I think you are assuming facts not in
12 evidence. I think you have to ask him something
13 related to the report. Are you aware of any problems
14 with this?

15 Q. Are you aware of any problems with this
16 technology?

17 A. I am not.

18 Q. Do you know if the staff looked at
19 preventing problems that have happened in other
20 places with this technology, preventing potential
21 problems?

22 MR. WRIGHT: Objection.

23 EXAMINER PRICE: Sustained.

24 Rephrase your question, please.

1 MS. YOUNG: I'm trying to do that, but I
2 don't know how to do it without referring to what
3 happened to our neighbors.

4 EXAMINER BOJKO: Lay a foundation. Ask
5 him if he knows.

6 Q. Do you know about what happened at the
7 Village of Cheshire after this technology was
8 installed?

9 MR. BENTINE: I'm going to object.

10 EXAMINER PRICE: Grounds?

11 MR. BENTINE: The assumption in this
12 question that the technology that we have proposed
13 for this plant is exactly the same technology that
14 caused problems, to the extent there were problems,
15 and I understand there were, at Cheshire.

16 EXAMINER PRICE: Sustained.

17 EXAMINER BOJKO: Rephrase.

18 EXAMINER PRICE: Ask him if he knows if
19 the technology is the same.

20 Q. Do you know if the technology that would
21 be installed at this facility, AMPGS, is the same as
22 what AEP installed at Gavin in Cheshire, Ohio?

23 A. I do not know that.

24 Q. Then we don't know if anything is done

1 different to ensure the public safety.

2 EXAMINER PRICE: Ms. Young, he said he
3 didn't know.

4 Q. Okay. We'll move on to another question
5 then. On page 31 of the staff report in the second
6 paragraph and third paragraph down --

7 EXAMINER PRICE: You don't have to read
8 the paragraphs into the record. Identify the
9 paragraphs and ask him to read it and give him time
10 to read them, and then you can ask your questions I
11 appreciate you want to read this into the record, but
12 it's in the record.

13 EXAMINER BOJKO: The whole staff report
14 is part of the report.

15 Q. Are you familiar with the part of the
16 report that refers to tremors or seismic activity
17 being potentially damaging to endangered species?

18 MR. BENTINE: Object. I don't know what
19 report we are referring to.

20 MS. YOUNG: It's the staff report.

21 EXAMINER PRICE: Can you give a citation?

22 MS. YOUNG: I have to go back and look,
23 but I did read it in this report.

24 EXAMINER PRICE: Mr. Pawley, are you

1 familiar with that section? Can you help us out?

2 THE WITNESS: Not offhand.

3 MS. YOUNG: It's in the endangered
4 species section, so it's further back.

5 Could I state the question in a general
6 way, and he can answer if he is familiar with the
7 staff report?

8 EXAMINER PRICE: Let's take a shot. Keep
9 it simple.

10 Q. It's stated in the report that tremors
11 could have potential negative impact on endangered
12 species that were investigated by the staff.

13 EXAMINER BOJKO: Ask if he knows if
14 that's stated in the staff report.

15 Q. Do you know if that's stated in the staff
16 report?

17 EXAMINER BOJKO: Mr. Pawley, do you know
18 if somewhere in the staff report it references
19 tremors, seismic activity?

20 THE WITNESS: I believe there is a
21 reference to tremor-causing activity in the
22 conditions.

23 EXAMINER PRICE: Which condition?

24 THE WITNESS: Seventeen.

1 EXAMINER BOJKO: The new 17?

2 THE WITNESS: Yes.

3 EXAMINER PRICE: Okay. Could you tell us
4 what that condition says?

5 THE WITNESS: I have to read it.

6 EXAMINER PRICE: Absolutely.

7 A. I don't read that there are problems at
8 the site. I think it was trying to say pile-driving
9 activity could potentially cause it. I didn't see
10 that we were identifying a problem with this site.

11 Q. But that was a potential?

12 EXAMINER PRICE: What is the staff
13 mitigation plan in the event that happens? What is
14 the staff's mitigation plan for those conditions?

15 THE WITNESS: I only got halfway down.
16 My understanding of this condition, staff, as I
17 mentioned prior, the mitigation plan is being worked
18 through with the Ohio Department of Natural
19 Resources. My understanding of that issue was that
20 if there were a potential problem with that, staff
21 wants to be apprised of updates as to the status. So
22 there's going to be a continuation of observation,
23 checking, reporting for several years after this
24 mitigation activity. So I think we don't know. We

1 don't know if there will be an impact --

2 EXAMINER PRICE: But, Mr. Pawley, the
3 revised condition if adopted by the Board would
4 require the applicant to submit an Eastern Spadefoot
5 mitigation plan for the staff; is that correct?

6 THE WITNESS: Uh-huh.

7 EXAMINER PRICE: That mitigation plan
8 would comply with all ODNR requirements, correct?

9 THE WITNESS: Correct.

10 EXAMINER PRICE: And staff would receive
11 updates of the mitigation activities; is that
12 correct?

13 THE WITNESS: Correct.

14 EXAMINER PRICE: If this condition is
15 adopted, the applicant would be required to comply
16 with the Eastern Spadefoot mitigation plan as
17 accepted by the staff; is that correct?

18 THE WITNESS: That's correct.

19 EXAMINER PRICE: Any other questions
20 regarding this?

21 MS. YOUNG: One other question regarding
22 that.

23 Q. Would you be apprised of potential
24 tremor-causing activity by supporting activities such

1 as coal mining or carbon sequestration injection of
2 CO2?

3 A. I don't understand your question.

4 Q. My question is would any of the
5 supporting industries that would go along with this
6 proposed facility, AMPGS, which would include
7 injection for carbon sequestration potentially or
8 coal mining in the area to supply the industry with
9 the coal they need to operate, would any tremor
10 activities from the supporting industries
11 cumulatively, would that be reported to you as well?

12 MR. BENTINE: Objection.

13 EXAMINER PRICE: Sustained.

14 Mr. Pawley, isn't it the case if the
15 applicant needs to sequester carbon, they are
16 required by the staff's condition to submit a new
17 application report?

18 THE WITNESS: That is correct.

19 EXAMINER PRICE: At that time staff will
20 conduct a new investigation investigating that
21 potential problem.

22 THE WITNESS: At this time we don't know
23 what form that may take, the sequestration.

24 EXAMINER BOJKO: Mr. Pawley, referencing

1 the part that references tremors, the intent of that
2 phrase wasn't to infer any kind of seismic activity,
3 that was just referencing construction activities
4 that may cause disruption to the ground area.

5 THE WITNESS: Correct.

6 EXAMINER PRICE: As it relates to the
7 Eastern Spadefoot toad.

8 THE WITNESS: Correct.

9 MS. YOUNG: One more question.

10 EXAMINER BOJKO: Just to clarify the
11 record, currently the current application does not,
12 along Mr. Price's questioning, the current
13 application does not have any kind of carbon
14 sequestration injection into the ground, they're not
15 proposing that at this time; is that correct?

16 THE WITNESS: Correct.

17 Q. On page 34 of the staff report, under
18 Tree Removal, it says --

19 MR. WRIGHT: Where are we on 34?

20 MS. YOUNG: Page 34, the very last
21 paragraph, Tree Removal.

22 MR. WRIGHT: Thank you.

23 Q. "Construction of the landfill and
24 associated facilities, as well as a small portion of

1 the proposed power plant site and barge facilities,
2 will require clearing about 95 acres of woodland, of
3 which 79 acres are in the landfill. Impacts of the
4 tree removal would include the loss of food and
5 habitat for wildlife, increased potential for erosion
6 and sedimentation, and aesthetic impacts."

7 EXAMINER BOJKO: Do you see that,
8 Mr. Pawley?

9 Q. Do you see that, Mr. Pawley?

10 A. Yes.

11 Q. Did I accurately read it?

12 A. Yes.

13 Q. Does that tree removal reference include
14 preconstruction tree removal? Will they be allowed
15 to remove trees as part of the preconstruction work
16 prior to the permit being approved?

17 A. Based on the conditions they would not be
18 allowed to remove -- the preconstruction work I think
19 you referenced prior to permits, staff is saying that
20 construction shall not commence on this site unless
21 the conditions would be met, and the conditions
22 include a number of permits, so I think it would be
23 unlawful for the applicant to remove trees prior to
24 any -- the Board issuing this certificate for

1 associated facilities on this site.

2 Q. Are you aware in the state of Ohio that
3 if an industry is proposed, that they are allowed to
4 clear-cut trees, it's not regulated in state as part
5 of preconstruction work?

6 MR. WRIGHT: Objection.

7 EXAMINER PRICE: Sustained.

8 MS. YOUNG: I have another question
9 related to that, but I have to find the place where
10 it's referenced.

11 Q. I can't find it specifically, but it made
12 reference to if any habitat would be removed, there
13 would be someone from the staff appointed by the Ohio
14 Power Siting Board present. Do you know where that
15 is in this report?

