

BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

- - -

In the Matter of the 2018 :
Long-Term Forecast Report : Case No. 18-501-EL-FOR
of Ohio Power Company and :
Related Matters. :

In the Matter of the :
Application of Ohio Power :
Company for Approval to :
Enter Into Renewable : Case No. 18-1392-EL-RDR
Energy Purchase :
Agreements for Inclusion :
in the Renewable :
Generation Rider. :

In the Matter of the :
Application of Ohio Power : Case No. 18-1393-EL-ATA
Company for Approval to :
Amend its Tariffs. :

- - -

PROCEEDINGS

before Ms. Sarah Parrot and Ms. Greta See, Attorney
Examiners, at the Public Utilities Commission of
Ohio, 180 East Broad Street, Room 11-A, Columbus,
Ohio, called at 9:00 a.m. on Tuesday, January 22,
2019.

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VOLUME V - PUBLIC VERSION

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18 - - -
19
20
21
22
23
24
25

1180

INDEX

- - -

WITNESS

PAGE

David C. Rinebolt

Direct Examination by Ms. Mooney 1185

Cross-Examination by Ms. Willis 1205

Cross-Examination by Ms. Bojko 1237

Cross-Examination by Mr. Darr 1261

Cross-Examination by Mr. Oliker 1265

Cross-Examination by Mr. Nourse 1272

John F. Torpey

Direct Examination by Ms. Blend 1281

Cross-Examination by Mr. Kurtz 1289

Cross-Examination by Mr. Oliker 1296

Cross-Examination by Mr. Michael 1361

Cross-Examination by Mr. Whitt 1368

Cross-Examination by Ms. Bojko 1376

Cross-Examination by Ms. Whitfield 1425

Cross-Examination by Mr. Collier 1436

- - -

COMPANY EXHIBIT

IDENTIFIED ADMITTED

14	Direct Testimony of John F. Torpey on Behalf of Ohio Power Company	1281	--
----	--	------	----

- - -

OPAE EXHIBIT

IDENTIFIED ADMITTED

1	Direct Testimony of David C. Rinebolt on Behalf of Ohio Partners for Affordable Energy	1185	1276
---	--	------	------

- - -

OCC EXHIBITS

IDENTIFIED ADMITTED

13	Benchmarking Air Emissions June 2018	IV-1017	1280
----	--------------------------------------	---------	------

- - -

1181

INDEX (Continued)

- - -

OCC EXHIBITS IDENTIFIED ADMITTED

14 Union of Concerned Scientists 1210 1276
 Science for a Healthy Planet
 and Safer World

15 EIA Ohio State Energy Profile 1213 1276

16 Table 7 Electric Power 1217 1276
 Industry Emissions Estimates,
 1990 through 2014

17 Bloomberg Businesses Are 1235 1276
 Buying More Renewable Power
 Than Ever Before

- - -

OCA EXHIBIT IDENTIFIED ADMITTED

1 In the Matter of the 1466 --
 Application of Hecate Energy
 Highland LLC for a Certificate
 of Environmental Compatibility
 and Public Need Case
 No. 18-1334-EL-BGN Application

- - -

IGS/IGS SOLAR EXHIBITS IDENTIFIED ADMITTED

7 IGS-INT-01-011 1319 --

8 Integrated Resource Planning 1350 --
 Report to the Arkansas Public
 Service Commission Excerpt
 12-14-2018

- - -

OMAEG EXHIBITS IDENTIFIED ADMITTED

5 OCC-RFA-10-007 1378 --

- - -

1182

INDEX (Continued)

