

BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

- - - -

In the Matter of the Application :
of Ohio Edison Company, The :
Cleveland Electric Illuminating : Case No.
Company, and the Toledo Edison : 14-1297-EL-SSO
Company for Authority to Provide :
for a Standard Service Officer :
Pursuant to R.C. 4928.143 in the :
form of an Electric Security Plan:

- - - -

Fairfax, Virginia

Friday, October 23, 2015

Deposition of:

JUDAH ROSE

A witness, called for examination pursuant to notice, at ICF International, 9300 Lee Highway, Fairfax, Virginia, beginning at 2:01 p.m., before Joseph A. Inabnet, a Court Reporter and Notary Public (No. 274024) in and for the Commonwealth of Virginia at Large, when were present on behalf of the respective parties:

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1 P R O C E E D I N G S
2 Thereupon,
3 JUDAH ROSE
4 A witness, called for examination, having
5 been first duly sworn by the notary public, was
6 examined and testified as follows:
7 EXAMINATION
8 BY MR. FISK:
9 Q. Thank you. Good afternoon, Mr. Rose.
10 A. Good afternoon.
11 Q. Could you state your name for the record?
12 A. My name is Judah L. Rose, and my first
13 name is spelled J-U-D-A-H.
14 Q. And could you state your business address
15 for the record?
16 A. 9300 Lee Highway, Fairfax, Virginia 22031.
17 Q. And your employer is ICF International.
18 Is that correct?
19 A. Yes.
20 Q. I'm going to ask you some questions on the
21 public session to start off with.
22 If I end up with any confidential

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1 questions, we'll open up a confidential line, and I
2 will do my confidential questions. Then we can move
3 on to other parties.
4 A. Before we get begin, is there -- should I
5 mention the corrections?
6 MR. KUTIK: Let him ask you questions.
7 BY MR. FISK:
8 Q. So if we could start with your discussion
9 in your rebuttal testimony about natural gas price
10 forecasts.
11 Am I correct it's your position that the
12 Energy Information Administration's natural gas
13 price forecasts are fairly consistent with your own
14 forecast?
15 A. Do you have a particular reference?
16 Q. Page 42. Start there. Specifically you
17 have a discussion there about the EIA reference
18 case, and towards the bottom of the page, line 18,
19 you reference the EIA reference case, has natural
20 gas prices that are fairly close but modestly below
21 my forecast.
22 A. I do see that.

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1 Q. So you there are referring to the 2014 EIA
2 reference case. Is that correct?
3 MR. KUTIK: You mean the AEO reference
4 case?
5 MR. FISK: Yeah, the AEO.
6 THE WITNESS: Yes.
7 BY MR. FISK:
8 Q. Okay. And do you consider EIA's natural
9 gas price forecast to be reasonable?
10 A. Yes. With the caveat that they are biased
11 downward due to the lack of treatment of CO2
12 regulations, as I discuss on page 42.
13 Q. Okay. And Figure 9 on page 44 of your
14 rebuttal testimony, so the -- there's a series of
15 different lines there representing different gas
16 price projections; correct?
17 A. Yes.
18 Q. And the EIA 2014 AEO Base Case forecast is
19 the light orangish line?
20 A. Yes.
21 Q. And so leaving aside the issue about the
22 CO2 prices when you -- do you believe that that

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1 forecast is reasonable?
2 MR. KUTIK: Objection. You can answer.
3 I objected to the form of the question.
4 THE WITNESS: Okay.
5 MR. KUTIK: And just so -- unless I
6 instruct you not to answer, you can go ahead, and,
7 if you can, answer the question.
8 If you have a problem with the question,
9 tell him that.
10 THE WITNESS: I do consider the forecast
11 reasonable with the caveat that we just discussed
12 related to CO2.
13 BY MR. FISK:
14 Q. Great. And are you aware that -- well,
15 let me step back.
16 If I say EIA, you would agree that's
17 Energy Information Administration?
18 A. Yes.
19 Q. Are you aware that the EIA issues
20 short-term energy outlooks on a monthly basis?
21 A. I'm aware that they have short-term
22 outlooks.

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1 Q. And do you ever review those outlooks?
2 A. Sometimes.
3 (Thereupon, Deposition Exhibit No. 1 was
4 marked for identification.)
5 BY MR. FISK:
6 Q. Mr. Rose, you have been handed a document
7 that's been marked as Exhibit 1, which is the
8 natural gas section of the EIA's Short-term Energy
9 and Winter Fuels outlook from October 6, 2015.
10 Does that appear to be correct?
11 A. Yes.
12 Q. And have you ever seen this document
13 before?
14 A. No.
15 Q. Do you know whether this is a portion of
16 the type of short-term energy outlook we were just
17 discussing?
18 MR. KUTIK: Objection. He hasn't seen it
19 before.
20 THE WITNESS: It says short-term energy
21 outlook. I just have not seen this document.
22

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1 BY MR. FISK:
2 Q. Okay. If you could turn to page 3 of the
3 document.
4 Do you see in the middle of the page
5 approximately, there's a header that says Natural
6 Gas Prices?
7 A. Yes, sir.
8 Q. And the first sentence says, "Henry Hub
9 natural gas spot price averaged \$2.66 per million
10 BTU in September..." Do you see that?
11 MR. KUTIK: Note my objection to this line
12 of questions. To the extent the witness has not
13 seen this document before, it's unfair to have him
14 look at the document and answer questions about it.
15 I would like to just have a continuing
16 objection, if you don't mind.
17 MR. FISK: Okay.
18 THE WITNESS: Could you ask the question
19 again, please?
20 (The record was read back as requested.)
21 BY MR. FISK:
22 Q. Do you see that reference?

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1 A. Yes, as part of a sentence.
2 Q. Is that consistent with your -- would you
3 have any understanding of what the Henry Hub natural
4 gas spot prices were in September?
5 A. I don't have a specific recollection for
6 the average of September.
7 Q. Okay. Do you know as to whether they were
8 approximately \$2.66 per million BTU on average?
9 A. It seems like a reasonable number, but I
10 don't have knowledge of the specific average.
11 Q. Okay. And do you have any knowledge as to
12 whether EIA has put out any short-term natural gas
13 price forecast since the release of the 2015 AEO?
14 A. Yes, I believe they have.
15 Q. Okay. And have you seen those forecasts?
16 A. I don't remember.
17 Q. If you look at the last line of the
18 paragraph on page 3 of Exhibit 1 under Natural Gas
19 Prices, it says: "The projected Henry Hub natural
20 gas price averages \$2.18 per million BTU in 2015..."
21 Do you see that?
22 A. Yes. As part of a sentence.

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1 Q. Okay. Do you know, is that consistent
2 with what the EIA has projected for 2015 natural gas
3 prices?
4 A. I don't understand the question.
5 Q. Do you know as to whether that \$2.18 per
6 million BTU is approximately what the EIA is
7 currently projecting for natural gas prices for
8 2015?
9 A. That's what it says here.
10 I don't have any other knowledge related
11 to that forecast.
12 Q. Okay. So do you have any reason to doubt
13 that that is an accurate portrayal of EIA's
14 forecast?
15 MR. KUTIK: Objection.
16 THE WITNESS: No. I have no reason to
17 doubt it, but I haven't seen the document before.
18 BY MR. FISK:
19 Q. Okay. And do you have any knowledge as to
20 what EIA's 2016 -- forecast for natural gas prices
21 in 2016 currently is?
22 A. Well, now I do because it looks like

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1 that's what it says in the same sentence, that it's
2 approximately -- it says \$3.05 per million BTU, but
3 I haven't seen the document before, and that's the
4 only basis I have for that.
5 Q. Okay. So when you offered testimony in
6 rebuttal regarding EIA's natural gas price forecast,
7 did you do anything to check as to whether EIA had
8 issued any new forecast subsequent to the 2015 AEO?
9 A. No.
10 Q. And the two figures that we just discussed
11 on page 3 of Exhibit 1 for the 2015 and 2016 Henry
12 Hub natural gas price projections, those are lower,
13 am I correct, than the figures reported for the
14 EIA's 2014 Base Case.
15 Is that right?
16 A. I don't have those numbers. If you have a
17 reference, I will be glad to look at it.
18 Q. The numbers that are referenced in Figure
19 9 of your rebuttal testimony.
20 A. Yes. Based on Figure 9, they appear to be
21 lower.
22 Q. And if you could turn to page 55 of your

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1 rebuttal testimony, lines 11 through 13, you have a
2 discussion there about natural gas future prices.
3 Is that correct?
4 A. Yes.
5 Q. Okay. And you state, starting towards the
6 end of line 11, "they provide useful information for
7 the prompt two years, less useful information for
8 years three to five, and little to no material
9 information beyond year five."
10 That's your testimony. Is that right?
11 A. Yes. You read a portion of a sentence of
12 my testimony.
13 Q. Okay. And for years three to five, when
14 you say less useful information, what do you mean by
15 that?
16 A. I mean, the value of the information is
17 less than in the first two years is -- I'm not sure
18 what you're asking.
19 Q. Do you feel that futures for years three
20 to five have some relevance to evaluating what
21 natural gas prices are likely to be in that time
22 frame?

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1 A. Some, but not a lot.
2 Q. Okay. Would you in any way rely on
3 futures for evaluating gas prices in years three
4 through five?
5 MR. KUTIK: Objection.
6 THE WITNESS: No. Not to the extent that
7 I would include it in our forecast.
8 BY MR. FISK:
9 Q. Okay. Would you consider it unreasonable
10 to rely on gas future prices in any way for
11 evaluating what gas prices might be in years three
12 through five?
13 A. I would not use them in my forecast.
14 Q. Okay. But if someone else was using them,
15 would you consider that unreasonable?
16 MR. KUTIK: Objection, asked and answered.
17 THE WITNESS: I would not use them, and I
18 would not recommend that anyone do that.
19 BY MR. FISK:
20 Q. Okay. And would you consider the EIA a
21 reliable source of reporting what NYMEX natural gas
22 futures are?

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1 MR. KUTIK: Can I have the question read,
2 please?
3 (The record was read back as requested.)
4 THE WITNESS: I use other sources.
5 BY MR. FISK:
6 Q. And what sources do you use?
7 A. SNL.
8 Q. Any other sources?
9 A. Not that I remember sitting here right
10 now.
11 Q. Okay. And when is the -- when have you
12 most recently reviewed what the NYMEX natural gas
13 future prices are?
14 A. Recently. I don't have a specific date.
15 Q. Recently being within the last month or --
16 A. Yes. Within the last month.
17 Q. Okay. And if you could turn to page 4 of
18 Exhibit 1.
19 And do you see there's a graph up at the
20 top that says, "Henry Hub Natural Gas Price"?
21 MR. KUTIK: Note my objection to the
22 reference to this document.