16 A. To that extent or to -- I think I know
17 what you are talking about.

18 Q. Like an ongoing witness or a person
19 present, I believe.

20 A. I believe it's in the conditions. I
21 don't know which one exactly.

22 Q. Is that in the revised one or original
23 one?

24 A. It should be in both. No. 14 states:

1 "The applicant shall have an environmental inspector
2 on site at all times of construction (including
3 vegetative clearing) is being performed in or near a
4 sensitive area such as a designated wetland, stream
5 or river or in the vicinity of identified
6 threatened/endangered species or their identified
7 habitat. This includes all clearing of the proposed
8 landfill site cells."

9 That is a condition that staff believes
10 will help minimize impact on this site.

11 Q. I believe it will, too.

12 So even though preconstruction tree
13 removal is not regulated in this state --

14 MR. BENTINE: Objection.

15 Q. So the Ohio Power Siting Board under the
16 staff's recommendation, there would be an
17 environmental inspector on site before any
18 preconstruction habitat or tree clearing could be
19 done.

20 A. You are referring to preconstruction, and
21 I don't want there to be confusion on the record. I
22 think in one of your prior statements you mentioned
23 preconstruction, and you said to the effect prior to
24 permits being issued, certification. My point is

1 that staff is recommending conditions be implemented
2 prior to any construction on the site. Those
3 conditions include the appropriate permit approvals
4 so I think by connection -- if you see where I'm
5 going Ms. Young, they would not be able to do --
6 commence construction on this site without achieving
7 the permit approval as outlined in the conditions.

8 Now, in terms of preconstruction, staff
9 has raised conditions saying that before they
10 commence construction, there will be three
11 preconstruction conferences, so preconstruction
12 conferences that may deal with the landfill, say.

13 That's not to say that they necessarily
14 cannot start work in there. If they have all of
15 their permits in hand and they have a certificate by
16 the Board -- I'd have to read the preconstruction
17 condition again, but I'm not exactly sure about the
18 timing of what you're talking about, when they can
19 start or when they can't start. They have to meet
20 all the conditions if they were adopted by the Board.
21 Those conditions include a number of permits and
22 parameters. So I think that's the best way that I
23 can answer that question in terms of when they can
24 start construction

1 Q. Let me try and state the question in a
2 way I think -- if there are no permits required for
3 them to be able to remove trees in this state, would
4 you still have an environmental inspector present --
5 how do I word this?

6 A. If the Board adopted or took these
7 conditions, that's up to the Board what conditions
8 are -- staff's recommendation is that these
9 conditions be applied to any certificate the Board
10 may issue.

11 EXAMINER PRICE: Let me try.

12 Mr. Pawley, look at condition 14. It
13 says: "Applicant shall have an environmental
14 inspector on site at all times that construction
15 (including vegetation clearing) is being performed in
16 or near a sensitive area."

17 By that do you take that to mean that
18 vegetation clearing is included within the scope of
19 construction?

20 THE WITNESS: Yes.

21 EXAMINER BOJKO: Is it your position all
22 permits have to be obtained prior to start of
23 construction, which includes vegetation clearing.

24 THE WITNESS: As outlined in the

1 conditions, I would say yes.

2 Q. If there is not a permit required for
3 that preconstruction logging, would your staff still
4 recommend having an environmental inspector present?

5 A. Logging on site or off site?

6 Q. On site.

7 A. If that involved clearing, there would be
8 an environmental inspector present. And I would like
9 to clarify, Ms. Young, condition No. 7, "The
10 applicant shall conduct a preconstruction conference
11 prior to the start of work in each of the following
12 three areas."

13 Q. Is that a process that community members
14 are welcome to attend?

15 A. That's a good question. I don't know
16 that we've ever had that opened up before.

17 MS. YOUNG: We would like to.

18 EXAMINER BOJKO: Ms. Young, no
19 editorializing on the record. You have to ask a
20 question.

21 MS. YOUNG: Okay. I'd like to request
22 that.

23 EXAMINER BOJKO: No editorializing on the
24 record.

1 EXAMINER PRICE: If you think that should
2 be a condition, part of the conditions that the Board
3 should require, then you should make that
4 recommendation in your brief. That would be the
5 place to do it.

6 MS. YOUNG: Okay.

7 Q. There is a reference in the staff report,
8 I don't have the exact spot, but it says that they
9 will have to reseed the area when they're done. Is
10 that familiar to you? I believe it has to do with
11 reclamation.

12 A. If you can give me one moment, condition
13 No. 10 potentially.

14 MR. WRIGHT: You are referring to revised
15 conditions?

16 THE WITNESS: Revised conditions, yes.

17 Q. I do not see the reference in the revised
18 condition.

19 EXAMINER BOJKO: 10A. Could you read 10A
20 please.

21 A. I'm not sure what you mean by
22 reclamation, but there are some seeding parameters.

23 EXAMINER PRICE: Read 10A from the
24 report.

1 THE WITNESS: "The applicant shall
2 properly install and maintain erosion and
3 sedimentation control measures at the project site in
4 accordance with the following requirements.

5 "(a) During construction of the facility,
6 seed all the disturbed soil, except within cultivated
7 agricultural fields that will remain in production
8 following project completion, within seven days of
9 final grading with a seed mixture acceptable to the
10 appropriate County Cooperative Extension Service or
11 ODNR's Division of Wildlife for areas within the
12 mitigation area of the Eastern Spadefoot. Denuded
13 areas, including spoils piles and embankments, shall
14 be seeded and/or mulched and stabilized within seven
15 says if they will be undisturbed for more than
16 21 days. Reseeding shall be done within seven days
17 of emergence of seedlings as necessary until
18 sufficient vegetation in all areas has been
19 established. Mulching unaccompanied by seeding may
20 only be utilized as part of temporary stabilization
21 outside of the growing season. Areas temporarily
22 stabilized without being seeded shall be seeded
23 within seven days of commencement of the next growing
24 season."

1 Q. Okay. Will this be overseen then by the
2 ODNR?

3 A. No. It will be overseen by staff.

4 Q. By staff, okay. Is the staff -- I don't
5 have the reports here with me. But is the staff
6 aware of other sites where mining construction
7 activity has occurred where vegetation was unable to
8 maintain life after it had been planted?

9 MR. BENTINE: Objection.

10 EXAMINER PRICE: She asked if he was
11 aware.

12 A. Are we talking about specific power
13 siting projects?

14 Q. Not power siting projects, no.

15 A. No, I am not aware.

16 Q. Okay. Will there be any measure taken to
17 make sure that the measures that would be imposed by
18 this, that any vegetation that is planted as part of
19 mitigation, whether it's trees, seedling, grass seed
20 to make sure they are able sustain life in that area
21 after they have been planted, that they're not just
22 planted and die, they are actually -- sometimes pHs
23 changes. Sometimes things happen.

24 MR. FISK: Objection.

1 EXAMINER PRICE: Sustained. You can't
2 testify.

3 EXAMINER BOJKO: He was asked a question.
4 Let him answer.

5 A. Staff does follow up two years post
6 operation. That would include vegetation.

7 Q. Would that be both on and off site,
8 anyplace this has to be done?

9 A. Can you define "off site"?

10 Q. Well, I'm not sure. I haven't seen a map
11 that shows where this activity would be occurring.
12 Would this be --

13 EXAMINER PRICE: Ask a question, where
14 will this activity be required to be done.

15 A. For impacts associated with this project
16 on the applicant's site, if there is an off-site
17 issue that is raised to staff that is a direct result
18 of this project, an example, that comes to my mind,
19 damage to a county highway from truck traffic, then,
20 yes, staff certainly is within their rights to take
21 that up with the appropriate agency.

22 MS. YOUNG: Okay. That's all my
23 questions.

24 EXAMINER PRICE: Thank you.

1 Ms. Jaiswal, can you give me an estimate
2 how long you think your cross will go?

3 MS. JAISWAL: Maybe half an hour.

4 EXAMINER PRICE: Let's try to get it in
5 before lunch.

6 EXAMINER BOJKO: Off the record for a
7 minute.

8 (Discussion off record.)

9 MR. WRIGHT: Could I make the same
10 request, for you to keep your voice up as well.

11 MS. JAISWAL: Certainly.

12 - - -

13 CROSS-EXAMINATION

14 By Ms. Jaiswal:

15 Q. Good morning, Mr. Pawley. I'm Anjali
16 Jaiswal with the Natural Resources Defense Council.
17 I wanted to introduce myself.

18 A. Good morning.

19 Q. Good morning. How familiar are you with
20 the contents of the staff report?

21 A. I was responsible for the assembly of the
22 staff report.

23 Q. And have you read the staff report?

24 A. Yes.

1 Q. Do you have the staff report in front of
2 you?

3 A. Yes.

4 Q. Please turn to page 15.

5 MS. JAISWAL: Your Honor, I plan to read
6 only two portions, I know you had an instruction.

7 EXAMINER PRICE: That's fine.

8 Q. Are you on page 15?

9 A. Yes.

10 Q. I'm going to read from a section of it,
11 if you can follow along, and let me know if I get it
12 right. I'm starting with "The Board." Do you see
13 that?