- - -

OMAEG EXHIBITS

IDENTIFIED ADMITTED

1			
2			
3			
4	6	Direct Testimony of	1391 --
5		Benjamin M. Mears on Behalf	
6		of Appalachian Power Company	
7		and Wheeling Power Company	
8		before the Public Service	
9		Commission of West Virginia	
10		Case No. 17-0894-E-PC	
11			
12	7	Rebuttal Testimony of John F.	1391 --
13		Torpey on Behalf of	
14		Appalachian Power Company and	
15		Wheeling Power Company Before	
16		the Public Service Commission	
17		of West Virginia in Case	
18		No. 17-0894-E-PC	
19			
20	8	Supplemental Testimony of	1391 --
21		John F. Torpey on Behalf of	
22		Appalachian Power Company	
23		and Wheeling Power Company	
24		Before the Public Service	
25		Commission of West Virginia	
		in Case No. 17-0894-E-PC	
	9	Direct Testimony of	1400 --
		Benjamin M. Mears for	
		Appalachian Power Company in	
		Virginia SC.C. Case	
		No. PUR-2017-00031	
	10	Rebuttal Testimony of	1400 --
		John F. Torpey for Appalachian	
		Power Company in Virginia	
		S.C.C. Case No. PUR-2017-00031	
	11	Public Service Commission of	1402 --
		West Virginia, Charleston	
		Commission Order in Case	
		No. 17-0894-E-PC	
	12	Commonwealth of Virginia	1408 --
		State Corporation Commission	
		at Richmond, Final Order,	
		Case No. PUR-2017-00031	

1183

1 Tuesday Morning Session,
2 January 22, 2019.

3 - - -

4 EXAMINER SEE: Let's go on the record.

5 Let's do brief appearances of the
6 parties, starting with the Company, and going around
7 the table.

8 MR. NOURSE: On behalf of Ohio Power
9 Company, Steven T. Nourse, Christen M. Blend,
10 Christopher L. Miller, L. Bradford Hughes, and Eric
11 B. Gallon.

12 MR. MICHAEL: Good morning, your Honors.
13 On behalf of AEP's residential utility consumers, the
14 Ohio Consumers' Counsel by Maureen Willis, Bill
15 Michael, and Chris Healey.

16 MR. McNAMEE: For the Staff of the PUCO,
17 Tom McNamee.

18 MR. OLIKER: Good morning, your Honors.
19 On behalf of Interstate Gas Supply, Inc. and IGS
20 Solar, LLC, Joe Olikier and Mike Nugent.

21 MR. KURTZ: Good morning, your Honors.
22 On behalf of OEG, Mike Kurtz.

23 MS. BOJKO: Good morning, your Honors.
24 On behalf of Ohio Manufacturers' Association Energy
25 Group, Kimberly W. Bojko and Brian W. Dressel.

1 MS. WHITFIELD: Good morning, your
2 Honors. On behalf of The Kroger Company, Angela Paul
3 Whitfield and Stephen E. Dutton.

4 MR. COLLIER: Good morning, your Honors.
5 On behalf of the Ohio Coal Association, Orla Collier
6 and John Stock.

7 MS. MOONEY: On behalf of Ohio Partners
8 for Affordable Energy, Colleen Mooney and Christopher
9 Allwein.

10 MS. LEPPLA: Good morning, your Honors.
11 On behalf of the Ohio Environmental Council, Miranda
12 Leppla.

13 MR. MENDOZA: Good morning, your Honors.
14 On behalf of the Sierra Club, Tony Mendoza.

15 MR. DOVE: Good morning, your Honors. On
16 behalf of Natural Resources Defense Council, Robert
17 Dove.

18 MR. DARR: For IEU-Ohio, Frank Darr and
19 Matt Pritchard.

20 MS. GLOVER: On behalf of the Retail
21 Energy Supply Association and Direct Energy, Mark
22 Whitt and Rebekah Glover.

23 EXAMINER SEE: Okay. Ms. Mooney, your
24 witness.

25 MS. MOONEY: Thank you, your Honor. OPAE

1 apologies for the delay for the arrival of
2 Mr. Rinebolt; and we would mark, as OPAC Exhibit 1,
3 the direct testimony of David C. Rinebolt.

4 EXAMINER SEE: Mr. Rinebolt, if you would
5 raise your right hand, please.

6 (Witness sworn.)

7 EXAMINER SEE: Thank you. Have a seat.

8 (EXHIBIT MARKED FOR IDENTIFICATION.)