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1 THE WITNESS: I see that.
2 BY MR. FISK:
3 Q. Okay. And do you see there's different
4 colored lines, and the green one is labeled "NYMEX
5 futures price."
6 Do you see that?
7 A. Yes.
8 Q. And then do you see the value reported for
9 that, for the NYMEX futures price on the graph above
10 for basically late 2015 through 2016?
11 A. I see the graph.
12 Q. Do you know if the green line identifying
13 NYMEX future prices is consistent with your
14 understanding of where NYMEX future prices for gas
15 for late 2015 through 2016 are?
16 A. You know, I don't know the date of it, and
17 I haven't had a chance to review the document.
18 Q. Do you have an understanding of what NYMEX
19 future prices for natural gas for 2016 are
20 currently?
21 A. I have a sense.
22 Q. Okay. Approximately, what are they?

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1 A. Part of it is what period -- are you
2 asking what they are today?
3 Q. The last time you looked, which I believe
4 you said was in the past month.
5 What was approximately the NYMEX future
6 price for gas for 2016?
7 MR. KUTIK: For 2016?
8 MR. FISK: Yes.
9 THE WITNESS: My recollection is in the 3
10 to 3.25 range, but I don't have a specific number
11 memorized, or I'm not sure. I would have to double
12 check.
13 BY MR. FISK:
14 Q. And how would you double check that?
15 A. I would go to SNL.
16 Q. Looking at the table on page 4 of Exhibit
17 1 --
18 MR. KUTIK: The table or the graph?
19 MR. FISK: Sorry, the graph.
20 MR. KUTIK: The top graph.
21 MR. FISK: Yes, the top graph.
22

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1 BY MR. FISK:
2 Q. The line for NYMEX future prices, does
3 that appear to be around \$3 or so for 2016?
4 A. Yes. You know, there is no specific
5 number for 2016. It seems like there's a lot of
6 numbers, but it doesn't say -- it's hard to tell.
7 It looks roughly like 3.
8 Q. So roughly consistent with what you are
9 recalling regarding NYMEX future prices for 2016;
10 right?
11 MR. KUTIK: I will object.
12 You are also mischaracterizing the
13 document in terms of the confidence interval, which
14 we haven't really talked about, but go ahead.
15 THE WITNESS: Can I have the question
16 repeated?
17 (The record was read back as requested.)
18 THE WITNESS: I'm just focusing on the
19 dark green line.
20 BY MR. FISK:
21 Q. Yes.
22 A. And it looks like roughly around 3 bucks,

Page 20

1 but it's just -- other than that, I can't say too
2 much.
3 Q. Okay. If you could turn to page 53 of
4 your rebuttal testimony, line 21.
5 There's a sentence that says: "EVA's
6 forecast is 4 percent higher..."
7 Do you see that?
8 A. Yes.
9 Q. What is EVA?
10 A. EVA is Energy Ventures Analysis, I
11 believe.
12 It's a consulting firm.
13 Q. What is the source for EVA's forecast that
14 you are referring to there?
15 A. It's footnote 66.
16 Q. So you're referring to an EVA forecast
17 that was reported in the EIA's AEO 2014 document?
18 A. Yes.
19 Q. Okay. So Footnote 66 is labeled on -- it
20 comes at the end of the sentence, and it ends on
21 line 24 of this page; correct?
22 A. In the middle of page -- of line 24.

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1 Q. Yes. Okay. But that -- so that footnote
2 is referring to the EVA forecast and the IHSGI
3 forecast. Is that correct?
4 A. Yes.
5 Q. And if you can turn over to page 54 of
6 your rebuttal, starting at the end of line 2 going
7 on to line 3, you say: "Lastly, US EPA gas price
8 projections are also similar to mine."
9 Do you see that?
10 A. Yes.
11 Q. What EPA gas price projections are you
12 referring to?
13 A. I believe it is their base case
14 projections, but I would have to double check.
15 Q. Base case from what?
16 A. From the most recent EPA base case.
17 Q. For a certain rule or what -- what source
18 are you referring to?
19 A. EPA has gas price projections, and they
20 have a base case. And I would have to double check
21 whether it was from that case. But I believe that's
22 where it's from.

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1 Q. And where did you obtain this EPA gas
2 price projection from?
3 A. I don't remember the specific source. It
4 was either the base case, or -- I believe it was the
5 base case projection. I would have to double check.
6 Q. Was this available on EPA's website?
7 A. Could be.
8 Q. Have you seen it on their website?
9 A. I don't remember.
10 Q. So could you identify a specific place
11 where someone could obtain this EPA gas price
12 projection?
13 A. I could, but not sitting here right now.
14 Q. Do you know the date of this EPA gas price
15 projection?
16 A. I don't remember the date.
17 Q. When did you view this projection?
18 A. Within the last few months.
19 Q. And do you know, does that gas price
20 projection assume any value for carbon?
21 MR. KUTIK: Objection.
22 THE WITNESS: I don't remember.

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1 BY MR. FISK:
2 Q. Do you have any knowledge as to how that
3 gas price projection was developed?
4 A. I believe it was through the EPA base case
5 process where they establish different assumptions.
6 Q. And so EPA has some sort of a modeling
7 process they undertake or ...
8 A. That's correct, yes.
9 Q. Does ICF do that for EPA?
10 A. ICF is involved.
11 Q. So is this gas price projection from ICF?
12 MR. KUTIK: Objection.
13 THE WITNESS: It's possible that ICF was
14 involved, but there are issues as to what the
15 assumptions were, which would be EPA's. And so -- I
16 would have to double check.
17 BY MR. FISK:
18 Q. Did you have any role in developing this
19 EPA gas price projection?
20 A. No.
21 Q. Do you know if this EPA gas price
22 projection was used in its evaluation of the Clean

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1 Power Plan?
2 A. I believe it's related, but I need to
3 double check on that.
4 Q. Do you know over what time frame this gas
5 price projection covers?
6 A. It's a long-term, multiyear projection,
7 but I don't remember the specific years.
8 Q. Do you know if it goes through 2030?
9 A. Yes. My recollection is it goes through
10 2030.
11 Q. And when did you start working on your
12 rebuttal testimony?
13 MR. KUTIK: Note my objection.
14 THE WITNESS: Sometime after I saw the
15 testimony of Mr. Comings and Mr. Wilson.
16 BY MR. FISK:
17 Q. And you are referring there to their
18 direct testimony?
19 A. Yes. I believe so.
20 Q. So sometime after -- are you aware of when
21 the direct testimony was filed?
22 A. December 22, something like that.

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1 Q. Do you know how soon thereafter you
2 started working on your rebuttal?
3 A. No.
4 Q. Had you started working on it before
5 supplemental testimony was filed in this proceeding?
6 A. Yes. I believe so.
7 Q. And did anybody assist you in drafting
8 your testimony?
9 MR. KUTIK: Well, he'll not answer that
10 question. So go to your next question.
11 I'm instructing him not to answer the
12 question.
13 MR. FISK: On what grounds?
14 MR. KUTIK: Work product, privilege.
15 MR. FISK: Well, if counsel was involved.
16 MR. KUTIK: Next question.
17 MR. FISK: We are allowed to ask if other
18 people besides counsel were involved --
19 MR. KUTIK: Next question.
20 MR. FISK: -- in drafting his testimony.
21 MR. KUTIK: Next question.
22 MR. FISK: On what grounds can you object

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1 to asking who else besides --

2 MR. KUTIK: I have just made my

3 instruction. If you want to argue, I'll argue it

4 until 5 o'clock if you like.

5 MR. FISK: You asked our witnesses the

6 exact same thing --

7 MR. KUTIK: No, I didn't.

8 MR. FISK: -- who was involved in drafting

9 their testimony.

10 MR. KUTIK: Actually, I didn't. You can

11 go ahead and ask your next question.

12 If you are done, we can go now.

13 Are you done?

14 MR. FISK: You are claiming you have

15 privilege if ICF people were involved?

16 MR. KUTIK: I guess we are done.

17 MR. FISK: No, we're not done.

18 MR. KUTIK: Okay, then, ask your next

19 question. Because if you don't ask the next

20 question, we are done.

21 MR. FISK: I'll move on despite the

22 improper objection.

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1 MR. KUTIK: And I'll sit here in spite of

2 the improper comments.

3 BY MR. FISK:

4 Q. On page 60 of your rebuttal, you, starting

5 on line 18, you discuss Mr. Comings' recommendation

6 of a higher CO2 price.

7 Is that correct?

8 A. Yes.

9 Q. And you note that he assumed a carbon

10 price starting at 2020. Well, we now know that the

11 carbon price won't start until 2022.

12 Is that right?

13 A. Yes.

14 Q. Okay. Your testimony also assumed a

15 carbon price starting in 2020; correct?

16 A. Yes.

17 Q. And Mr. Comings recommended a higher CO2

18 price was developed by ICF; correct?

19 MR. KUTIK: Objection.

20 THE WITNESS: It was -- I would say no.

21 It was calculated by ICF, but it wasn't

22 developed by ICF. The assumptions were specified by

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1 the EPA.

2 BY MR. FISK:

3 Q. So EPA -- so ICF calculated a carbon price

4 based on assumptions they received from EPA.

5 Is that what you're saying?

6 A. Based on instructions from EPA.

7 Q. Okay. And you believe that that carbon

8 price is too high. Is that correct?

9 A. Yes.

10 Q. And ICF has also developed, am I correct,

11 a carbon price for the final Clean Power Plan?

12 MR. KUTIK: Objection.

13 THE WITNESS: ICF did not develop a CO2

14 price for the final plan. It made calculations at

15 EPA's instruction and then calculated multiple CO2

16 prices.

17 BY MR. FISK:

18 Q. Okay. And do you believe that those CO2

19 prices are too high?

20 MR. KUTIK: Objection.

21 THE WITNESS: No. They are not too high

22 for the assumptions that were specified.

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1 BY MR. FISK:

2 Q. Okay. Do you disagree with the

3 assumptions that were specified?

4 MR. KUTIK: Objection.

5 THE WITNESS: I would not make the same

6 assumptions.

7 BY MR. FISK:

8 Q. Would you use ICF's -- would you use the

9 carbon price that ICF calculated for the final Clean

10 Power Plan in any of your own forecasting?

11 MR. KUTIK: Objection.

12 THE WITNESS: No.

13 BY MR. FISK:

14 Q. And looking at line 6 through 14 on page

15 60 of your rebuttal, you have a discussion there

16 that higher CO2 prices, all things being equal,

17 would raise gas prices.