14 A. Yes.

15 Q. "The Board shall not grant a certificate
16 for the construction, operation and maintenance of a
17 major utility facility, either as proposed or as
18 modified by the Board, unless it finds and
19 determines:" going to No. 2, "The nature of the
20 probable environmental impact," No. 3: That the
21 facility represents the minimum adverse environmental
22 impact, considering the state of available
23 alternatives and the nature and the economics of the
24 various alternatives, and other pertinent

1 considerations. I'm going to 6: "That the facility
2 will serve the public interest, convenience and
3 necessity."

4 Did I read that correctly?

5 A. No. I believe in No. 3 you stated
6 available alternatives.

7 Q. I'll read No. 3 again: "That the
8 facility represents the minimum adverse environmental
9 impact considering the state of available technology
10 and the nature and economics of the various
11 alternatives and other pertinent considerations."

12 Is it read correctly now?

13 A. Yes.

14 Q. Do you have any other corrections?

15 A. No.

16 Q. Thank you. Based on this page of the
17 report, would you agree with me that the Board has to
18 determine these factors before granting a
19 certificate?

20 A. Yes, I would agree.

21 Q. Thank you.

22 EXAMINER PRICE: I want to clarify
23 something for the record. Mr. Pawley, you're not
24 here to state a legal opinion, are you?

1 THE WITNESS: No.

2 EXAMINER PRICE: You're stating your
3 understanding what the statute says.

4 THE WITNESS: Correct.

5 EXAMINER PRICE: You're not a lawyer.

6 THE WITNESS: No.

7 EXAMINER PRICE: You're not a legal
8 expert.

9 MR. BENTINE: No.

10 EXAMINER BOJKO: For the record, Ms.
11 Jaiswal read Section 4906.10(A) of the Revised Code.

12 MS. JAISWAL: Thank you, your Honor.
13 Anything further?

14 EXAMINER PRICE: No.

15 Q. (By Ms. Jaiswal) Please turn to page 30.
16 I'm going to read from this page, and if you could
17 just follow along and let me know if I get it right,
18 and if I misstate a word inadvertently, please let me
19 know. I am at the bottom paragraph, four lines up
20 from the bottom, the sentence beginning "however."
21 "However, emissions of CO2 have been associated with
22 climate change, and" --

23 EXAMINER BOJKO: I don't see the sentence
24 that begins with "however."

1 MS. JAISWAL: A phrase that begins with
2 "however." The is a semicolon.

3 EXAMINER PRICE: I think it would be
4 helpful if you read the whole sentence.

5 MS. JAISWAL: Sure.

6 EXAMINER PRICE: Thank you.

7 Q. "The facility will also emit carbon
8 dioxide (CO2). Emissions of CO2 are not currently
9 regulated; however, emissions of CO2 have been
10 associated with climate change, and therefore options
11 are being evaluated world-wide to reduce the amount
12 of CO2 that is emitted into the atmosphere."

13 Mr. Pawley, did I read that correctly?

14 A. Yes.

15 Q. And are you familiar with the Recommended
16 Conditions of Certificate that were prepared on
17 12/10/2007?

18 A. Yes.

19 Q. Except for the single instance on
20 page 30, nowhere in the staff report is the phrase
21 "climate change" mentioned. Should I restate that?
22 I want to make sure you heard me.

23 EXAMINER BOJKO: On page?

24 MS. JAISWAL: Thirty.

1 EXAMINER BOJKO: The sentence we just
2 read.

3 MS. JAISWAL: Yes.

4 Q. Except for the single instance on page 30
5 nowhere in this staff report is the phrase "climate
6 change" mentioned, correct?

7 A. I believe that to be correct.

8 Q. And nowhere in the recommended conditions
9 of certificate is the phrase "climate change"
10 mentioned, correct?

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

12 Q. And nowhere in the staff report is there
13 an analysis of climate change, correct?

14 A. That's correct.

15 Q. And nowhere in the recommended conditions
16 of certificate is there an analysis of the impacts of
17 climate change; is that correct?

18 A. The specific words "climate change," no.

19 Q. Thank you. And nowhere in the staff
20 report is there an analysis of climate change
21 impacts; is that correct?

22 A. Correct.

23 MS. JAISWAL: Your Honor, I would like to
24 mark Citizen Groups' Exhibit 11 for the record.

1 EXAMINER PRICE: So marked.

2 (EXHIBIT MARKED FOR IDENTIFICATION.)

3 MS. JAISWAL: May I approach, please?

4 EXAMINER PRICE: Yes.

5 MS. JAISWAL: Counsel are being provided
6 copies.

7 I will lay some foundation.

8 Q. The title of this page is "Climate Change
9 and Ohio"; is that correct?

10 A. Yes.

11 Q. And this is a document from the EPA; is
12 that correct?

13 A. It appears to be from the USEPA.

14 Q. Yes. From the corner on the left-hand
15 corner of the page, does that say EPA; is that
16 correct?

17 A. Yes.

18 Q. Then right next to that on the corner
19 does it say United States Environmental Protection
20 Agency? Is that correct?

21 A. Yes.

22 Q. And the date of this document is
23 September 1998; is that correct?

24 A. Yes.

1 Q. Did staff consider this document in
2 preparing the staff report?

3 A. I'm not aware that they did.

4 Q. Thank you.

5 MR. BENTINE: Please read the last answer
6 back.

7 (Question read.)

8 Q. So staff did not consider this report; is
9 that correct?

10 EXAMINER PRICE: He stated his knowledge.

11 MS. JAISWAL: I'd like to mark for
12 identification Citizen Groups' 12.

13 EXAMINER PRICE: So marked.

14 (EXHIBIT MARKED FOR IDENTIFICATION.)

15 MS. JAISWAL: Again, some procedural
16 questions.

17 EXAMINER PRICE: Please proceed.

18 Q. The first line of this document reads
19 "Ohio EPA"; is that correct?

20 A. Correct.

21 Q. And below that it says: "State of Ohio
22 Environmental Protection Agency"; is that correct?

23 A. Yes.

24 Q. And then on the right-hand corner it says

1 "News Release"; is that correct?

2 A. Yes.

3 Q. And the date it says "For Release
4 April 30, 2007"; is that correct?

5 A. Yes.

6 Q. The title underlined says: "Ohio Joins
7 the Climate Registry to Track Emissions of Climate
8 Change Gases"; is that correct?

9 A. Yes.

10 Q. Did staff consider this document in
11 preparing the staff report?

12 A. I'm not aware.

13 MS. JAISWAL: May I approach, your
14 Honors?

15 EXAMINER PRICE: You may.

16 MR. WRIGHT: Are you intending to provide
17 counsel with what you just handed the witness.

18 MS. JAISWAL: I'm sorry. I certainly am.
19 I thought Mr. Fisk was providing them. I am
20 providing them now. I will give you a minute to look
21 at them before I start my foundational questions.

22 MR. WRIGHT: Thank you.

23 MS. MALONE: This is all one document?

24 MS. JAISWAL: Yes, it is.

1 Q. If I may ask the court reporter to read
2 back my last question and the answer. That
3 Mr. Pawley gave.

4 (Question read.)

5 Q. Mr. Pawley, could you please explain what
6 it is that you're not aware of? You're not aware of
7 what?

8 A. I'm not aware of staff's consideration of
9 this documents.

10 Q. Thank you. I just wanted be to clear for
11 the record.

12 EXAMINER PRICE: That wasn't very clear.
13 You're not aware of staff's consideration of which
14 document?

15 THE WITNESS: The April 30, 2007 press
16 release.

17 EXAMINER PRICE: Now marked as?

18 THE WITNESS: Exhibit 12.

19 EXAMINER BOJKO: Does that mean you don't
20 know if they did consider it?

21 THE WITNESS: That's correct.

22 MS. JAISWAL: Thank you, your Honors.

23 (EXHIBIT MARKED FOR IDENTIFICATION.)

24 Q. Some foundational questions on Citizen

1 Groups' 13. Do you have that Citizen Groups' 13 in
2 front of you, Mr. Pawley?

3 A. Yes.

4 Q. The left-hand corner has an emblem on it,
5 and that emblem says around it United States
6 Environmental Protection Agency; is that correct?

7 A. Yes.

8 Q. And on the left-hand corner there's a
9 website; is that correct?

10 A. Left-hand corner?

11 Q. Under right-hand corner, excuse me.

12 A. Yes.

13 Q. And it says
14 "<http://www.epa.gov/climatechange>"; is that correct?

15 A. Yes.

16 Q. And the title of this document is
17 "Climate Change"; is that correct?

18 A. Yes.

19 MS. JAISWAL: And as an officer of the
20 court, I'm going to represent this is from the
21 website <http://www.epa.gov/climatechange>.