9 - - -

10 DAVID C. RINEBOLT

11 being first duly sworn, as prescribed by law, was
12 examined and testified as follows:

13 DIRECT EXAMINATION

14 By Ms. Mooney:

15 Q. Mr. Rinebolt, do you have before you what
16 has been marked as OPAC Exhibit 1?

17 A. I do.

18 Q. And do you have any additions or
19 corrections to this testimony?

20 A. I have one correction on page 6, line 14.
21 It should read "Section 4901:5-5-06(B) (3)" et cetera.

22 Q. So that it would read 06(B) (3)?

23 A. (B) (3) (e) (iii).

24 Q. (B) (3) (e) -- (e) (iii), okay. And is that
25 the only correction to your testimony that you have?

1 A. It is.

2 Q. And if I were to ask you the same
3 questions today, would your answers be the same?

4 A. They would.

5 MS. MOONEY: Your Honor, Mr. Rinebolt is
6 ready for cross-examination.

7 EXAMINER SEE: Mr. Dove.

8 MS. WILLIS: Your Honor, I'm sorry.
9 Would this be an appropriate time to hear motions
10 with respect to Mr. Rinebolt's testimony?

11 EXAMINER SEE: Yes.

12 MS. MOONEY: Oh, your Honor, I am not
13 sure, did we mark this as OPAE Exhibit 1?

14 EXAMINER SEE: Yes, we did.

15 MS. MOONEY: And it has already been
16 handed to the court reporter.

17 EXAMINER SEE: OPAE Exhibit 1 is so
18 marked.

19 Ms. Willis.

20 MS. WILLIS: Thank you, your Honor. Your
21 Honor, to assist your Honors with understanding OCC's
22 motion, I am providing a copy to the Bench of the
23 pertinent Ohio Administrative Code sections and as
24 well as Ms. Mooney. And for your Honors'
25 edification, I have highlighted the portions that are

1 pertinent to my motion.

2 Beginning on page 6, line 12, the
3 question "Why does this project" and then going
4 through page 13, line 2.

5 EXAMINER SEE: I'm sorry, repeat that for
6 me, Ms. Willis.

7 MS. WILLIS: I'm sorry. Beginning on
8 page 6, line 12, with the question, "Why does this
9 project satisfy the statutory criteria" for me --
10 "for need?" And all the way through page 13, line 2.
11 And, your Honors, we move that your Honors limit the
12 admissibility of this testimony to the issue of
13 whether the resource plan is reasonable, rather than
14 whether the project satisfies the statutory criteria
15 for need. The factors presented in Mr. Rinebolt's
16 testimony are not relevant to whether there is a need
17 for the solar projects under Ohio law.

18 Mr. Rinebolt's testimony is directed to
19 the factors that are set forth in the Ohio
20 Administrative Code that relate to the reasonableness
21 of the resource plan, not the need for additional
22 resources.

23 As your Honors can see, the Ohio
24 Administrative Code addresses both the need for
25 additional resources as well as the reasonableness of

1 the resource plan.

2 The need for additional resources and the
3 major factors to be discussed are set forth in
4 Section 4901:5-5-06(B) (2). But instead of relying on
5 those need factors, the witness is mistakenly relying
6 on factors that relate to the reasonableness of the
7 resource plan as those factors are set forth under a
8 different section of the Ohio Administrative Code,
9 Ohio Administrative Code 4901:5-5-06(B) (3) (e) (iii).
10 His testimony is only relevant to the reasonableness
11 of the resource need -- resource plan and not the
12 need for the resources.

13 MS. BOJKO: Your Honor. Your Honor,
14 OMAEG supports the motion to strike. Before counsel
15 responds, I have a couple additional rationale and
16 points to add to that. If you look at page 7, lines
17 7 -- 1 through 5, that portion of Mr. Rinebolt's
18 testimony talks about the impact on rates and bills;
19 and as this Bench has ruled previously, this type of
20 issue is for Phase II of the hearing, not for Phase
21 I, with regard to costs and impacts on rates and
22 bills.