18 Do you see that?

19 That's starting on line 6 to 7?

20 A. I do see that.

21 Q. And am I correct that one of your

22 critiques of Mr. Comings and Mr. Wilson's testimony

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1 is that they rely on an EIA reference case for
2 natural gas prices which assumes no CO2 cost?
3 MR. KUTIK: Objection.
4 THE WITNESS: That is something that
5 should be adjusted.
6 BY MR. FISK:
7 Q. Okay. And what -- well, let's turn to
8 page 44 of your rebuttal.
9 If you look at lines 3 through 5, starting
10 towards the end of line 3, it says: "The
11 quantitative estimates by EIA of the impact of CO2
12 emission regulations on gas price is not the same as
13 mine would be."
14 Do you see that?
15 A. Yes.
16 Q. How does EIA's quantitative estimate of
17 the impact of CO2 regulations on gas price differ
18 from yours?
19 A. One critical issue is that they start
20 before 2022 to impose CO2 prices.
21 Q. Any other differences?
22 A. The CO2 prices are not the same as mine.

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1 Q. Any other?
2 A. My model is similar to -- in terms of its
3 treatment of the energy sector, but not the same
4 as -- EIA. And so there's a set of differences
5 associated with that.
6 My focus is on the first two.
7 Q. Okay. Any other differences?
8 A. No.
9 Q. And so with regards to your factoring a
10 carbon cost into your natural gas price projection,
11 am I correct that the impact of that carbon cost is
12 to increase your natural gas price?
13 MR. KUTIK: Objection.
14 THE WITNESS: Yes. All else being equal.
15 BY MR. FISK:
16 Q. Okay. And all else being equal, if you
17 had factored in a higher carbon price to your
18 natural gas projection, you would have ended up with
19 higher natural gas prices. Is that right?
20 A. Higher than what?
21 Q. Higher than -- take the baseline of your
22 gas price projection using your carbon price

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1 forecast.
2 If you assumed a higher carbon price and
3 plugged into your projection of gas prices, your gas
4 prices would be higher. Is that right?
5 MR. KUTIK: Objection.
6 THE WITNESS: I would have to run that
7 through the model. I think it does depend on how
8 much higher.
9 But it's not a lot higher, but higher
10 probably would increase the gas price.
11 BY MR. FISK:
12 Q. And so a minute ago, I believe you said
13 that the CO2 prices used by EIA are not the same as
14 what you used; correct?
15 A. Yes. That's correct.
16 Q. And the two scenarios that EIA modeled in
17 its 2014 AEO was a \$10 per ton and a \$25 per ton
18 carbon price.
19 Is that right?
20 A. I believe so. I would have to check and
21 see what year dollars it was, et cetera, but I
22 believe that's the case.

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1 Q. Well, if you refer -- if you look at
2 footnote 57 on page 43 of your testimony, a
3 reference there to, AEO reports two GHG cases:
4 GHG10 and GHG25.
5 Do you see that?
6 A. Yes.
7 Q. So does that -- am I correct that that --
8 those are referring to \$10 per ton and \$25 per ton?
9 A. I believe so. I would have to double
10 check.
11 And, as I indicated, I want to check what
12 year dollars it is.
13 Q. Okay, mark this as Exhibit 2.
14 (Thereupon, Deposition Exhibit No. 2 was
15 marked for identification.)
16 BY MR. FISK:
17 Q. Mr. Rose, you have been handed a document
18 marked Exhibit 2, which is the cover page and the
19 page MT-34 from the EIA's 2014 AEO.
20 Does that appear to be correct?
21 A. I see MT-34, and it looks to be a page
22 from the AEO.

1 Q. Okay. And you have seen the EIA's 2014
2 AEO before. Is that right?

3 A. Yes.

4 Q. And if you could look at that page MT-34,
5 in the right side of the page, the paragraph under
6 the table that says -- it starts with, "Although the
7 AEO2014 Reference case..."

8 Do you see that?

9 A. Yes, sir.

10 Q. And then there's a discussion there about,
11 "potential impacts of the future policies that would
12 place an implicit or explicit value on CO2 emissions
13 are examined in two cases, starting at \$10(GHG10)
14 and \$25(GHG25) per metric ton CO2..."

15 Do you see that?

16 A. I do see that.

17 Q. Is that consistent with your understanding
18 of what the GHG10 and GHG25 scenarios assumed?

19 A. Yes. And normally we don't use per metric
20 ton. We use per short ton. So I think that was
21 another issue I wanted to check.

22 Q. And what sort of difference does that

1 make, metric ton versus short ton?

2 A. Approximately 10 percent.

3 Q. Which direction?

4 A. To convert it to short tons would be to
5 reduce it.

6 Q. Okay. So there -- if EIA used a \$10 per
7 metric ton price, you would take 10 percent off of
8 that to get the short ton price?

9 A. Approximately.

10 Q. So \$10 per metric ton would be
11 approximately \$9 per short ton?

12 A. Approximately.

13 Q. And EIA, according to this document, says
14 they started that price in 2015 and increased it by
15 5 percent per year thereafter. Is that right?

16 A. Yes. But it doesn't say what year dollar
17 is.

18 Q. But the -- is this consistent with your
19 understanding of what the EIA 2014 AEO carbon price
20 scenario assumed?

21 A. Yes. Scenarios.

22 Q. Scenarios, okay.

1 So would you agree that a \$10 per ton CO2
2 price starting in 2015 would have a larger upward
3 pressure on natural gas prices than the CO2 price
4 you used in your forecast?

5 A. I would have to run it through my model.

6 Q. So without running it through your model,
7 do you have no opinion as to whether -- assuming a
8 \$9 -- or a \$10 per metric ton CO2 price would
9 increase gas prices more than what you assumed for
10 carbon?

11 MR. KUTIK: Objection. Asked and
12 answered.

13 THE WITNESS: I need more information, and
14 I need more clarity on your question.

15 BY MR. FISK:

16 Q. What clarity do you need on the question?

17 A. Well, what year and what price.

18 Q. Well, we are using the EIA's \$10 per
19 metric ton starting in 2015 and escalating it
20 5 percent per year thereafter.

21 Would that assumption for carbon price
22 have a larger upward effect on natural gas

1 projections than the assumptions you used for carbon
2 price?

3 MR. KUTIK: Objection and answered. He
4 told you that he needed to know additional
5 information, including the year.

6 If you want to move along, move along. If
7 you ask the same question, he's going to give you
8 the same answer.

9 MR. FISK: You can stop coaching your
10 witness --

11 MR. KUTIK: I'm not coaching the witness.
12 Why don't you ask a good question? Why don't you
13 listen to his answers so we can move along?

14 MR. FISK: He asked me to clarify, and
15 that's what I did.

16 MR. KUTIK: Well, you haven't clarified
17 because he has already told you about the years.

18 MR. FISK: Thank you for coaching.

19 MR. KUTIK: I haven't coached him.

20 Frankly, I'm trying to coach you to ask him the
21 right questions so we can move along. It's your
22 time to waste, Counsel. Go ahead.

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1 MR. FISK: I certainly don't need coaching
2 from you.
3 MR. KUTIK: Apparently you do because you
4 are still asking the wrong question.
5 BY MR. FISK:
6 Q. Mr. Rose, you may answer the question.
7 MR. KUTIK: Yes, you can if you can.
8 THE WITNESS: Can I have the question read
9 back, please?
10 (The record was read back as requested.)
11 THE WITNESS: I would need more
12 information, and I have to run it through my model.
13 BY MR. FISK:
14 Q. And what model would you have to run that
15 through?
16 A. If I had enough information, I would run
17 it through the IPM model.
18 Q. Okay. So going back to page 60, you --
19 starting at line 8, you say: "This is particularly
20 problematic for Mr. Comings, who asserts that my CO2
21 emission allowance price is too low, but relies on
22 the EIA projection without correcting for its

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1 absence in the EIA AEO approach."
2 Is that your testimony?
3 A. Yes.
4 Q. Okay. And then you go on to say: "He
5 should significantly increase the EIA projection for
6 higher CO2 prices and acknowledge my gas price
7 forecast is lower;" correct?
8 A. Correct.
9 Q. And did you do any modeling to -- as the
10 basis for your testimony in lines 8 through 11 -- or
11 lines 8 through 12 on page 60?
12 A. I have investigated this issue.
13 MR. KUTIK: Have you finished your answer?
14 THE WITNESS: I have investigated this
15 issue.
16 BY MR. FISK:
17 Q. Have you done any modeling, is my
18 question?
19 MR. KUTIK: Objection. Asked and
20 answered.
21 THE WITNESS: I have investigated this
22 issue with models.

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1 BY MR. FISK:
2 Q. And what did you do to investigate this
3 issue with models?
4 A. I compared a model run with zero CO2 and a
5 model run with a CO2 forecast.
6 Q. And what model -- these are model runs
7 that you yourself performed?
8 A. They were performed at my direction.
9 Q. So someone at ICF performed them?
10 A. Yes.
11 Q. And when were those performed?
12 A. Over the last two years.
13 Q. So were they performed for this
14 proceeding?
15 A. The main model investigation I conducted
16 was for a different case.
17 Q. What case was that for?
18 MR. KUTIK: I will instruct you not to
19 answer if it would require you to reveal proprietary
20 information.
21 THE WITNESS: I would have to check to see
22 whether or not it was public or not.

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1 BY MR. FISK:
2 Q. And what --
3 MR. KUTIK: Off the record for a second.
4 (A discussion was held off the record.)
5 BY MR. FISK:
6 Q. The model run with a higher CO2 price that
7 you compared to the model run with zero price, what
8 higher CO2 price did you use?
9 A. I don't remember the specific numbers.
10 Q. Do you know if it's higher than the one
11 you used in this proceeding?
12 A. I would have to double check.
13 Q. Do you recall how big of an impact on
14 natural gas prices using that CO2 price had?
15 A. The specific number is confidential, but
16 it was enough to allow me to make the statement that
17 I made.
18 Q. So looking at lines 8 through 12 of your
19 rebuttal testimony, page 60, do you have any other
20 basis for your opinions stated there besides this
21 modeling that you have referenced?
22 A. I'm sorry. What lines?

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1 Q. Lines 8 through 12 on page 60.
2 A. I relied on the investigations of this
3 issue that I conducted.
4 Q. Okay. And did those investigations
5 involve anything besides the modeling that you just
6 referred to?
7 A. Not that I can remember sitting here.
8 I would have to think about it a little
9 more.
10 Q. And were there any investigations that you
11 did that were specifically for this case that you're
12 relying here -- relying on for purposes of your
13 testimony from lines 8 through 12 on page 60 of your
14 rebuttal?
15 A. I'm primarily relying on investigations I
16 conducted outside the scope of this case.
17 Q. Can you identify any investigations you
18 conducted for this case that you are relying on with
19 regards to this testimony?
20 A. I did some initial illustrative
21 calculations in this case, but I was primarily
22 relying on other calculations that I had done.

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1 Q. And what were the initial illustrative
2 calculations that you did?
3 A. Some initial illustrative model runs that
4 I conducted.
5 Q. Separate from the model run from the other
6 case that we discussed a few minutes ago?
7 A. Separate and secondarily to the other
8 case.
9 Q. Okay. And did those model runs include a
10 CO2 price?
11 MR. KUTIK: Objection.
12 THE WITNESS: Which model runs are you
13 referring to?
14 BY MR. FISK:
15 Q. These initial illustrative model runs that
16 you did with regards to this proceeding.
17 A. Yes.
18 Q. And what CO2 price did you assume in those
19 model runs?
20 A. Similar to what I assumed in this case.
21 But, again, they were preliminary illustrative. I
22 relied more on different analyses.