22 Q. Mr. Pawley, have you ever been on the
23 website <http://www.epa.gov/climatechange>?

24 A. No.

1 Q. Do you know if staff has been on the
2 website, <http://www.epa.gov/climatechange>?

3 A. I don't know.

4 Q. Do you know if staff has considered these
5 documents from EPA?

6 A. I don't know.

7 MS. JAISWAL: I have a point of order.
8 Are previous exhibits used for previous witnesses
9 available for this witness? We only have one copy of
10 the documents that we previously provided to all
11 counsel as well as to your Honors, as well as to --

12 EXAMINER PRICE: Which exhibits are you
13 talking about?

14 MR. FISK: Citizen groups' 3, 4 and 5.

15 EXAMINER BOJKO: Can you tell us what
16 they are?

17 MS. JAISWAL: Climate Change 2007, The
18 Intergovernmental Panel on Climate Change.

19 EXAMINER PRICE: We will take a
20 two-minute break because mine are in the office.

21 (Recess taken.)

22 EXAMINER PRICE: Back on the record.
23 Those exhibits that have been marked and identified
24 have not been admitted in this proceeding.

1 MS. JAISWAL: I understand.

2 EXAMINER PRICE: Please proceed.

3 MS. JAISWAL: Thank you.

4 Q. (By Ms. Jaiswal) Mr. Pawley, do you have
5 Citizen Groups' Exhibit 3 in front of you?

6 A. Yes.

7 Q. And I'm going to ask some foundational
8 questions. If you could look at the first page
9 please, does it say the first line, Climate Change
10 2007?

11 A. Yes.

12 Q. Does the second line say Physical Science
13 Basis?

14 A. Yes.

15 Q. Jumping down to the bottom portion of
16 page you see the line that says Published for the
17 Intergovernmental Panel on Climate Change?

18 A. Yes.

19 Q. If you could, please turn to V when you
20 turn the page.

21 MR. BENTINE: I'm going to object to
22 questions that read stuff out of stuff that has
23 already been denied to be admitted. Unless we can
24 hook up something this witness has to do with this, I

1 think it is improper as a way to try to get things in
2 that have already been denied.

3 MS. JAISWAL: Your Honor, may I respond?

4 EXAMINER PRICE: Go ahead and respond.

5 MS. JAISWAL: Our response, my response
6 is that your Honors should sustain the objection
7 because it is properly submitted before this court
8 for purposes of examination.

9 EXAMINER BOJKO: I think you mean
10 overrule the objection.

11 MS. JAISWAL: I'm sorry, overrule.

12 EXAMINER PRICE: We are going to sustain
13 the objection. I think you need, as you did other
14 documents, to find out if the staff witness
15 considered this.

16 MS. JAISWAL: If I may respond.

17 EXAMINER PRICE: Sure.

18 MS. JAISWAL: If you recall on page 30 of
19 the staff report, it states, and I believe I read
20 that portion, and Mr. Pawley said I read it
21 correctly, it says the phrase "emissions of CO2 have
22 been associated with climate change and, therefore,
23 options are being evaluated world-wide to reduce the
24 amount of CO2 that is emitted into the atmosphere."

1 So it is relevant to that statement, these documents
2 are relevant, and Mr. Pawley is testifying here on
3 behalf of staff. Also what's relevant is what staff
4 considered and did not consider, and previously this
5 court, your Honors you have allowed questioning
6 through testifying witnesses regarding press
7 releases. Your Honors, you have --

8 EXAMINER PRICE: I have already sustained
9 the objection. But again, if you can tie this to
10 Mr. Pawley's testimony, I'm not saying that we won't
11 admit. I'm saying you haven't tied this to
12 Mr. Pawley's testimony. You haven't asked him if he
13 considered the document or asked him what he
14 considered in reaching the conclusions he did reach.

15 MS. JAISWAL: I will ask that question.
16 I believe he acknowledged that on the direct
17 examination, what was considered.

18 Q. (By Ms. Jaiswal) Mr. Pawley, what was
19 considered when the staff report was being prepared?

20 A. The contents of the application and
21 supplemental information.

22 Q. And is the staff required to consider
23 environmental impacts?

24 MR. WRIGHT: I assume the question is not

1 asking for a legal conclusion.

2 Q. Is one of your considerations
3 environmental impacts?

4 A. As --

5 Q. Yes or no.

6 A. As contained in the application, yes, and
7 the impacts that those --

8 Q. I'm asking a yes or no question. My
9 question is, is one of the considerations
10 environmental impacts?

11 A. Yes.

12 Q. And is one of the considerations probable
13 environmental impacts?

14 A. Can you restate that?

15 MS. JAISWAL: Please read it back.

16 (Question read.)

17 A. Are you stating that as one of the
18 criteria that staff use?

19 Q. I'm stating as one of your
20 considerations, staff's consideration in preparing
21 the staff report for the recommendation to the
22 administrative law judges.

23 A. Yes, I think that's correct.

24 Q. Could you turn you back to page 30 of the

1 staff report, and the line again, "however, emissions
2 with CO2 have been associated with climate change,
3 and therefore options are being evaluated world-wide
4 to reduce the amount of CO2." What is the basis of
5 that statement?

6 A. It is not staff's position. If you will,
7 it's a general understanding.

8 Q. What is the basis of your general
9 understanding?

10 MR. BENTINE: I'm going to object.
11 That's not what he said.

12 EXAMINER PRICE: Can you be precise what
13 you meant by "you"? Did you mean you, the staff, or
14 you, Mr. Pawley?

15 MS. JAISWAL: First I'll ask about
16 Mr. Pawley and then staff.

17 Q. So first you, Mr. Pawley.

18 A. I'm not responsible for that piece. I
19 can't answer directly.

20 Q. Are you testifying today as the sponsor
21 of the staff report?

22 A. Uh-huh.

23 Q. Do you know who is responsible for that
24 piece?

1 A. Yes.

2 Q. Who is that person?

3 A. I believe it came from Stuart Siegfried.

4 Q. Is Stuart Siegfried -- can you please
5 restate his name?

6 A. Stuart Siegfried.

7 Q. Is he on staff?

8 A. Yes.

9 Q. What is his position?

10 A. Specifically, I don't know. I don't know
11 what his job title is.

12 EXAMINER PRICE: Mr. Siegfried was part
13 of the team that put this particular report together;
14 is that correct?

15 THE WITNESS: Yes.

16 Q. Did you talk to Mr. Siegfried about this
17 portion?

18 A. Yes.

19 Q. What did he say?

20 A. The idea was to introduce the
21 sequestration piece, the carbon capture sequestration
22 piece.

23 Q. Did you talk about: Emissions of CO2
24 have been associated with climate change and

1 therefore options are being evaluated world-wide to
2 reduce the amounts of CO2 that is emitted into the
3 atmosphere?

4 A. Yes. Again, I think that was a general
5 understanding of where CO2 is today.

6 Q. To clarify, in your discussions with the
7 staff member.

8 A. Yes. There's not a particular source
9 that would be attributable to that that I'm aware of.

10 Q. What did you discuss?

11 A. We discussed that options are being
12 evaluated.

13 Q. What did you mean by "options are being
14 evaluated"?

15 A. To look at reductions of emissions.

16 Q. And did you talk about climate change?

17 A. I don't recall.

18 Q. Did you talk about global warming?

19 A. I don't remember that.

20 Q. In this sentence you said you discussed
21 emissions of CO2 have been associated with climate
22 change but you don't remember the discussion.

23 MR. BENTINE: Objection.

24 MS. JAISWAL: I'll strike that.

1 Q. Do you know in making or in preparing the
2 staff report and including this phrase what
3 underlying documents were considered?

4 A. No.

5 MS. JAISWAL: I would like to go to the
6 exhibit now.

7 EXAMINER PRICE: Okay.

8 MS. JAISWAL: Is that proper? Is that
9 acceptable?

10 EXAMINER PRICE: Let's see what your
11 questions are.

12 MS. JAISWAL: I only have a few more and
13 I will go quickly.

14 Q. Do you have Citizen Groups' 3 in front of
15 you have?

16 MR. BENTINE: We don't have ours so if I
17 can look over counsel's shoulder.

18 A. Yes.

19 Q. Do you recognize this document?

20 A. No.

21 Q. Have you been here in these proceedings?
22 As part of staff, have you been in these proceedings
23 discussing AMP's application?

24 A. I have been in intermittently.

1 Q. Do you recall this document being
2 discussed here?

3 A. I honestly do not.

4 Q. Do you recall the Intergovernmental Panel
5 on Climate Change being discussed?

6 MR. BENTINE: Objection.

7 EXAMINER PRICE: Grounds.

8 MR. BENTINE: He said he didn't recall
9 this document.

10 EXAMINER PRICE: I think she's asking a
11 slightly different question.

12 Please answer the question if you can.

13 A. I recall the title Intergovernmental
14 Panel on Climate Change. I don't recall the content
15 of the testimony.

16 Q. Thank you. Is the first title, let me
17 know if I am reading this right, "Climate Change
18 2007" --

19 MR. BENTINE: I object. He hasn't seen
20 the document. He doesn't recall the discussion in
21 here, and we're simply trying to read parts of a
22 document that has already been denied.