23 Secondly, page 7, lines 7 through 12, are
24 about environmental impacts. As the Bench knows, the
25 Commission lacks jurisdiction over environmental

1 issues and this -- and the Commission has recently
2 ruled, in the 17-2344-EL-CSS case, that the
3 Commission cannot address environmental impacts and
4 the Commission lacks jurisdiction to do so.

5 Second -- or thirdly, I would add that if
6 you look at page 7, lines 13, and this goes on
7 through page 13, line 2, Mr. Rinebolt is talking
8 about the specific proposed projects. He talks about
9 Highland County, he talks about Clinton County, all
10 of the counties pur -- purported to be affected by
11 the proposed projects. As this Bench has ruled, I
12 think on January 14, that the proposed projects are
13 not at issue in this case and that that should also
14 be deferred to the second phase of the hearing.

15 So in addition to Ms. Willis's motion to
16 strike on relevancy grounds, I would add that
17 portions of Mr. Rinebolt's testimony are beyond the
18 scope of this Commission's jurisdiction and are also
19 beyond the scope of Phase I of the hearing, and we
20 would ask that those that are beyond the scope of
21 Phase I of the hearing be deferred just as the
22 intervenor testimony of other opposing witnesses has
23 been deferred.

24 MR. COLLIER: OCA joins in the motion.

25 MR. OLIKER: IGS joins as well. Can I

1 have a clarification to the point, Kim, that mentions
2 the Green Tariff?

3 MS. BOJKO: Yes. That was in the pages
4 from page 7 -- 7 to 13.

5 MS. WILLIS: And we do have a separate
6 motion to defer with respect to that testimony. I
7 thought I would address that after this primary
8 motion to limit the admissibility is addressed.

9 MS. WHITFIELD: Kroger supports these
10 motions as well.

11 EXAMINER SEE: So, Ms. Willis, are you
12 joining OMAEG's motion starting on page 7, line 13?

13 MS. WILLIS: Yes, your Honor, I would
14 though note, primarily our motion was a motion to
15 limit the admissibility but we would join in a motion
16 to strike as well.

17 MR. DARR: IEU joins in the motion with
18 regard to page 7, line 13 through page 9, line 2, as
19 this relates to the specific projects which are
20 outside the scope of this Phase I hearing.

21 MR. NOURSE: And I would like to respond
22 after Ms. Mooney.

23 MS. MOONEY: Oh, is it my turn?

24 EXAMINER SEE: Yes.

25 MS. MOONEY: Your Honor, as far as the

1 legal argument about the Commission rules on
2 integrated resource plan, that really goes to the
3 heart of one of the matters in this case and what the
4 Commission can and can't consider. And our argument
5 is there is flexibility between the integrated
6 resource plan rules and need and that the Commission
7 may consider, whether or not they have or haven't in
8 the past, but there is flexibility for the Commission
9 to consider what it wants to consider, integrated
10 resource plans and the need.

11 So that's our statutory argument that
12 there's no prohibition, explicit prohibition, that
13 the Commission is not allowed to consider this.

14 And then with regard to what's being
15 deferred to Phase II, already there's ample testimony
16 in the record that sort of crosses the line between
17 what's been deferred and what hasn't been deferred.
18 Mr. Rinebolt is here now to testify. He hasn't -- he
19 isn't specifically testifying about the cost of the
20 two projects or any -- his references to cost are
21 just sort of introductory before he goes on to
22 discuss the need, and the environmental impacts is
23 the same, so that we do not believe that any of his
24 testimony should be struck.

25 MR. NOURSE: And, your Honor -- and, your

1 Honor, AEP Ohio opposes the motion to strike and
2 supports OP&E's testimony. Basically, I mean, I do
3 agree with Ms. Mooney that these are essential issues
4 to this case. The Company's Application and
5 Mr. Allen's testimony in support also cited Rule
6 6(B). And by "Rule 6," I am referring to OAC
7 4901:5-5-06.

8 And Rule 6, the OCC and the other movants
9 are -- excuse me -- are splitting hairs here between
10 not only between parts of a rule but sub --
11 subdivisions of subsections of the same rule. So
12 Rule 6(B), part (2) deals with need, and part (3)
13 deals with the IRP, the integrated resource plan,
14 including -- including the list of items that I
15 believe the movants have agreed are relevant to the
16 reasonableness of an IRP.