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1 Q. Okay. So have you done any model run
2 using the CO2 price recommended by Mr. Comings to
3 evaluate its impact on natural gas prices?
4 A. No.
5 Q. And have you done any model run
6 evaluating -- strike that.
7 If you could look at Exhibit 2. It's the
8 EIA 2014 AEO excerpt.
9 We discussed a couple of minutes ago the
10 GHG10 and the GHG25 carbon price assumptions. Do
11 you recall that?
12 A. Yes.
13 Q. Have you done any model run evaluating the
14 impact of the CO2 price assumptions in the GHG10
15 scenario on natural gas prices?
16 A. No.
17 Q. And have you done any modeling run to
18 evaluate the CO2 price assumptions for the GHG25
19 scenario on natural gas prices?
20 A. No.
21 (Thereupon, Deposition Exhibit No. 3 was
22 marked for identification.)

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1 BY MR. FISK:
2 Q. All right. Mr. Rose, you have been handed
3 a document that has been marked as Exhibit 3, which
4 is the AEO 2014 natural gas supply, disposition, and
5 prices chart that includes the reference case, the
6 GHG10 case and the GHG25 case.
7 Does that appear to be correct?
8 MR. KUTIK: Objection.
9 THE WITNESS: It appears to be the case.
10 I have never seen this document before, and I -- so
11 I can't really respond to whether it is.
12 BY MR. FISK:
13 Q. Okay. You have reviewed EIA AEO 2014
14 Henry Hub natural gas price projections. Is that
15 correct?
16 A. Yes.
17 Q. And for the GHG10 and GHG25 scenarios, you
18 report those prices in Figure 9 on page 44 of your
19 rebuttal.
20 Is that right?
21 A. Yes.
22 Q. Okay. And if you look on Exhibit 3 about

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1 four-fifths of the way down the page, it says,
2 "Henry Hub Spot Price (nominal dollars per million
3 BTU.)"
4 Do you see that?
5 A. Yes.
6 Q. And then it, on these various pages, it
7 identifies the reference price projection, GHG10
8 projection and GHG25 projection for each year, 2013
9 through 2040?
10 MR. KUTIK: Objection. The witness hasn't
11 seen this document before.
12 All you are asking is for him to read the
13 document.
14 THE WITNESS: Please repeat the question.
15 (The record was read back as requested.)
16 THE WITNESS: It does. I would have to
17 check the numbers to be sure.
18 BY MR. FISK:
19 Q. Okay. If you -- to check the numbers, if
20 you compared the numbers identified as nominal
21 dollars per million BTU for Henry Hub spot price on
22 Exhibit 3 to the chart on Figure 9 of page 44 of

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1 your rebuttal testimony, would that verify whether
2 the numbers in Exhibit 3 are the EIA forecast?
3 MR. KUTIK: Objection.
4 THE WITNESS: Are you referring to Figure
5 9?
6 BY MR. FISK:
7 Q. Yes.
8 A. I would -- to verify the numbers are
9 correct, I would convert -- I would make sure that
10 they were nominal to nominal, and I would compare
11 the numbers.
12 Q. Okay. So your Figure 9 on your rebuttal
13 testimony page 44 is in nominal dollars; correct?
14 A. Yes.
15 Q. If you could turn to page 8 of your
16 rebuttal testimony.
17 Footnote 7, there's a reference there to:
18 "Electric energy revenues account for 70 to 75
19 percent of total revenues paid to generators since
20 2010."
21 Do you see that?
22 A. Yes.

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1 Q. And if you go over to page 13, line 7 to
2 10 -- lines 7 to 8, there's a reference to
3 electrical energy prices being the overwhelming
4 source of power plant revenues in the wholesale
5 industry, and there's a figure that's 81 to
6 86 percent.
7 Do you see that?
8 A. Yes.
9 Q. Are those referring to the same thing,
10 this cite on page 13 versus footnote 7 on page 8, or
11 are those different numbers somehow?
12 A. They are related.
13 Q. Okay. Is there a reason that the numbers
14 are different?
15 A. Yes.
16 Q. What's that?
17 A. It's explained in footnote 15.
18 Q. Okay. And what -- what's the explanation?
19 I guess I don't see the explanation from
20 the numbers on footnote 15.
21 MR. KUTIK: So your question is what?
22 MR. FISK: Is what is the explanation for

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1 the difference between the numbers on page 13 and
2 the numbers on page 8.
3 MR. KUTIK: Objection. Asked and
4 answered.
5 THE WITNESS: The differences are related
6 to the fact that some of the revenues are
7 transmission related, and some are generation
8 related.
9 BY MR. FISK:
10 Q. Okay. So the 70 to 75 percent figure on
11 page 8, is that -- in footnote 7, does that factor
12 in transmission revenues?
13 A. Yes.
14 Q. And the 81 to 86 percent figure on page
15 13, line 8, doesn't factor in transmission. Is that
16 right?
17 A. That's correct.
18 Q. Okay. Page 14, line 22, you have a
19 sentence that says: "Lower than expected short-term
20 gas prices have therefore not led to equally lower
21 electrical energy prices; the effects are much more
22 muted."

1 Do you see that?
 2 A. Yes.
 3 Q. Okay. Am I correct that the lower than
 4 expected short-term gas prices refers to gas prices
 5 to date in 2015 being approximately 30 percent lower
 6 than NYMEX futures you relied on?
 7 MR. KUTIK: Objection.
 8 THE WITNESS: I'm sorry. Can you read
 9 that back?
 10 (The record was read back as requested.)
 11 THE WITNESS: It's related is I think the
 12 best way to answer that.
 13 BY MR. FISK:
 14 Q. How is it related?
 15 A. There's a correlation between the NYMEX
 16 gas prices and the delivered gas prices, and I'm
 17 referring to the delivered gas prices.
 18 Q. And so the delivered gas prices, am I
 19 correct those are also approximately 30 percent
 20 lower than -- in 2015 year to date than what you had
 21 projected?
 22 A. I would have to double check it.

1 It is something around that number, but I
 2 would have to double check.
 3 Q. And the electrical energy prices that you
 4 are referring to in this page 14 line 22 over to
 5 line 1 on page 15, am I correct those are -- year to
 6 date in 2015 have been approximately 10 to
 7 15 percent lower than what you had forecast?
 8 A. Approximately. That sounds about right.
 9 Q. Okay. If you turn page 23 of your
 10 rebuttal, lines 21 to 22, you have a reference there
 11 to the final Clean Power Plan.
 12 Is that right?
 13 A. Yes.
 14 Q. Okay. And you state on line 22 that those
 15 regulations could result in higher capacity prices.
 16 Do you see that?
 17 A. Yes.
 18 Q. Okay. And what is your basis for that
 19 statement?
 20 A. There's a mismatch between the Clean Power
 21 Plan regulation timing and the PJM auction is part
 22 of the concern.

1 Q. Any other bases?
 2 A. Depending on how the regulations are
 3 implemented, there could be -- there could be
 4 changes in supply and demand for capacity that could
 5 cause prices to go up.
 6 Q. Any other bases?
 7 A. Those are the main ones.
 8 Q. Any other minor ones?
 9 A. Not that I can remember.
 10 Q. Okay. And have you done any modeling to
 11 evaluate whether the final Clean Power Plan
 12 regulations could result in higher capacity prices?
 13 A. No.
 14 Q. Okay. Do you know of any analyses showing
 15 that the final Clean Power Plan regulations could
 16 result in higher capacity prices?
 17 A. I haven't seen any quantitative analysis
 18 of that, but I have seen analysis of that.
 19 Q. So you have seen -- the analyses you have
 20 seen have been qualitative?
 21 A. The analyses that I'm aware of are
 22 qualitative.

1 Q. And what analyses are those?
 2 A. There's a comparison of the deadlines --
 3 between the -- as I indicated, between the CPP and
 4 the PJM forward auction to BRA.
 5 And I have also seen analyses about the
 6 amount of retirement of power plants.
 7 Q. And the comparison of deadlines analyses,
 8 was that -- who was that done by?
 9 A. That's something that I did.
 10 Q. You did that. Okay.
 11 So you yourself did a comparison of the
 12 deadlines and concluded that that could lead to an
 13 increase in capacity prices. Is that correct?
 14 A. Yes.
 15 Q. And how does that lead to an increase in
 16 capacity prices?
 17 A. If a power plant doesn't know what the
 18 final CPP regulations are going to be -- and I'm
 19 referring specifically to the implementation of the
 20 regulations -- it may be difficult for it to warrant
 21 that it could -- or undertake the commitment to
 22 provide capacity in a period of time in which the

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1 regulations are in place and might have to rely on
2 reconfiguration auctions, and it could tend to
3 increase the price.
4 Q. Look at page 27 of your rebuttal, footnote
5 40.
6 The Footnote says: "Again the range is
7 due to the discrepancy between his projection and
8 the calculated basis for his projection."
9 Do you see that?
10 A. Yes, I see.
11 Q. And what -- and that footnote 40 then
12 refers to the -- or is linked on the sentence that
13 is from line 19 to 21 on this page 27. Is that
14 right?
15 A. Yes.
16 Q. And what range are you referring to in the
17 footnote?
18 A. It's referring to the range on line 15.
19 Q. Of which page?
20 A. Of page 27.
21 Q. The range -- oh, okay.
22 So the 1.4 to 1.6 times, it's referring

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1 the new PJM default offer cap?
2 A. Yes.
3 Q. So is the range is that there's a range of
4 PJM default offer cap values, or are you saying that
5 there's a range in Mr. Comings' projection?
6 I guess I'm not understanding where the
7 range is coming from.
8 MR. KUTIK: So your question is.
9 BY MR. FISK:
10 Q. Where does the range come from?
11 MR. KUTIK: I'll object as asked and
12 answered.
13 THE WITNESS: It's related to the
14 discussion in footnote 39. And where it indicates
15 that Mr. Comings' estimate of one-half of net CONE
16 is no longer in place, no longer correct.
17 BY MR. FISK:
18 Q. Okay. And your reference to net CONE,
19 you're discussing here the fact that PJM changed the
20 CONE value.
21 Is that right?
22 MR. KUTIK: Objection.

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1 THE WITNESS: Where I refer to the range,
2 it's because there has been a change in the net
3 CONE.
4 BY MR. FISK:
5 Q. Okay. So Mr. Comings' capacity prices
6 were based on the net CONE at the time he did his
7 testimony. But since then, that CONE has a
8 different value; correct?
9 A. Yes.
10 Q. Okay. And if you could go to page 28,
11 lines 11 to 12 of your rebuttal.
12 You have a sentence there that says:
13 "Mr. Comings' capacity prices are similar to recent
14 2015 auction results..."
15 Do you see that?
16 A. Yes.
17 That's only part of the sentence.
18 Q. Sure. Okay.
19 And when you say "recent 2015 auction
20 results," are you referring to the auction that
21 happened in 2015 for the 2018-2019 capacity
22 performance and BRA?