23 EXAMINER PRICE: You can move to strike
24 after we get the actual question on the table. To

1 the best of my understanding she's still trying to
2 lay a foundation. Once we get to an actual question,
3 we will take it up at that point.

4 Q. Have you heard the Intergovernmental
5 Panel on Climate Change?

6 A. I've heard of them, yes.

7 Q. Now, if I could go again to Citizen
8 Groups' Exhibit 3, are you there?

9 A. Yes.

10 Q. The first page, Climate Change -- I'm
11 reading the title. Let me know if I am reading that
12 correctly. "Climate Change 2007: The Physical
13 Science Basis."

14 MR. BENTINE: Objection.

15 EXAMINER PRICE: Grounds.

16 MR. BENTINE: He hasn't seen it. How is
17 this relevant to start reading the title?

18 EXAMINER PRICE: She's still trying to
19 lay a foundation here, to the best of my
20 understanding. Let's allow her to lay the
21 foundation, and then eventually I suppose she will
22 have a question. Then I think your objection will be
23 timely.

24 MR. BENTINE: He already said he hasn't

1 considered it, seen it.

2 EXAMINER PRICE: It's overruled. Her
3 asking him if she read the title correctly is not
4 going to hurt your case.

5 Please proceed

6 MS. JAISWAL: Thank you.

7 Q. Do you have Citizen Groups' Exhibit 3 in
8 front of you?

9 A. Yes.

10 Q. The title, I'm going to read this, please
11 let me know if I read this correctly.

12 EXAMINER BOJKO: I think we already read
13 the title a few times.

14 Q. "Climate Change: 2007, The Physical
15 Science Basis"; is that correct?

16 A. Correct.

17 Q. And now I'm going to go to midline. It
18 says "Published for the Intergovernmental Panel on
19 Climate Change"; is that correct?

20 A. Yes.

21 Q. If you could please to turn to -- just
22 turn the page, V. Really short, I'm just going to
23 read one sentence.

24 MR. WRIGHT: Excuse me counsel, you said

1 V?

2 EXAMINER PRICE: The forward.

3 MR. WRIGHT: In NRDC 00860, a little v in
4 the bottom.

5 MS. JAISWAL: The little v are the actual
6 page numbers, the Bates numbers were provided
7 previously.

8 MR. WRIGHT: Okay, thank you.

9 Q. If would you go to the second paragraph,
10 second sentence, let me know if I am reading this
11 correctly: "Established by the World Meteorological
12 Association and United States Environmental Program
13 in 1988, the IPCC is both an intergovernmental body
14 and a network of the world's leading climate change
15 scientists and experts."

16 MR. BENTINE: Objection.

17 EXAMINER BOJKO: I haven't heard the
18 question.

19 EXAMINER PRICE: I note the continuing
20 objection.

21 Q. Did I read that correctly?

22 A. Yes.

23 Q. If you could turn back to the back page
24 and I'm going to read down, six lines down where it

1 says "First published in 2007." Did I read that
2 correctly?

3 MR. BENTINE: Objection.

4 EXAMINER PRICE: Noted.

5 A. Yes.

6 Q. Did staff consider this document in
7 preparing the staff report?

8 MR. BENTINE: Objection.

9 EXAMINER PRICE: Noted.

10 A. I do not know.

11 Q. You don't know if staff considered this
12 report.

13 A. Correct.

14 Q. Thank you.

15 MS. JAISWAL: I hope these go faster.

16 Q. Mr. Pawley, do you have Citizen Groups'
17 4 in front of you?

18 A. Yes.

19 Q. Have you seen this document?

20 A. No.

21 Q. Were you here during the hearing, during
22 this proceeding?

23 A. Yes.

24 Q. Do you recall this document being

1 discussed?

2 A. No.

3 Q. Do you know who the Intergovernmental
4 Panel on Climate Change is?

5 MR. BENTINE: Objection. In addition to
6 my continuing objection on these three exhibits, this
7 one is asked and answered.

8 EXAMINER PRICE: Sustained.

9 Q. I will quickly read it. "Climate Change
10 2007: Impact, Adaptation, and Vulnerability." Did I
11 read that correctly?

12 A. Yes.

13 Q. And midway down, "Published by the
14 Intergovernmental Panel on Climate Change."

15 A. Yes.

16 Q. And then if you flip the page it says
17 "First published 2007"; is that correct?

18 A. Yes.

19 Q. Did staff consider this document in
20 preparing the staff report?

21 A. I am not aware that they considered this.

22 Q. Mr. Pawley, do you have Citizen Groups'
23 Exhibit 5 in front of you?

24 A. Yes.

1 Q. And I am reading the title. Let me know
2 if I read it correctly: "Climate Change 2007:
3 Mitigation."

4 A. Yes.

5 Q. And the middle line, "Published for the
6 Intergovernmental Panel on Climate Change." Did I
7 read that correctly?

8 A. Yes.

9 Q. And flipping the page does it say "First
10 published in 2007"?

11 A. Yes.

12 Q. Did staff consider this document in
13 preparing the staff report?

14 A. I am not aware that it was considered.

15 MS. JAISWAL: We have no further
16 questions, your Honor.

17 EXAMINER PRICE: Thank you.

18 MR. WRIGHT: Could we have a minute, your
19 Honor.

20 EXAMINER PRICE: At the end of the minute
21 if you tell me how long your redirect is, you can.

22 MR. BENTINE: Are we going to have a
23 chance?

24 EXAMINER PRICE: I'm sorry, my mistake.

1 MR. BENTINE: Very short.

2 EXAMINER PRICE: Okay, Mr. Bentine.

3 MR. BENTINE: Thank you, your Honor.

4 - - -

5 CROSS-EXAMINATION

6 By Mr. Bentine:

7 Q. Mr. Pawley, did the staff receive any
8 comments from any party in response to its sending
9 out of what has now been marked Staff Exhibit 2A
10 after that was sent out in terms of requesting any
11 changes to that document?

12 MS. MALONE: Not 2A, just 2.

13 Q. 2, I'm sorry.

14 A. Not that I'm aware of.

15 Q. And it was sent to all the parties, I
16 believe.

17 A. I believe that's correct.

18 EXAMINER BOJKO: Was there a request for
19 feedback, Mr. Pawley?

20 THE WITNESS: That's my understanding,
21 review and comment.

22 Q. Mr. Pawley, how long have you been
23 associated with the Power Siting Board?

24 A. Approximately three years, maybe four.

1 Q. Are you aware of whether or not in any
2 prior proceeding of the Power Siting Board the
3 potential for carbon dioxide and climate change was
4 considered by the staff or the Board in any
5 application before the Board that was approved for
6 the siting of a major utility facility in?

7 MS. JAISWAL: Objection.

8 EXAMINER PRICE: Grounds.

9 MS. JAISWAL: Relevance.

10 EXAMINER PRICE: Overruled.

11 THE WITNESS: Can you reread the
12 question, please.

13 (Question read.)

14 A. I'm not aware.

15 Q. And with regard to what was marked as
16 Citizen Groups' 11, the document you said you weren't
17 aware of, that was a 1998 document, was it not? I
18 believe it's in the upper right-hand corner.

19 A. Yes, that is correct.

20 MR. BENTINE: That's all I have. Thank
21 you.

22 EXAMINER PRICE: Thank you.

23 Mr. Wright.

24 MR. WRIGHT: We have no redirect for the

1 witness.

2 EXAMINER PRICE: Thank you.

3 Mr. Pawley, you're excused.

4 (Witness excused.)

5 EXAMINER PRICE: Mr. Wright, do you have
6 a motion for me?

7 MR. WRIGHT: Yes, sir. We move Staff
8 Exhibit 1, the Staff Report of Investigation, and
9 Staff Exhibit 2, the Recommended Conditions of
10 Certificate, dated 12/10/2007.

11 EXAMINER PRICE: Any objections?

12 (No response.)

13 EXAMINER PRICE: Hearing none, Staff
14 Exhibit 1 and Staff Exhibit 2 will be admitted.

15 (EXHIBITS ADMITTED INTO EVIDENCE.)

16 EXAMINER PRICE: Thank you, your Honor.

17 MS. JAISWAL: Your Honor.

18 EXAMINER PRICE: Mr. Jaiswal.

19 MS. JAISWAL: We move Citizen Groups'
20 Exhibits 11, 12, 13, 2, 3, 4.

21 EXAMINER PRICE: Any objections.

22 MS. JAISWAL: I'm sorry, if I can
23 restate. I misstated the numbers. It's 11, 12, 13,
24 3, 4 and 5.

1 EXAMINER PRICE: Any objections?

2 MR. BENTINE: Absolutely.

3 EXAMINER PRICE: Mr. Bentine.

4 MR. BENTINE: I object to all of them.

5 3, 4 and 5 ought to be absolutely crystal clear that
6 those shouldn't be admitted. Nothing was done with
7 regard to those three exhibits that should cause them
8 to be admitted, and they have already been denied.