17 And to suggest that the need, based on
18 resource planning projections, is somehow divorced
19 and completely separate from the reasonableness of an
20 integrated resource plan, is fundamentally illogical
21 and is not supported by the Commission's rules.

22 So certainly the -- this witness, as
23 other witnesses have been given chance to address
24 Rule 6(B) and the -- these criteria, how they apply
25 to the threshold question of need, and, you know,

1 these individual items like economic impacts,
2 environmental impacts, again, they are listed
3 specifically in the Rule 6(B)(3)(e) and Romanette
4 (iii) has the -- has the list (a) through (i) of
5 items that include the economic impacts and include
6 environmental impacts. So certainly the Commission
7 thought it had jurisdiction to consider such matters
8 when they promulgated this rule and set forth the
9 parameters for considering the reasonableness of an
10 integrated resource plan.

11 So, for those reasons, the motions to
12 strike should be denied.

13 MR. MENDOZA: Your Honor, may I add a few
14 points briefly?

15 EXAMINER SEE: Briefly.

16 MR. MENDOZA: Briefly I will say the
17 Commission cannot consider environmental impacts, the
18 Commission can consider that under public -- under
19 the general public interest. It also is able to
20 consider fuel diversity as it does and it has in many
21 recent decisions, and a lot of those issues are tied
22 up together, fuel diversity and environment impact.

23 And I would just say some of the data
24 that -- about, you know, the lack of access to
25 rooftop solar in this testimony, the disadvantages in

1 terms of cost, siting, you know, a lot of low income
2 people don't have the ability to do rooftop solar, I
3 think that specific point surely goes to need. And I
4 concur in the statements of Ms. Mooney and also
5 Mr. Nourse.

6 MS. WILLIS: Your Honor, if I may
7 briefly, very briefly respond?

8 EXAMINER SEE: Go ahead, Ms. Willis.

9 MS. WILLIS: Thank you.

10 With respect to Ms. Mooney's point that
11 these are factors that may -- the Commission may
12 consider and that the Commission has flexibility,
13 that is inconsistent with Mr. Rinebolt's testimony on
14 page 6, line 14, that says, under the section he
15 cites, they must be reviewed as part of an integrated
16 resource plan. So there is some, I guess I would say
17 some inconsistency in the legal argument with what is
18 presented by the witness.

19 I would -- again, we are asking for the
20 Bench to limit the admissibility for the purposes of
21 complying with the rules. The rules clearly state
22 that the information -- that the factors that
23 Mr. Rinebolt has cited go to determine the
24 reasonableness of the resource plan which is separate
25 and apart from the need for additional electricity

1 resource options.

2 MS. MOONEY: Your Honor, did you want any
3 further response from us?

4 EXAMINER SEE: Ms. Mooney, you wanted to
5 respond very briefly?

6 MS. MOONEY: Only that Mr. Rinebolt is
7 available for cross-examination and OCC and the other
8 parties are free to cross him on his opinion
9 including -- including his opinion on the rule.

10 EXAMINER SEE: Okay. Consistent with the
11 Bench's prior rulings, the motion to strike
12 Mr. Rinebolt's testimony by OMAEG, OCC, and IEU
13 are -- IEU are denied.

14 MS. MOONEY: Thank you, your Honor.

15 MR. OLIKER: Your Honor, does that go to
16 his testimony on the Green Tariff or you are only
17 handling the first motion that was made by OCC?

18 EXAMINER SEE: I didn't.

19 MR. OLIKER: I just want to make sure I
20 know what you're addressing.

21 EXAMINER SEE: And your reference as to a
22 Green Tariff in --

23 MR. OLIKER: I don't know if we have
24 gotten there yet.

25 MS. WILLIS: Yeah. I think we are going

1 to get there. And I would ask for clarification.
2 The OCC's motion was to limit the admissibility of
3 Mr. Rinebolt's testimony. Has the Bench ruled on
4 that motion?