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1 A. Yes, to one of those results.
2 Q. Which one of those results?
3 A. The RTO results in particular.
4 I was referring in particular to the RTO
5 results.
6 Q. And the RTO results, that includes all of
7 the PJMs in Ohio; correct?
8 A. Yes.
9 Q. And your capacity price forecast in this
10 proceeding is also -- is it also with regards to the
11 RTO?
12 MR. KUTIK: Objection.
13 THE WITNESS: No. But it is related to
14 the RTO number I think is the fairest answer on that
15 one.
16 BY MR. FISK:
17 Q. Okay. You -- how is it related?
18 A. It's a forecast for ATSI and AEP, both of
19 which are forecast to stay at the same price as the
20 RTO zone, but that's more of an output than an
21 input. So it is related, but it's -- I don't think
22 the way you asked was fully descriptive.

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1 Q. Okay. Your Attachment 3 to your direct
2 testimony that sets forth your capacity price
3 forecast refers to an RTO zone price; correct?
4 MR. KUTIK: May I show it to him?
5 MR. FISK: Do you have your --
6 MR. KUTIK: He does not.
7 Objection. The question mischaracterizes
8 the document.
9 THE WITNESS: Could I have the question
10 repeated, please?
11 (The record was read back as requested.)
12 THE WITNESS: Yes. It does refer to an
13 RTO zone price.
14 BY MR. FISK:
15 Q. And so is that -- I mean, there's also an
16 ATSI zone forecast there; correct?
17 A. Yes.
18 Q. But the RTO zone -- am I correct, those
19 numbers do refer to the RTO zone as opposed to the
20 AEP zone?
21 A. Yes. It was focused on AEP, but it turned
22 out that the number was similar to the RTO zone,

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1 same as the RTO zone.
2 Q. And going back to your rebuttal testimony,
3 page 28, line 11, Mr. Comings' capacity price for
4 2018-2019 was closer to the actual results than what
5 you had projected for those years; correct?
6 A. Yes.
7 Q. And if you look on page 28, line 15,
8 there's a sentence that says: "Thus, prices above
9 the ones used by Mr. Comings are likely to be too
10 low."
11 Do you see that?
12 A. I do see it, yes.
13 Q. And what prices above the ones used by
14 Mr. Comings are you referring to there?
15 A. I think it's a -- the sentence is not
16 drafted properly.
17 It should be that the prices used by
18 Mr. Comings are likely to be too low.
19 Q. Okay. And based on the discussion you
20 have there on lines 11 through 15 on page 28 is one
21 of reasons why you are saying Mr. Comings' prices
22 are likely too low, that, so far, auction results

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1 have reflected only partial implementation of the
2 capacity performance product?
3 A. Yes.
4 Q. And in particular, the 2018-2019 auction
5 assumed 80 percent procurement of capacity
6 performance product.
7 Is that right?
8 A. I don't know that I would agree with that
9 in particular, but it is one of the factors that I'm
10 referring to.
11 Q. And so for 2019-'20 auction, that will
12 assume 90 percent procurement of capacity
13 performance.
14 Is that right?
15 A. I would have to double check. I don't
16 believe that's correct.
17 Q. For 2020, 2021, it is a hundred percent
18 correct?
19 A. That's correct.
20 Q. So do you know whether the 2019-2020
21 auction would have a higher capacity performance
22 product procurement than the 80 percent level

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1 assumed in 2018-2019?
2 MR. KUTIK: Objection.
3 I don't think he agreed with your
4 80 percent, so assumes facts.
5 MR. FISK: The 80 percent is from his
6 testimony.
7 MR. KUTIK: Well, he didn't agree to your
8 earlier question.
9 THE WITNESS: I believe the next auction,
10 which is 2019-2020, is an 80 percent procurement,
11 but I would have to double check.
12 BY MR. FISK:
13 Q. Do you expect that the 2019-2020 capacity
14 price auction results will be higher than 2018-2019
15 results?
16 A. I think it could be, but it could go
17 either way.
18 In part -- so I would leave it at that.
19 Q. Without revealing any specific numbers,
20 you did project higher capacity prices for 2019 and
21 2020 than for 2018 and 2019; correct?
22 MR. KUTIK: May I have the question read,

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1 please.
2 (The record was read back as requested.)
3 THE WITNESS: I think so, but I would have
4 to double check.
5 BY MR. FISK:
6 Q. You have Attachment 3 to your direct
7 testimony there; correct?
8 A. Yes.
9 Q. Okay. And does that report your
10 projections for 2019 and 2020?
11 A. No.
12 Q. You report them by year; correct?
13 A. Correct.
14 MR. KUTIK: You mean by calendar year?
15 BY MR. FISK:
16 Q. And can you calculate your projection for
17 a 2019-2020 auction year from the numbers provided
18 on Attachment 3?
19 A. I might be able to, but, I mean, it's --
20 the algebra is not -- I would like to do the algebra
21 carefully to be sure. But I might be able to back
22 it out.

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1 MR. KUTIK: Off the record.
2 (A discussion was held off the record.)
3 BY MR. FISK:
4 Q. Page 24 of your rebuttal, lines 1 to 2,
5 you say: "Furthermore, this set of increases
6 reflects major structural changes in the PJM
7 capacity market, and, hence, is a long-term change,
8 not a short-term temporary phenomenon."
9 Do you see that?
10 A. I do see that, yes.
11 Q. And am I correct the capacity performance
12 product was a major structural change that you're
13 referring to there?
14 A. It is one of the changes, yes.
15 Q. Okay. Are there other major structural
16 changes you are referring to there?
17 A. That is the main one.
18 Q. Okay. Any other minor ones?
19 A. I was also referring in a minor way to the
20 issues related to DR, which are partly related to
21 the CP and partly not.
22 Q. Okay. And just to make sure we are on the

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1 same page, DR, you mean demand response?
2 A. Yes. In primarily interruptible mode.
3 Q. Okay. And when you say CP, you are
4 referring to capacity performance; correct?
5 A. Yes.
6 Q. Are you aware of the elimination of the
7 short-term procurement requirements?
8 MR. KUTIK: Objection.
9 THE WITNESS: Yes, I am.
10 BY MR. FISK:
11 Q. Okay. And do you know whether that was a
12 structural change in the PJM capacity market that
13 helped lead to higher capacity prices in the
14 2018-2019 auction?
15 A. Can I have the question read back?
16 (The record was read back as requested.)
17 THE WITNESS: Yes.
18 BY MR. FISK:
19 Q. Okay. And I believe we discussed earlier
20 there was a -- PJM lowered the cost of that CONE;
21 correct?
22 MR. KUTIK: Objection.

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1 THE WITNESS: I believe we discussed that
2 earlier.
3 BY MR. FISK:
4 Q. Okay. And was that a change that helped
5 lead to higher capacity prices in the 2018-2019
6 auction?
7 A. No.
8 Q. And why not?
9 A. The lowering of the CONE tends to lower
10 prices, not increase prices.
11 Q. And when you say prices, you are referring
12 to capacity prices?
13 A. Yes.
14 Q. Okay. Did your -- so for the present
15 proceeding, did your capacity price forecast assume
16 any lowering of net CONE?
17 A. I would have to double check.
18 I can't say sitting here right now.
19 Q. Okay. And are you aware that in early
20 2015, PJM lowered its peak demand forecast?
21 A. Yes.
22 Q. And in your opinion, did such lowering of

Page 66

1 the peak demand forecast have any impact on the
2 capacity price results for 2018-2019 auction?
3 A. I would have to double check.
4 (Thereupon, Deposition Exhibit No. 4 was
5 marked for identification.)
6 BY MR. FISK:
7 Q. Okay. Mr. Rose, you have been handed a
8 document marked Exhibit 4 that is an ICF
9 international white paper titled, New Regime, New
10 Results: Insights from Recent PJM Auctions. Is
11 that correct?
12 A. Yes, sir.
13 Q. And have you ever seen this document
14 before?
15 A. Yes.
16 Q. Did you have any involvement in creating
17 this document?
18 A. Yes. I had some involvement.
19 Q. What was your involvement?
20 A. I remember reviewing the document.
21 Q. Okay. Before it was published?
22 A. Yes.

Page 67

1 Q. Did you have any changes or edits to it?
2 A. I had some changes, recommended changes,
3 yes.
4 Q. Okay. And if you could turn to page 2 of
5 the document. Exhibit 1 up at the top there says:
6 "Illustrative Offsetting Effects of Implemented
7 Changes in 2018/2019 BRA Auction."
8 Do you see that?
9 A. Yes.
10 Q. And on the left side, there's a 120 figure
11 that is identified as the 2017-2018 capacity price.
12 Do you see that?
13 A. Yes.
14 Q. On the right side, there's a 165 figure
15 that's the results of the 2018-2019 capacity price
16 auction for the capacity performance product. Is
17 that right?
18 A. Yes.
19 Q. Okay. And then in the middle, there's
20 various factors that are identified as having either
21 an upward or downward impact on capacity prices. Is
22 that right?

Page 68

1 A. Yes.
2 Q. Do you -- so I believe we discussed the
3 short-term procurement requirement, which is
4 identified on this chart as STPRT elimination.
5 Is that right?
6 A. Yes.
7 Q. Okay. And this Exhibit 12 shows that that
8 elimination had an upward effect on capacity prices;
9 correct?
10 A. Yes.
11 Q. And over on the second bar from the right,
12 the impact of the CP, that also had an upward
13 impact. Is that right?
14 A. Yes.
15 It's illustrative, but it clearly is a
16 positive number.
17 Q. And that's identified as a positive number
18 36; is that right?
19 A. An illustrative positive number of 36.
20 Q. And then going back over to the -- towards
21 the left side, the lower peak demand has a negative
22 effect; correct?

Page 69

1 A. Yes.
2 Q. Okay. And the negative effect there is
3 identified as an illustrative of 30?
4 A. Yes.
5 Q. Does this impact your answer from earlier
6 as to whether PJM lowering its peak demand forecast
7 had any effect on the 2018-2019 capacity auction
8 results?
9 MR. KUTIK: Objection. Asked and
10 answered.
11 THE WITNESS: Yes.
12 BY MR. FISK:
13 Q. And how does it affect that answer?
14 A. Well, actually let me change that to no.
15 I just don't remember what -- when the
16 revision occurred.
17 You had asked me about a specific
18 revision.
19 Q. Okay. If you turn over to page 1, down
20 towards the bottom of the page, the heading, What
21 Happened and Why?
22 Do you see that?