9 With regard to 11, 12 and 13, this
10 witness did not indicate anybody relied on those.
11 There certainly are documents that may be available
12 out on the web, are as a lot of documents available
13 out on the web. They are not tied to this case in
14 any way, shape or form by there witness. They were
15 not used to impeach this witness, so, therefore, I
16 object to that admission

17 EXAMINER PRICE: Mr. Wright.

18 MR. WRIGHT: I would join in the latter
19 half of that objection that relates to 11, 12, 13.
20 The witness clearly had not seen or relied upon the
21 documents previously.

22 EXAMINER PRICE: Ms. Jaiswal, would you
23 like to respond?

24 MS. JAISWAL: There are four independent

1 bases for allowing all of these documents. First, it
2 is consistent with this Court's, your Honors, prior
3 rulings, your Honors.

4 EXAMINER PRICE: My prior ruling on 3, 4,
5 5 was not to admit them.

6 MS. JAISWAL: Your prior ruling on other
7 documents that were admitted at this hearing. Your
8 Honors have consistently allowed documents into the
9 record through testifying witnesses on
10 cross-examination, including public documents,
11 published documents, press releases, and even in
12 instances where the witness did not recognize the
13 documents or did not know the document and it didn't
14 pertain to AMP-Ohio.

15 Second, as I pointed out, the staff
16 report states on page 30 that emissions of CO2 have
17 been associated with climate change. This goes
18 directly to that document.

19 EXAMINER PRICE: Are you disputing what
20 they're saying?

21 MS. JAISWAL: We want to know the basis
22 of what they're saying. That was why we were asking
23 them.

24 EXAMINER PRICE: These documents have

1 nothing to do with the staff's basis. I understand
2 that you asked him questions to what their basis was,
3 but he said clearly these, to the best of his
4 understanding, were not the basis.

5 MS. JAISWAL: What we are trying to
6 clarify, to answer your question, what we are trying
7 to clarify in terms of what staff considered as
8 required for their evaluation is what staff actually
9 did consider and what staff didn't consider.

10 EXAMINER BOJKO: No. You picked five
11 documents, six documents and asked if he's ever seen
12 them. You did not get every single document out
13 there in the world and asked if he's seen them. I
14 don't understand how you're asking us to admit these
15 that he hasn't seen when you haven't established what
16 he has seen.

17 MS. JAISWAL: I asked him which
18 documents.

19 EXAMINER BOJKO: He said he didn't know
20 because he wasn't responsible for that sentence.

21 MS. JAISWAL: I asked him if he spoke
22 with other people.

23 EXAMINER BOJKO: He said he didn't
24 remember.

1 MS. JAISWAL: I guess we would ask the
2 staff to provide the person who would know which
3 documents and ask them.

4 EXAMINER PRICE: That's a different
5 request, and what I don't understand about that
6 request, I don't understand what you disagree with
7 what the staff witness said.

8 MS. JAISWAL: What that issue here in
9 terms of the staff report is what staff did and did
10 not consider, and these documents show what staff did
11 not consider.

12 EXAMINER PRICE: Ms. Jaiswal, there are
13 libraries of documents that the staff did not
14 consider. Are you saying you can go down to the
15 Columbus Public Library, bring in any volume you want
16 and get it into the record of this proceeding on
17 environmental issues and then use it however you will
18 because the staff did not consider that document?

19 MS. JAISWAL: No, your Honors, that's not
20 what we're saying.

21 EXAMINER PRICE: I fail to see how this
22 is different.

23 MS. JAISWAL: Documents that have proper
24 foundation that are relevant to the notion that is

1 presented to the Board, they have been provided to
2 staff in these proceedings.

3 EXAMINER BOJKO: They have before today?

4 MS. JAISWAL: They have been provided to
5 the parties.

6 EXAMINER BOJKO: Before the proceeding?

7 MS. JAISWAL: 3, 4 and 5.

8 MS. MALONE: Not staff, other than in the
9 proceeding.

10 MR. WRIGHT: As part of this hearing.

11 MS. JAISWAL: Counsel for staff.

12 Alternatively we would request judicial
13 notice. Our main point is this is consistent with
14 your Honors' previously ruling.

15 EXAMINER BOJKO: I disagree. I think
16 asking a witness, you're implying things they didn't
17 consider by selectively picking documents and asked
18 whether they considered them, I think that's
19 completely inconsistent with our prior rulings. Our
20 other rulings we were only using documents that were
21 cross-examined on their testimony and associated with
22 their testimony. You did not use this document to
23 contradict one thing in his testimony or to establish
24 that they were viewed or even considered these

1 documents.

2 I take issue with you asserting this is
3 consistent with our other rulings because I disagree
4 with that. I know one document you are referring to
5 that I admitted, and that is completely incorrect.
6 That was used in cross-examination.

7 MS. JAISWAL: Your Honor, I used this in
8 cross-examination.

9 EXAMINER PRICE: You didn't impeach the
10 witness with it. It doesn't impeach the witness one
11 bit. You simply asked if he's seen it. It is not
12 impeaching the witness one little bit.

13 Mr. Bentine, your response to
14 Ms. Jaiswal.

15 MR. BENTINE: Your Honor, I believe it is
16 consistent with prior to rulings. It was not used to
17 impeach, and that was the only way this kind of stuff
18 was brought in. The witness didn't see it. And as
19 for the argument you can take judicial notice of any
20 document out there, that's just completely wrong.
21 The Bench knows it is. I hope that, frankly, counsel
22 for NRDC knows it's wrong.

23 EXAMINER BOJKO: You meant to say that
24 not allowing is consistent.

1 MR. BENTINE: Yes.

2 EXAMINER PRICE: We haven't ruled yet.

3 MR. BENTINE: Yes, not allowing would be
4 completely consistent.

5 EXAMINER PRICE: Mr. Wright.

6 MR. WRIGHT: I have nothing to add. I
7 concur.

8 EXAMINER PRICE: Citizen Groups' 11, 12,
9 13, 3, 4, and 5 will not be admitted.

10 Let's go off the record.

11 EXAMINER PRICE:

12 (Discussion off record.)

13 EXAMINER PRICE: At this time our hearing
14 will be adjourned to reconvene on Friday,
15 January 4 at 9:00 o'clock. Prefiled testimony for
16 rebuttal witnesses for AMP-Ohio will be due on
17 December 28.

18 MR. FISK: And, your Honor, I would like
19 to note for the record our objection to AMP-Ohio
20 being able to present rebuttal witnesses. Our belief
21 is they realized alternatives were at issue. They
22 presented testimony on alternatives already, and they
23 had a chance to make their case on that, and it
24 should be left at that, and it is prejudicial for us

1 not to be able to present rebuttal witnesses.

2 I'd also like to reserve our right to
3 request that we be able to depose any rebuttal
4 witnesses and also reserve our right to request the
5 ability to provide surrebuttal testimony

6 EXAMINER PRICE: I note your reservation
7 of your right to ask for surrebuttal.

8 MR. BENTINE: Can I speak to this?

9 EXAMINER PRICE: Sure.

10 MR. BENTINE: I guess if we are going to
11 have objections to rebuttal, then I'm not sure I am
12 willing to accommodate Mr. Fisk with regard to access
13 to my witnesses. Either we are going to go ahead
14 with rebuttal and have agreement, or we are going to
15 go strictly by the Commission's precedent. We're not
16 going to do both. You can't have your cake and eat
17 it too. If we are going to go ahead with rebuttal
18 witnesses over objection -- which, frankly, I'm
19 astounded at. We have the burden of proof here, and
20 anything outside of appropriate rebuttal, I'm sure
21 your Honors will deal with that appropriately, but
22 we're entitled to rebuttal as the entity with the
23 burden of going forward and the burden of proof in
24 the proceeding. I think it would be highly irregular

1 and improper and prejudicial to not let us do it.

2 Having said that, I understand we are
3 going to schedule it, but by the same token, I will
4 not let these folks have their cake and eat it too
5 with regard to discovery on my folks, which I offered
6 to do. But I will not offer to do it if we are going
7 to go forward with an objection to my ability to have
8 rebuttal.

9 MR. FISK: Your Honor, we certainly will
10 comply with your ruling. We are just simply noting
11 for --

12 EXAMINER BOJKO: You're objecting to the
13 concept of rebuttal.

14 MR. FISK: Yes, we are noting that --

15 EXAMINER BOJKO: And we need to make a
16 ruling now.

17 EXAMINER PRICE: You are preserving your
18 objection so you can appeal on those.

19 MR. FISK: Yes.

20 EXAMINER PRICE: Having said that, at
21 this time we will rule that rebuttal witnesses will
22 be allowed. As a tradition, the Ohio Power Siting
23 Board, as well as the Public Utilities Commission,
24 has always allowed for rebuttal witness to the party

1 bearing the burden of proof.

2 We note that the testimony must be
3 prefiled testimony by December 28, and we will note
4 there is no provision for deposition of rebuttal
5 witnesses prior to that time.

6 We understand you are preserving the
7 right to request surrebuttal. I don't believe there
8 is anything other pending on that, preserving that
9 right, and we will address that issue at a future
10 time.