5 EXAMINER SEE: Just to be clear, tell me
6 exactly which portion you are referring to.

7 MS. WILLIS: Again, your Honors, that
8 would be, beginning on page 6, lines 12, with the
9 question "Why does this project...."

10 EXAMINER SEE: Page 6, line 12.

11 MS. WILLIS: Yes. "Why does this project
12 satisfy the statutory criteria for need?" through
13 page 13, line 2, because all of that testimony goes
14 to the factors that discuss the reasonableness of the
15 resource plan and not the need for the resources.

16 MS. MOONEY: Your Honor, I think that's
17 the motion you ruled on.

18 EXAMINER SEE: And that -- that motion is
19 denied.

20 MS. WILLIS: Thank you, your Honors.

21 Your Honor, if now would be a time for an
22 additional motion?

23 EXAMINER SEE: Yes.

24 MS. WILLIS: And the grounds for these
25 motions are that -- it would be a motion to defer the

1 testimony to page -- to Phase II and there's two -- I
2 have two sections of Mr. Rinebolt's testimony that
3 that motion would apply to.

4 EXAMINER SEE: Okay.

5 MS. WILLIS: If we could turn to page 9,
6 line 8, beginning with the sentence "The plants are
7 being built using Renewable Energy Purchase
8 Agreements...that minimize the exposure of the
9 Company financially." That's the first motion to
10 strike.

11 EXAMINER SEE: Okay.

12 MS. WILLIS: Or motion to defer the
13 testimony, I'm sorry.

14 And then on page 13, line 6 through
15 line 14, where Mr. Rinebolt discusses recommendations
16 specifically related to the Green Tariff and related
17 to what the Commission should consider subsequent
18 to -- or what AEP should consider subsequent to
19 approval and commencement of these two solar
20 projects.

21 Both of these sections of the testimony
22 deal with what the Attorney Examiners have determined
23 are Phase II issues. The first excerpt addresses the
24 REPAs and how they are structured, and the second
25 excerpt is also germane to the Green Tariff and what

1 AEP should do after it goes forward with these
2 projects. Consistent with earlier rulings of the
3 Bench, we would ask that this testimony be deferred
4 to Phase II.

5 MR. NOURSE: Ms. Willis, can you clarify,
6 the first excerpt on page 9, line 8, starting --
7 where did it end?

8 MS. WILLIS: It's just that sentence.

9 MR. NOURSE: Okay. Thank you.

10 MR. OLIKER: IGS and IGS Solar would join
11 the motion, your Honor.

12 MS. BOJKO: Your Honor, OMAEG joins the
13 motion. I have one additional argument. In the
14 deposition of Mr. Rinebolt, he was asked if this
15 section was pertinent to Phase I, and his response
16 was "No, no. In fact, my answers to this, the
17 question that begins on line 4, I think we have
18 established are not part of the determination of need
19 which is this phase of the proceeding." So even the
20 witness admitted that these lines should be deferred
21 to Phase II.

22 EXAMINER SEE: And when you say "these
23 lines."

24 MS. BOJKO: It's lines -- it's the
25 question and answer on page 13, lines 4 to 14. The

1 Green Tariff. And then there is a second set --
2 recommendation about what happens when the projects
3 go forward or after they have gone forward. That's
4 page 129 of the deposition, your Honor.

5 MR. DARR: Consistent with my prior
6 motion, I would join with regard to pages 13 -- or
7 page 13, lines 4 through 14, as this is outside the
8 scope of this hearing.

9 EXAMINER SEE: Mr. Darr, repeat that.
10 You said page 13, lines 4 through 14? Okay.

11 MR. DARR: Sorry, your Honor. 4 through
12 14, yes.

13 EXAMINER SEE: Ms. Mooney, did you wish
14 to respond?

15 MS. MOONEY: Yes, your Honor. I have
16 already responded to this. This testimony is
17 obviously mostly related to Phase II, but he's
18 just -- it's very minimal. He is just mentioning
19 these things, and it's in line with what has already
20 been allowed on the record in this case in this phase
21 of the hearing from other witnesses where he says
22 primarily it's going to be deferred, but it can be at
23 least mentioned here, all sorts of testimony of this
24 type has already been admitted in Phase I. And I
25 think, consistent with prior rulings of the Bench,

1 there's no need to strike this testimony at this
2 time.