Page 70

1 A. Yes.

2 Q. And then there's a listing of changes to

3 the PJM capacity market. Is that right?

4 A. Yes.

5 Q. Okay. And Roman Numeral iv says, "the

6 peak demand for 2018-2019 was revised down,

7 resulting in a decrease of about 3.5 gigawatts in

8 capacity requirements from the last auction..."

9 Do you see that?

10 A. Yes.

11 Q. Do you agree that that peak demand

12 reduction would have a downward effect on capacity

13 prices?

14 MR. KUTIK: Objection. Asked and

15 answered.

16 THE WITNESS: Yes.

17 BY MR. FISK:

18 Q. All right. And then going back to Exhibit

19 1 on page 2 of Exhibit 4.

20 A. Excuse me. I just wanted to be clear that

21 the issue that I was referring to was the timing of

22 the reduction in the peak demand, not the peak

Page 71

1 demand movement itself.

2 Q. Okay. Thank you for that clarification.

3 Okay. If we could go back to Exhibit 1 of

4 page 2 of Exhibit 4. In the middle, it says: "Net

5 CONE and VRR changes."

6 Do you see that?

7 A. Yes.

8 Q. And do you know what VRR changes are?

9 A. Yes.

10 Q. And what are those?

11 A. They are -- they are related to the

12 configuration of the demand curve.

13 Q. Okay. And so Exhibit 1 on page 2 of

14 Exhibit 4 identifies as an illustrative impact for

15 net CONE and VRR chance increase in capacity prices.

16 Is that right?

17 A. Yes.

18 Q. Okay. And I believe earlier you had said

19 that lowering net CONE would tend to have a downward

20 effect on capacity prices. Is that right?

21 A. Yes.

22 Q. Do you know, is there some difference from

Page 72

1 what's described in Exhibit 1 on page 2 of Exhibit 4

2 than the lowering of net CONE that we were

3 discussing earlier?

4 A. Yes.

5 Q. What's that?

6 A. There's also VRR changes.

7 Q. Okay. So is it your understanding that

8 the VRR changes have a positive impact on capacity

9 prices that exceeds the impact of the net CONE

10 changes?

11 A. Yes.

12 And of course all of my answers are on an

13 illustrative basis, and I would particularly have to

14 look at that since I know the direction of both of

15 the changes, but I would want to be careful to

16 investigate that further but...

17 They are opposing changes that are lumped

18 together.

19 Q. Okay. Are you aware as to whether PJM has

20 recently been evaluating a -- an additional

21 reduction in its peak demand forecast from the

22 reduction that was done in early 2015?

Page 73

1 A. Yes. The PJM is considering demand

2 changes all the time.

3 Q. Okay. And if there were an additional

4 reduction in PJM's peak demand forecast, would that

5 have a downward effect on capacity prices?

6 A. Yes. All else being equal.

7 That was the only change.

8 Q. Okay. All right. If you could turn to

9 page 111 --

10 MR. KUTIK: Before you do that, let's take

11 a quick break.

12 (A recess was taken from 3:58 until 4:03 p.m.)

13 MR. FISK: Okay. We just had a

14 five-minute break.

15 BY MR. FISK:

16 Q. Mr. Rose, I believe the break was in the

17 middle of my questions about Exhibit 4, Page 11.

18 Do you see there's about a third of the

19 way down the page there's a header that says,

20 Looking Ahead?

21 A. Yes.

22 Q. The second sentence in the paragraph under

Page 74

1 that header says: "ICF believes there is a
2 plausible scenario in which there could be a slight
3 decline in the RTO capacity price in the 2019/2020
4 BRA."
5 Do you see that?
6 A. I see those words, yes.
7 Q. And then Exhibit 12 provides an
8 illustrative 2019-2020 BRA RTO clearing price.
9 Do you see that?
10 A. Yes.
11 Q. And it identifies with an approximately 90
12 percent confidence interval a BRA RTO clearing price
13 of between \$143 to \$159 per megawatt day.
14 Do you see that?
15 A. Almost. I mean, I see an illustrative
16 90 percent confidence.
17 Q. And going back up to the text in the
18 paragraph above Exhibit 12, it says the -- third
19 sentence says: "Using ICF's stochastic PJM BRA
20 bidding model..."
21 Do you see that?
22 A. Yes.

Page 75

1 Q. And do you know what that stochastic PJM
2 BRA bidding model is?
3 A. Yes.
4 Q. Okay. What is that?
5 A. It's a stochastic, PJM BRA bidding model.
6 Q. Does it have name or --
7 MR. KUTIK: I think he just gave it to
8 you.
9 BY MR. FISK:
10 Q. Like it's not the IPM model; correct?
11 A. No.
12 Q. It doesn't have any name beyond stochastic
13 PJM BRA bidding model?
14 A. I'm pretty sure it's not.
15 MR. KUTIK: Off the record.
16 (A discussion was held off the record.)
17 BY MR. FISK:
18 Q. Did you use that ICF stochastic PJM BRA
19 bidding model in developing your capacity price
20 forecast for this proceeding?
21 A. No.
22 Q. Okay. Why not?

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1 A. It was created only very recently, and
2 it's still in the -- its application is
3 illustrative.
4 Q. Okay. And the "it" you were referring to
5 is the stochastic model?
6 A. Correct. The stochastic PJM BRA bidding
7 model.
8 Q. And when you say very recently, when was
9 that created?
10 A. Within the last two to three months
11 subject -- I would have to check the actual dates.
12 It didn't have a single date it's still -- its
13 development is ongoing.
14 Q. Okay. And was there some other ICF model
15 that you used in creating your capacity price
16 forecast?
17 A. Yes.
18 Q. Okay. What model was that?
19 A. IPM.
20 Q. And so it -- am I correct that the
21 illustrative 2019-2020 BRA RTO clearing price
22 identified in Exhibit 12 came out of the ICF

Page 77

1 stochastic PJM BRA bidding model?
2 A. Yes.
3 MR. FISK: I have nothing else in the
4 public session.
5 Anybody on the phone have questions?
6 MR. OLIKER: This is Joe Oliker. I would
7 be happy to go next.
8 MR. FISK: Okay.
9 MR. OLIKER: As long as there is no
10 opposition.
11 MR. KUTIK: I guess the only one that
12 might otherwise have questions is Mr. Sauer.
13 Mr. Sauer, do you want to go next?
14 MR. SAUER: I will allow Mr. Oliker to go
15 next.
16 MR. OLIKER: I be brief so you can get as
17 much time as you can.
18 EXAMINATION
19 BY MR. OLIKER:
20 Q. Good afternoon, Mr. Rose.
21 Just a few questions today.
22 Referring to the stochastic bidding model,

Page 78

1 have you seen the forecast that that model has
2 produced of PJM RTO capacity prices for the years
3 2020 to 2021?
4 A. I don't think so.
5 Q. What years have you seen -- strike that.
6 Besides the forecast that's included on
7 the exhibit you were just discussing with Mr. Fisk,
8 have you seen capacity prices that the stochastic
9 bidding model has produced for any other PJM plan
10 (phonetic).
11 A. Perhaps. I'm not 100 percent sure.
12 Q. Can you identify of those prices as you
13 sit here today?
14 A. No.
15 Q. And earlier, there was a question from
16 Mr. Fisk. Maybe I'll just ask you plainly.
17 Did you draft your entire testimony
18 yourself?
19 A. Yes.
20 Q. And just broadly, if I understand, your
21 testimony is reference to the capacity performance
22 proposal.

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1 Am I correct that the only reason you
2 discussed capacity performance in your testimony is
3 because Mr. Wilson and Mr. Comings did not discuss
4 it?
5 MR. KUTIK: Objection.
6 THE WITNESS: No.
7 BY MR. OLIKER:
8 Q. What other reason did you include it in
9 your testimony?
10 A. There were capacity price forecasts that I
11 was rebutting.
12 Q. And you were rebutting them by stating
13 they didn't consider the capacity performance
14 product. Is that correct?
15 A. That was one aspect of the rebuttal.
16 Q. Okay. And isn't it true that PJM has
17 indicated -- first, you would agree that PJM
18 procures capacity to achieve a targeted reserve
19 margin?
20 Mr. Rose, do you understand there was a
21 question?
22 MR. KUTIK: Yeah. He hasn't answered your

Page 80

1 question yet.
2 THE WITNESS: I would say yes, but that's
3 only part of what's going on.
4 BY MR. OLIKER:
5 Q. Okay. And isn't it true that PJM has
6 indicated that if the capacity performance product
7 is successful, it may be able to reduce its reserve
8 margin target?
9 A. Do you have a specific reference?
10 Q. I'm asking if you know, Mr. Rose.
11 MR. KUTIK: I object.
12 THE WITNESS: What I would say, there are
13 some staff that have talked about that, but I would
14 have to review that more to have a full answer on
15 that.
16 BY MR. OLIKER:
17 Q. Okay. Thank you.
18 And turning to page 29, lines 14 and 18 --
19 14 through 18 where you indicate massive increases
20 for natural gas -- where you are discussing
21 increases in natural gas demand.
22 EIA 2014 room just paraphrasing?

Page 81

1 A. I see lines 14 to 15.
2 Q. Okay. In your testimony, where you
3 discuss increases for natural gas demand, are the
4 increases you are referring to the increases that
5 are provided in page 37 in Figure 7?
6 MR. KUTIK: I'm sorry. Would you say that
7 again, Joe?
8 BY MR. OLIKER:
9 Q. I'm asking, the increases in demand he
10 refers to in his testimony, are those increases
11 summarized in the table in Figure 7.
12 A. It's referring to those demand increases
13 and other demand increase.
14 Q. Okay. So I guess my question is, the
15 table that's in Figure 7, are there additional
16 demand increases you are referring to besides the
17 ones listed in the table?
18 MR. KUTIK: Objection. Asked and
19 answered.
20 THE WITNESS: Yes.
21 BY MR. OLIKER:
22 Q. And can you quantify those increases,

Page 82

1 please?

2 A. Yes.

3 Q. What are they? How would you quantify

4 that for the next decade?

5 A. I would look at the exhibit, or -- I'm not

6 sure how to call this. I'm holding a piece of paper

7 that has Demand Forecasts.

8 I would look at that, and that's how I

9 would do it. But you sort of changed your question

10 because initial -- and so it might be -- it may not

11 need to go to that because you changed your

12 question.

13 Q. Okay. I will try to ask it differently.

14 In Figure 7, you include several sectors

15 which you believe will increase demand over the next

16 ten years; correct?

17 A. Approximately.

18 Q. Okay. Are there any other sectors or

19 areas that you believe will increase demand over the

20 next decade that are not listed in Figure 7?

21 MR. KUTIK: Objection.

22 THE WITNESS: There are -- yes.

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1 BY MR. OLIKER:

2 Q. Could you identify those sectors and the

3 quantity of demand increase for each one?