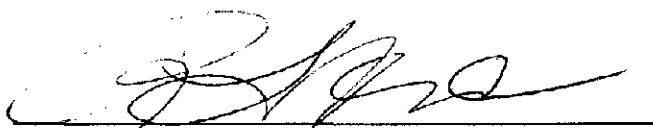
11 We will see everybody January 4, 2008.
12 The hearing room will be announced by the Hearing
13 Commission calendar. Thank you.

14 (Thereupon, the hearing concluded at
15 12:54 p.m.)

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CERTIFICATE

I do hereby certify that the foregoing is a true and correct transcript of the proceedings taken by me in this matter on Wednesday, December 19, 2007, and carefully compared with my original stenographic notes.



Rosemary Foster Anderson,
Professional Reporter and
Notary Public in and for
the State of Ohio.

My commission expires April 5, 2009.

(RFA-8080)

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1 In re: AMP-Ohio, Case No. 06-1358-EL-BGN,
2 Volume V, 12/19/07

3 OFFER OF PROOF

4 MR. BENTINE: Had I been able to pose
5 questions to Mr. Clark on re-redirect with regard to
6 the questions on recross, going through the number of
7 the states on Exhibit IC-1 in Mr. Clark's testimony,
8 I would make the following comments. And I'll try to
9 be concise and quick, and I'll stand by Mr. Clark and
10 if he disagrees, he's going to kick me.

11 With regard to a number of those states I
12 believe Mr. Clark would have testified with regard to
13 Alabama, that is not a deregulated state and has some
14 nuclear capacity in that state that makes up for coal

15 With regard to Tennessee, Tennessee is
16 greatly served by the Tennessee Valley Authority,
17 which is a governmental entity. It has a large
18 number of municipal utilities, both of which get
19 low-cost capital, and it also has a significant
20 amount of nuclear

21 With regard to Arkansas, Arkansas is not
22 a deregulated state

23 With regard to Nebraska, Nebraska is all
24 public power and has access to low-cost capital.

1 With regard to Washington State, Oregon
2 and Montana, those are all Northwest states that have
3 significant amounts of hydroelectric.

4 In other words, with regard to almost
5 every one of the ones that was mentioned by Mr. Fisk,
6 there are other reasons that those states have low
7 power costs as compared to Ohio, and Ohio, as the
8 Board is certainly aware, is a deregulated state

9 Having said all that, then I will rest on
10 my offer of proof.

11 (End of offer of proof.)
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EXHIBIT

Case Number 06-1358-EL-BGN

The following exhibit(s) were prefiled and can be located with the pleadings:

Exhibits

Date Filed

AMP EXHIBITS

IDFD ADMTD

4 - Direct Testimony of Ivan Clark

7

38

12/3/2007

STAFF EXHIBITS

IDFD ADMTD

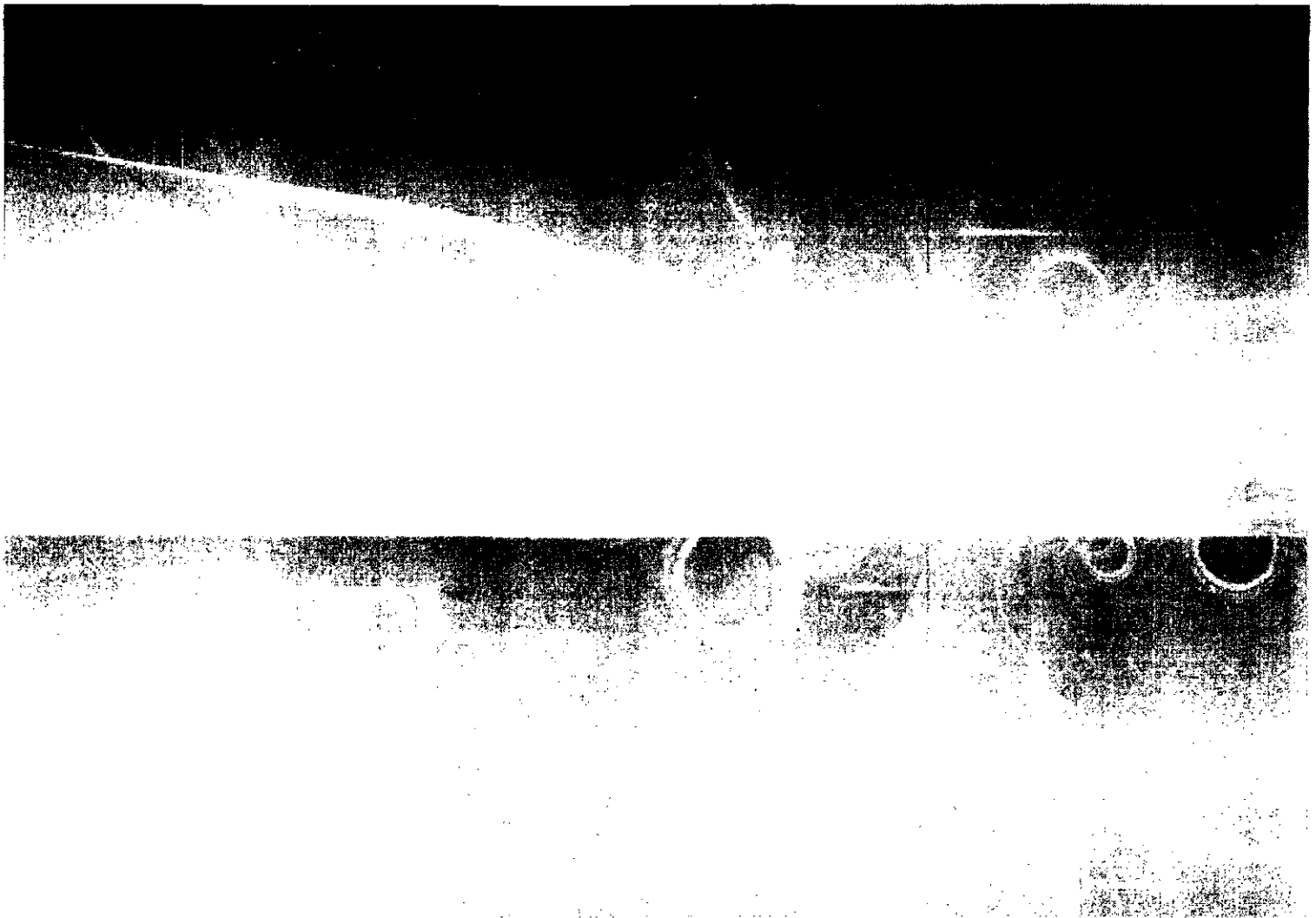
1 - Staff Report of Investigation

41

120

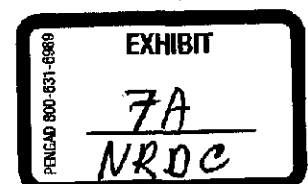
10/16/2007

EXHIBIT



Coal

AN INTERDISCIPLINARY MIT STUDY



The Future of Coal

OPTIONS FOR A
CARBON-CONSTRAINED WORLD

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Table 2.5 Average Annual Percentage Growth 2002-2030						
	OECD	US	NON-OECD	CHINA	INDIA	TOTAL
Energy	1.0	1.2	3.0	4.2	3.2	2.0
Coal	1.2	1.8	3.3	4.2	2.7	2.5
Total CO ₂	1.1	1.3	3.0	4.2	2.9	2.1
Coal CO ₂	1.2	1.6	3.3	4.2	2.7	2.5

Source: DOE/EA AEO 2006: Tables A1, A6, A10 & A13

THE OUTLOOK FOR COAL UNDER POSSIBLE CO₂ PENALTIES

The MIT EPPA Model and Case Assumptions

To see how CO₂ penalties might work, including their implications for coal use under various assumptions about competing energy sources, we explore their consequences for fuel and technology choice, energy prices, and CO₂ emissions. Researchers at MIT's Joint Program on the Science and Policy of Global Change have developed a model that can serve this purpose. Their Emissions Predictions and Policy Analysis (EPPA) model is a recursive-dynamic multi-regional computable general equilibrium (CGE) model of the world economy.⁶ It distinguishes sixteen countries or regions, five non-energy sectors, fifteen energy sectors and specific technologies, and includes a representation of household consumption behavior. The model is solved on a five-year time step to 2100, the first calculated year being 2005. Elements of EPPA structure relevant to this application include its equilibrium structure, its characterization of production sectors, the handling of international trade, the structure of household consumption, and drivers of the dynamic evolution of the model including the characterization of advanced or alternative technologies, importantly including carbon capture and storage (CCS).

The virtue of models of this type is that they can be used to study how world energy markets, as well as markets for other intermediate inputs and for final goods and services, would adapt to a policy change such as the adoption of a carbon emission tax, the establishment

of cap-and-trade systems, or implementation of various forms of direct regulation of emissions. For example, by increasing the consumer prices of fossil fuels, a carbon charge would have broad economic consequences. These include changes in consumer behavior and in the sectoral composition of production, switching among fuels, a shift to low-carbon energy resources, and investment in more efficient ways to get the needed services from a given input of primary energy. A model like EPPA gives a consistent picture of the future energy market that reflects these dynamics of supply and demand as well as the effects of international trade.

Naturally, in viewing the results of a model of this type, a number of its features and input assumptions should be kept in mind. These include, for example, assumptions about:

- Population and productivity growth that are built into the reference projection;
- The representation of the production structure of the economy and the ease of substitution between inputs to production, and the behavior of consumers in response to changing prices of goods and services;
- The cost and performance of various technology alternatives, importantly for this study including coal technologies (which have been calibrated to the estimates in Chapters 3 and 4 below) and competitor generation sources;
- The length of time to turn over the capital stock, which is represented by capital vintages in this model;
- The assumed handling of any revenues that might result from the use of a carbon tax, or from permit auctions under cap-and-trade systems.⁷

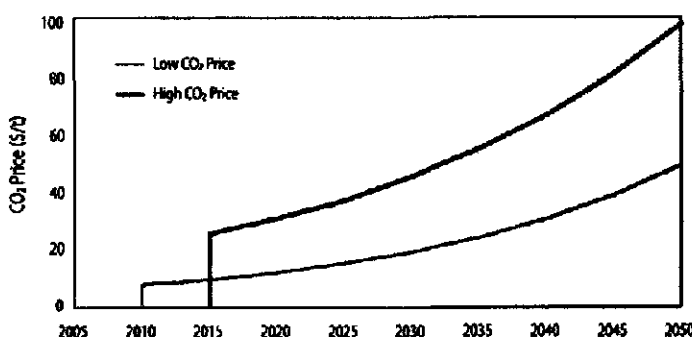
Thus our model calculations should be considered as illustrative, not precise predictions. The results of interest are not the absolute numbers in any particular case but the differences in outcomes for coal and CO₂ emissions among "what if" studies of different climate

policy regimes and assumptions about competing energy types. In the assessment below we test the response of the energy sector and its CO₂ emissions to alternative assumptions about the penalty imposed on emissions in various parts of the world and about the effect of two uncertain influences on coal use: the pace of nuclear power development and the evolution of natural gas markets.

To explore the potential effects of carbon policy, three cases are formulated: a reference or *Business as Usual* (BAU) case with no emissions policy beyond the first Kyoto period,⁸ and two cases involving the imposition of a common global price on CO₂ emissions. The two policy cases, a *Low* and a *High* CO₂ price path, are shown in Figure 2.2, with the CO₂ penalty stated in terms of 1997 U.S. per ton of CO₂. This penalty or emissions price can be thought of as the result of a global cap-and-trade regime, a system of harmonized carbon taxes, or even a combination of price and regulatory measures that combine to impose the marginal penalties on emissions. The *Low* CO₂ Price profile corresponds to the proposal of the National Energy Commission⁹, which we represent by applying its maximum or "safety valve" cap-and-trade price. It involves a penalty that begins in 2010 with \$7 per ton CO₂ and increases at a real rate (e.g., without inflation) of 5% per year thereafter. The *High* CO₂ Price case assumes the imposition of a larger initial charge of \$25 ton CO₂ in the year 2015 with a real rate of increase of 4% thereafter. One important question to be explored in the comparison of these two cases is the time when CSS technology may take a substantial role as an emissions reducing measure.

A second influence on the role of coal in future energy use is competition from nuclear generation. Here two cases are studied, shown in Table 2.6. In one, denoted as *Limited Nuclear*, it is assumed that nuclear generation, from its year 2000 level in the EPPA database of 1.95 million GWh, is held to 2.43 million GWh in 2050. At a capacity factor of 0.85, this corresponds to an expansion from a 1997 world installed total of about 261GW to some 327GW

Figure 2.2 Scenarios of Penalties on CO₂ Emissions (\$/t CO₂ in constant dollars)



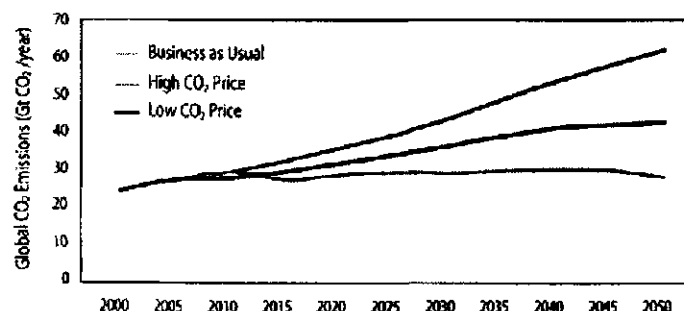
in 2050. The alternative case, denoted as *Expanded Nuclear* assumes that nuclear capacity grows to 1000GW over this period—a level identified as being feasible in the *MIT Future of Nuclear Power* study if certain conditions are met.¹⁰

The third influence on the role of coal studied here concerns the evolution of real natural gas prices over time. The EPPA model includes a sub-model of resources and depletion of fossil fuels including natural gas, and one scenario, denoted *EPPA-Ref Gas Price*, applies the model's own projection of gas prices (which differ by model regions) under the supply and demand conditions in the various simulations. In the *Business-as-Usual* (BAU) case with limited nuclear expansion, the real U.S. gas price

Table 2.6 Alternative Cases for Nuclear Generation

REGION	1997	2050	
		LIMITED	EXPANDED
USA	0.57	0.58	2.23
Europe	0.76	0.94	1.24
Japan	0.28	0.42	0.48
Other OECD	0.07	0.10	0.34
FSU & EET	0.16	0.21	0.41
China	0.00	0.00	0.75
India	0.00	0.00	0.67
Other Asia	0.10	0.19	0.59
Rest of World	0.00	0.00	0.74
TOTAL	1.95	2.43	7.44

Figure 2.3 Global CO₂ Emissions under Alternative Policies with Universal, Simultaneous Participation, Limited Nuclear Expansion and EPPA-Ref Gas Prices (GtCO₂/year)



is projected to rise by 2050 by a factor of 3.6 over the base year (1997) price of \$2.33 per Mcf, which implies a price of around \$8.40 per Mcf in 2050 in 1997 prices. To test the effect of substantial new discovery and development of low-cost LNG transport systems, a second *Low Gas Price* case is explored. In this case the EPPA gas transport sub-model is overridden by a low-cost global transport system which leads to lower prices in key heavy gas-consuming regions. For example, with the *Low Gas Price* scenario, the real 2050 price multiple for the U.S. is only 2.4 over the base year, or a price of \$5.60/Mcf in 1997 prices.¹¹

Results Assuming Universal, Simultaneous Participation in CO₂ Emission Penalties

In order to display the relationships that underlie the future evolution of coal use, we begin with a set of policy scenarios where all nations adopt, by one means or another, to the carbon emissions penalties as shown in Figure 2.2. Were such patterns of emissions penalties adopted, they would be sufficient to stabilize global CO₂ emissions in the period between now and 2050. This result is shown in Figure 2.3 on the assumption of *Limited Nuclear* generation, and *EPPA-Ref Gas Price*.

If there is no climate policy, emissions are projected to rise to over 60 GtCO₂ by 2050. Under the *High CO₂ Price* path, by contrast, global emissions are stabilized by around 2015 at level of about 28 GtCO₂. If only the *Low CO₂*

Price path is imposed, emissions would not stabilize until around 2045 and then at a level of approximately 42 GtCO₂ per year.¹²

Figure 2.4 shows how global primary energy consumption adjusts in the EPPA model solution for the *High CO₂ Price* case with *Limited Nuclear* expansion and *EPPA-Ref* gas prices. The increasing CO₂ price leads to a reduction in energy demand over the decades and to adjustments in the composition of supply. For example, non-biomass renewables (e.g., wind) and commercial biomass (here expressed in terms of liquid fuel) both increase substantially.¹³ Most important for this discussion is the effect on coal use. When the carbon price increases in 2015, coal use is initially reduced. However, in 2025 coal with CCS begins to gain market share, growing steadily to 2050 (and beyond) and leading to a resurgence of global coal consumption.

A further global picture of coal use under these alternative CO₂ price assumptions, assuming *Limited Nuclear* capacity and *EPPA-Ref Gas Price*, is shown in Table 2.7. Under the *Low CO₂ Price* trajectory, coal's contribution to 2050 global emissions is lowered from 32 GtCO₂ per year, to around 15 GtCO₂ per year while total coal consumption falls to 45% of its no-policy level (though still 100% above 2000 coal use). The contribution of carbon capture and storage (CCS) is relatively small in this case, because at this price trajectory CCS technology does not become economic until around 2035 or 2040, leading to a small market penetration by 2050. The picture differs substantially under assumption of the *High CO₂ Price* pattern. The contribution of CO₂ emissions from coal in 2050 is projected to be one-third that under the lower price path, yet coal use falls by only another 20% (and still remains 61% above the 2000 level). The key factor contributing to this result in 2050 can be seen in the third line in the table which shows the percentage of coal consumed using CCS technology. With higher CO₂ price levels early in the simulation period, CCS has the time and economic incentive to take a larger market share.