4 MR. KUTIK: Objection.

5 THE WITNESS: There are other sectors that

6 are subsectors, for example, of the sectors listed,

7 and I could quantify that, but I'm referring

8 primarily to subsectors.

9 BY MR. OLIKER:

10 Q. Okay. And when you refer to subsectors,

11 those are not included in the total demand growth of

12 24 BCF per day?

13 A. The subsectors are included.

14 Q. Okay. So -- and I'm not trying to ask the

15 same question again. I'm just trying to understand

16 your answer.

17 So is the demand increase over the next

18 decade bigger than 24 BCF per day, or is it 24?

19 A. I think it's a little bit bigger, but not

20 much bigger.

21 Q. Okay. So it's de minimis?

22 A. It's small. It's definitely small.

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1 Q. Now, let's focus on the LNG exports part.

2 Could you please identify the locations

3 where the LNG will be exported to for -- and let's

4 break it up into five years from now and then ten

5 years from now.

6 A. I can't do that sitting here right now.

7 Q. Can you give a general description of the

8 location?

9 A. Yes.

10 Q. What are those locations?

11 A. Europe and Asia.

12 Q. And by Asia, do you mean China and Japan?

13 A. Among others.

14 Again, I would have to go to the more

15 detailed information to answer that question.

16 Q. By more detailed information, you are not

17 referring to the work paper that was provided

18 regarding Figure 7; correct?

19 A. Yes. That's correct.

20 Q. Okay. As you sit here today, can you

21 provide any indication of whether the demand in Asia

22 is primarily driven by China and Japan?

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1 A. I believe that those are important export

2 markets, particularly Japan. I don't have the

3 quantitative numbers sitting here to answer that

4 completely.

5 Q. And what amount of shale gas production

6 does your model assume in China five years from

7 today?

8 A. I can't answer that sitting here.

9 Q. What about ten years from today?

10 A. I can't answer that sitting here today.

11 Q. What level of pipeline expansion from

12 Russia to China does your model assume five years

13 from today?

14 A. I can't answer that sitting here today.

15 Q. Would you agree that -- first, would you

16 agree that there are unproven shale reserves in

17 Russia and China?

18 A. No -- could you repeat question? Could

19 you repeat the question?

20 (The record was read back as requested.)

21 THE WITNESS: No.

22

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1 BY MR. OLIKER:
2 Q. Do you agree -- first, what is your
3 definition of unproven shale gas reserves?
4 A. I don't recognize that as a definition.
5 Q. Okay. Have you heard of unproved shale
6 reserves?
7 A. No. That's not the terminology that I'm
8 familiar with.
9 Q. What terminology are you familiar with?
10 MR. KUTIK: Objection.
11 BY MR. OLIKER:
12 Q. How about unproved technically recoverable
13 reserves?
14 A. Again, I -- I don't want to quibble on
15 this unnecessarily. There are resources, and there
16 are reserves.
17 And most of what I've been focusing in on
18 in those countries is resources and not proved
19 reserves, which is the category that I most work
20 with.
21 Q. So does your model assume a level of shale
22 gas production in China?

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1 A. I can't answer that sitting here right
2 now.
3 Q. What about Russia? Same question.
4 A. All I can say is not assuming so much
5 production of resources that there are not export
6 markets sufficient to support the LNG exports
7 indicated.
8 I can't answer the specific question that
9 you're asking.
10 Q. Would you agree that there are technically
11 recoverable shale reserves in Mexico and Canada?
12 A. There could be. There are technically
13 recoverable resources in these places. There may
14 also be proven reserves.
15 I would have to check.
16 Q. And what level on a BCF per day basis does
17 your model assume shale gas is produced from
18 resources in Mexico and Canada five years from now?
19 A. I can't answer that sitting here right
20 now.
21 These are detailed -- some of these
22 questions are related to detailed numbers in the

Page 88

1 modeling system we use.
2 Q. Does it assume any level of production in
3 Mexico or Canada regarding shale gas reserves?
4 A. Yes.
5 Q. What about in Argentina?
6 MR. KUTIK: Objection.
7 THE WITNESS: Can you be more specific?
8 BY MR. OLIKER:
9 Q. Does your model assume that Argentina will
10 produce shale gas and export it?
11 A. I don't know.
12 Q. And on page 5, line 19 through 25 --
13 MR. OLIKER: Actually, before we move on,
14 Mr. Fisk.
15 MR. FISK: Yes.
16 MR. OLIKER: I believe you have a document
17 with you that is titled World Shale Resource
18 Assessments.
19 MR. FISK: Yes. Let me find it.
20 MR. OLIKER: Could you provide that
21 document to Mr. Rose, please.
22 MR. FISK: Are we marking it?

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1 MR. OLIKER: Yes.
2 (Thereupon, Deposition Exhibit No. 5 was
3 marked for identification.)
4 BY MR. OLIKER:
5 Q. Mr. Rose, do you see the document that's
6 been marked as Exhibit 5, which is World Shale
7 Resource Assessments by the EIA?
8 A. I see a document so named.
9 Q. Have you ever seen this document before?
10 A. No.
11 Q. Have you ever looked at global assessments
12 of shale resources that are unproved but technically
13 recoverable?
14 A. Yes. I have looked at shale resource
15 assessments internationally.
16 Q. Have you ever looked at the EIA's
17 assessments?
18 A. I'm not sure.
19 Q. Does this appear to be an EIA document?
20 MR. KUTIK: Objection. Never seen it
21 before.
22 Go ahead.

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1 THE WITNESS: It says EIA all over it, but
2 other than that, I haven't seen it before.
3 BY MR. OLIKER:
4 Q. Okay. Going back to Figure 7, your LNG
5 Exports line, is that net of imports?
6 A. I believe it is.
7 Q. Okay. And does the model you used
8 calculate the cost of exports to also include demand
9 costs associated with the LNG facility?
10 A. Yes.
11 Q. And you have talked a lot about the 2014
12 long-term energy outlook.
13 Would you agree that the reference case
14 assumes approximately 7 BCF per day of LNG exports
15 in 2025, if you know?
16 A. I don't remember that specific figure. It
17 doesn't sound right to me. But I don't remember
18 that specific figure.
19 Q. Do you know that the EIA has concluded
20 that it would be nearly impossible to achieve 12 BCF
21 per day of LNG exports by 2020?
22 MR. KUTIK: Objection. Assumes facts.

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1 THE WITNESS: I have not reviewed that
2 particular study.
3 MR. OLIKER: Mr. Fisk, I believe you have
4 a document with you regarding EIA analysis of a
5 Department Of energy request.
6 Would you please hand that to Mr. Rose?
7 MR. FISK: Are you referring to the Effect
8 of Increased Levels of Liquefied Natural Gas
9 Exports?
10 MR. OLIKER: Yes.
11 (Thereupon, Deposition Exhibit No. 6 was
12 marked for identification.)
13 BY MR. OLIKER:
14 Q. Mr. Rose, have you ever seen this
15 document?
16 A. No.
17 Q. Have you ever seen any EIA projections of
18 LNG exports?
19 A. Yes.
20 Q. And what level of exports did the EIA
21 assume in that analysis and when did it occur?
22 A. I compared my projection to EIA's for a

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1 year, and I found them to be very close.
2 Q. Okay. Can you look at figure 2 which is
3 on page 2 of Exhibit 6?
4 A. I'm on page 2.
5 Is there a -- I don't remember what you
6 said.
7 MR. KUTIK: He said Figure 2.
8 BY MR. OLIKER:
9 Q. Does that show the reference case being
10 under 8 BCF per day?
11 MR. KUTIK: Objection. He hasn't seen the
12 document before. No foundation.
13 THE WITNESS: It shows the reference level
14 for lower 48 in the reference case in the blue line,
15 but I have not seen this document before.
16 BY MR. OLIKER:
17 Q. Okay. And just quickly, switching gears,
18 you discuss liquidity in the NYMEX; correct,
19 regarding the CME group?
20 MR. KUTIK: Objection.
21 BY MR. OLIKER:
22 Q. That's on page 50.

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1 And we can just cut to the chase on this.
2 Would you agree that, as you go out past
3 2020, you are more likely to see trades on the
4 intercontinental exchange than the CME group?
5 A. I don't have an opinion on that.
6 Q. Do you look at trades on the
7 intercontinental exchange?
8 A. Yes.
9 Q. And you would agree that the CME group is
10 not the only platform where willing buyers and
11 sellers transact?
12 A. Yes.
13 Q. And if somebody were to place a snapshot
14 of a day of trading on the intercontinental
15 exchange, would you be able to identify it?
16 MR. KUTIK: Objection.
17 THE WITNESS: I don't have enough
18 information to answer that question.
19 BY MR. OLIKER:
20 Q. Do you constantly look at the
21 intercontinental exchange?
22 MR. KUTIK: Objection. Asked and

Page 94

1 answered.

2 THE WITNESS: I wouldn't say constantly,

3 but I look at futures.

4 MR. OLIKER: Okay. And, Larry, I'm almost

5 done. One more line of questions.

6 BY MR. OLIKER:

7 Q. Would you agree that the Baker Hughes rig

8 count in 2011 was above 800?

9 A. For what?

10 Q. For shale gas drilling.

11 A. I can't answer that.

12 Q. And do you have any idea how much gas the

13 United States produced in July of 2011?

14 Maybe can I help you. Would you agree,

15 subject to check, that in July 2011, according to

16 the EIA, the U.S. produced 1.936 TCF?

17 A. I'm sorry. I'm not sure what subject to

18 check means.

19 You know, I don't have a three decimal

20 point memory for July 2011.

21 Q. How about close to 2 TCF?

22 A. You know, I'm not sure what sure what

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1 close means. It might round to 2. I would have to

2 check.

3 Q. Okay. And in July of 2015, do you know

4 what the rig count was then?

5 MR. KUTIK: Objection.

6 THE WITNESS: The rig count for what?

7 BY MR. OLIKER:

8 Q. Shale gas resources.

9 A. No.

10 Q. Do you agree in July 2015, the EIA

11 indicated that the U.S. produced about 2.2 TCF of

12 natural gas?

13 A. I have the same answer I have to the 2011

14 exchange.

15 Q. Which is, That sounds reasonable?

16 A. That it might round to 2.

17 Q. Okay. And lastly would you agree that

18 there are -- it's projected there is approximately

19 17 BCF per day of wells that have already been

20 drilled and are waiting then to be fracked or

21 connected to a pipeline?

22 A. Could you repeat the question?

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1 MR. OLIKER: Could the court reporter read

2 it back, please?

3 (The record was read back as requested.)

4 BY MR. OLIKER:

5 Q. I'm just going to restate the question

6 because I don't like my question.

7 And the question is, would you agree that

8 there are over 2,500 natural gas wells that have

9 been drilled and are currently waiting for fracking

10 or pipeline expansions in the Marcellus and Utica

11 region?

12 A. I can't respond to that number. I don't

13 have that information with me.

14 Q. And would you agree that those wells do

15 exist, though you don't know the number?

16 A. Correct. Such wells exist.

17 Q. And would you agree that it's estimated

18 that these trapped wells that are waiting for

19 fracking or pipeline are estimated to produce over

20 19 BCF per day?

21 A. No. I can't agree or disagree with that

22 number.

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1 Q. And would you also agree you don't know

2 how much of that production your model assumes?

3 MR. KUTIK: Objection.

4 THE WITNESS: Not comprehensively with

5 respect to the categories that you have.

6 BY MR. OLIKER:

7 Q. Okay. I think that's -- one last

8 question.

9 MR. KUTIK: That's what you said about 15

10 questions ago, but go ahead.

11 BY MR. OLIKER:

12 Q. Can you tell me why ICF's model for 2015

13 natural gas prices was incorrect?

14 MR. KUTIK: Objection.

15 THE WITNESS: There were some parts of the

16 modeling that were correct, and there were some

17 parts, particularly the pricing, that was not

18 correct.

19 And as I have discussed in other parts of

20 the case, relatively small imbalances in the supply

21 and demand have an outsized effect in this very

22 volatile market. So that's what happened here.

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1 MR. OLIKER: Thank you, Mr. Rose. That's
2 all I have.
3 And, Larry, I'm sorry if I went over.
4 EXAMINATION
5 BY MR. SAUER:
6 Q. Good afternoon, Mr. Rose.
7 A. Good afternoon.
8 Q. My name is Larry Sauer. I'm with the
9 Office of (unintelligible).
10 (Court reporter interruption.)
11 MR. KUTIK: You need to speak up, Larry,
12 or get closer to the phone.)
13 BY MR. SAUER:
14 Q. Could you turn to page 28, line 22 of your
15 testimony?
16 A. I'm there.
17 Q. Okay. You state that coal sets the price
18 in Ohio in most hours; correct?
19 A. Yes, sir.
20 Q. What hours does coal not set the price in
21 Ohio?
22 A. It's primarily on peak hours, particularly

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1 during periods of time in which there's high
2 seasonal demand.
3 Q. And are the price levels typically lower
4 when coal is setting the price?
5 MR. KUTIK: Objection.
6 THE WITNESS: I think it depends, but it
7 usually it is.
8 BY MR. OLIKER:
9 Q. And in the hours that coal is not setting
10 the price, is it natural gas that's setting the
11 price?
12 A. It's mostly gas setting the price, yes.
13 Q. And in hours when there's substantial net
14 revenue, are the resources -- is it natural gas
15 resources that are generally setting the price?
16 MR. KUTIK: Objection. Can I have the
17 question read, please?
18 (The record was read back as requested.)
19 THE WITNESS: I'm sorry. I don't
20 understand the question.
21 BY MR. SAUER:
22 Q. For a generating unit, are the net

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1 revenues available to them generally more
2 substantial during the hours that the natural gas
3 resources are setting the price?
4 MR. KUTIK: Objection.
5 THE WITNESS: I think it depends.
6 BY MR. OLIKER:
7 Q. What does it depend on?
8 A. What the resources are would be a helpful
9 clarification.
10 Q. Well, a coal-fired unit delivering on a
11 peak hour when natural gas is setting the price, is
12 that -- are the net revenues more substantial during
13 that period of time for that unit?
14 MR. KUTIK: Objection.
15 THE WITNESS: More substantial than?
16 BY MR. OLIKER:
17 Q. In off peak hours, when natural gas is not
18 setting the price.
19 A. You know, I think it depends. But I think
20 in general, in a specific hour, if I understand your
21 question, the net revenues would be higher for the
22 coal plant when the gas is on the margin. But that

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1 would be on a per-hour basis.
2 Q. Okay. And your statement that coal sets
3 the price in Ohio in most hours, does your statement
4 differ if we were to look at PJM?
5 A. The number of hours would change depending
6 on where you are in PJM.
7 Q. And would you expect the number of hours
8 that coal sets the price and PJM to be less than the
9 hours coal is setting the price in Ohio?
10 A. It depends where you are in PJM.
11 So are you asking about what the average
12 is? I'm not sure what the question is.
13 Q. Okay. Yeah. Look at it on an average
14 basis for PJM versus what your conclusion is for
15 Ohio.
16 A. I would have to double check.
17 It is possible, but I would have to double
18 check.
19 Q. Can you turn to page 6, line 19 to 20 of
20 your testimony?
21 MR. KUTIK: Sorry. What page?
22 MR. SAUER: Page 6, lines 19 to 20.

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1 BY MR. SAUER:
2 Q. You have a statement that: "Shale gas
3 well production has declined dramatically..."
4 Do you see that?
5 A. I'm sorry. We are on page 19?
6 MR. KUTIK: Page 6.
7 BY MR. SAUER:
8 Q. Lines 19 to 20.
9 MR. KUTIK: Larry, I'm sorry. What's your
10 question?
11 BY MR. SAUER:
12 Q. Do you see the statement where you are
13 talking about shale gas well production has declined
14 dramatically?
15 A. One second.
16 There's something wrong with that. What I
17 think it meant to say is shale gas well production
18 has increased dramatically.
19 Q. Oh. That's different. Okay.
20 Then in that case, could you turn to page
21 18, lines 15 to 18?
22 A. On I'm on page 18, lines 15 to 18.

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1 Q. You are agreeing with Mr. Wilson that when
2 energy prices rise, capacity prices would be
3 expected to fall due to lower missing money.
4 A. Under certain circumstances, yes. And in
5 particular, in long run equilibrium, there's an
6 inverse relationship between energy and capacity
7 earnings.
8 Q. Would you agree that Mr. Wilson's energy
9 prices rose over 30 percent for both OVEC and FES
10 resources between 2016 and 2023?
11 MR. KUTIK: May I have the question read,
12 please?
13 (The record was read back as requested.)
14 THE WITNESS: No, I'm not aware of that.
15 BY MR. SAUER:
16 Q. Assuming Mr. Wilson's energy prices rose
17 over 30 percent over that period, would that mean
18 that capacity prices should fall?
19 MR. KUTIK: Are you talking about those
20 particular years?
21 MR. SAUER: Yes.
22 THE WITNESS: Not necessarily.

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1 BY MR. SAUER:
2 Q. And do you happen to know if Mr. Wilson
3 used capacity prices that rise in the future?
4 A. To my knowledge, Mr. Wilson did not make
5 his own forecasts and implicitly adopted mine.
6 Q. Can you turn page 32, lines 1 to 3, where
7 you are discussing lower rig counts.
8 A. Yes, sir.
9 Q. Could it also be that exploration and
10 development are becoming more efficient and loss of
11 supply is being brought online with fewer rigs?
12 A. No. That can't explain the 55 percent
13 decrease.
14 Q. And is there a basis for that, for your
15 disagreement of that?
16 A. Yes.
17 Q. What would that be?
18 A. It's my general knowledge of the factors
19 you just mentioned.
20 Q. On page 33, you're discussing the rig
21 count being down as well.
22 Do you see that?

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1 A. Where on 33?
2 Q. Figure 2.
3 A. Okay.
4 Q. Did you examine the total quantity of
5 production associated with this exploration
6 activity?
7 A. No. I don't remember.
8 Q. Do you know if it's generally up --
9 MR. KUTIK: I'm sorry. Had you finished
10 your answer?
11 BY MR. OLIKER:
12 Q. I'm sorry.
13 A. I don't remember.
14 Q. Okay. Do you know generally if the
15 production was up during that time period that rig
16 count was going down?
17 A. Can you be more specific?
18 Q. For natural gas, where you are showing the
19 rig counts dropping between 2000 -- January 2010 and
20 July of 2015, do you know whether natural gas
21 production during that period of time was generally
22 up?

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1 A. Yes, I believe it was.
2 Q. With regards to the CO2 regulations, do
3 you believe that market participants expect some
4 sort of -- strike that question.
5 Is it true that market participants are
6 already beginning to make decisions that factor in
7 the impacts of CO2 regulations?
8 MR. KUTIK: Objection.
9 THE WITNESS: Yes.
10 BY MR. SAUER:
11 Q. And would you believe that the recent
12 retirements of coal plants reflect, to some extent,
13 the possibility of CO2 policies?
14 MR. KUTIK: Objection.
15 THE WITNESS: Yes. It could be a factor
16 in some cases.
17 BY MR. SAUER:
18 Q. And do you expect forward prices --
19 forward electric prices also reflect such
20 expectation of CO2 policies?
21 MR. KUTIK: Can I have the question read,
22 please?

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1 (The record was read back as requested.)
2 MR. KUTIK: Objection.
3 THE WITNESS: Are there specific electric
4 prices you are referring to?
5 BY MR. SAUER:
6 Q. No. Just forward prices.
7 MR. KUTIK: Objection.
8 THE WITNESS: Without greater specificity,
9 the only thing I could say would be generally not,
10 but I need more specificity.
11 MR. SAUER: That's all the questions I had
12 on the public session.
13 MR. KUTIK: How about. And it's 5
14 o'clock.
15 As we indicated, it's 5 o'clock. We
16 believe the deposition has been concluded.
17 As I indicated off the record -- I will
18 say it on the record -- Mr. Rose will exercise his
19 right to review the transcript. And thank you very
20 much gentlemen.
21 THE COURT REPORTER: I need to clarify,
22 Mr. Kutik, did you need a copy of this.

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1 MR. KUTIK: Yes. I said --
2 THE COURT REPORTER: I just needed to make
3 sure because I don't have an order form.
4 And you want this by Monday?
5 MR. FISK: Yes.
6 (Whereupon, reading and signature not
7 having been waived, the proceedings in the
8 above-captioned matter were concluded at 5:00 p.m.)
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1 CERTIFICATE OF READING AND SIGNING
2 I, JUDAH ROSE, the deponent herein, do
3 hereby certify that I have read the foregoing
4 deposition and certify that it is a true and
5 accurate transcription of my testimony given in the
6 above-captioned matter, except for any corrections
7 as noted on the enclosed errata sheet.
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10 JUDAH ROSE
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E-R-R-A-T-A

RE: IN THE MATTER OF THE APPLICATION OF THE OHIO EDISON COMPANY, ET AL.

Enclosed is the transcript of your deposition testimony. Please review the transcript, complete and distribute the signed errata sheet and acknowledgment page to all parties, including this office, within 30 days. Any changes and/or corrections should be listed below and not made upon the transcript itself:

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CERTIFICATE OF NOTARY PUBLIC

I, Joseph Inabnet, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me in Stenotype and thereafter reduced to typewriting under my supervision; that said deposition is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

Joseph Inabnet, Notary Public for the Commonwealth of Virginia

Notary Registration No.: 274024
My Commission Expires: July 31, 2019

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Case No(s). 14-1297-EL-SSO

Summary: Deposition of Judah L. Rose, Vol. II, electronically filed by Mr. Tony G. Mendoza on behalf of Sierra Club