3 MR. NOURSE: And, your Honor, regarding
4 the sentence on page 9, I agree with Ms. Mooney. I
5 think that's a general statement and it actually can
6 be interpreted to just refer to the break-even REPA
7 analysis that Mr. Torpey does, so I don't know that
8 that's out of line, and I agree there is a lot of
9 general statements that we did not encompass in our
10 motion -- in our motion to strike that was granted.

11 But we have no opinion on the question
12 and answer on page 13. Don't take any position on
13 that.

14 EXAMINER SEE: And OCC's motion to
15 strike -- I'm sorry, to defer to the second phase of
16 these proceedings, the sentence starting on line 8,
17 going through page 10 -- going through line 10 on
18 page 9 is -- is denied.

19 However, as to the section that appears
20 on page 13, I believe you had commencing at page -- I
21 think you said line 6, going through line 14?

22 MS. WILLIS: Yes, your Honor. I mean we
23 have -- we could take the question out.

24 EXAMINER SEE: Yes. Let's take the
25 question, and so starting on line 4 through 14.

1 MS. WILLIS: Yes.

2 EXAMINER SEE: That portion should be
3 deferred to Phase II of these proceedings.

4 MS. WILLIS: Thank you, your Honor.

5 MS. BOJKO: Thank you, your Honor.

6 Your Honor, I have one more.

7 EXAMINER SEE: One more?

8 MS. BOJKO: Your Honor, these are a
9 series of statements by Mr. Rinebolt, so I will list
10 them all together but they have the same rationale.
11 These portions of his testimony that OMAEG is moving
12 to strike are page 5, lines 13 through 15.

13 EXAMINER SEE: Starting where?

14 MS. BOJKO: Starting with the word "The"
15 on 13, through that sentence and including the
16 exhibits.

17 And then, your Honor, page 5, line 23,
18 the last sentence that starts with "The charts" and
19 that carries over to page 6, line 2. So that
20 sentence that reference -- references the charts.

21 Then page 6, lines 7 through 10,
22 beginning with "The EIA" and ending after the exhibit
23 number, including the exhibits.

24 Page 7, your Honor, lines 1 through 5
25 including the exhibits, so the whole question and

1 answer.

2 Then page 8, line 9, starting "The
3 annual" through line 11, end of the paragraph.

4 Page 8, lines 14 through 17, so starting
5 with "Increasingly" on line 14 and going to the end
6 of the citation, the Bloomberg, including the
7 Bloomberg link.

8 Page 9, line 18 beginning with "Data" to
9 line 21, ending with the link to the EIA.

10 Page 10, line 8, starting with "First"
11 going through line 11 after the NREL link.

12 Page 11, beginning with "the most" and --
13 EXAMINER SEE: In what line?

14 MS. BOJKO: Page 11, line 14, my
15 apologies, through line 17, after that sentence
16 ending with "increasing." And then the concluding
17 sentence, 18 through 22, ending with the link.

18 Your Honor, with regard to these sections
19 of Mr. Rinebolt's testimony, these -- the testimony
20 as well as the related exhibits, DCR-1, -2, -3, and
21 -4 are not exhibits prepared by Mr. Rinebolt. He is
22 merely cut -- cutting and pasting information from
23 the EIA or the Clean Technical -- Clean --
24 Clcleantechnicacom which is an EIA source and a
25 subsequent coal-fired retirement link. He did not

1 produce these charts. He cannot verify. We asked if
2 he could verify the data in his testimony and the
3 charts. He said he could not in his deposition.
4 It's inadmissible hearsay. The individuals that did
5 create the data charts are not here to speak to it.
6 He lacks foundation and personal knowledge. So under
7 the civil rules, it is hearsay and should be
8 stricken, as well as he lacks foundation and personal
9 knowledge under the rules. Thank you.

10 EXAMINER SEE: Any other?

11 Ms. Mooney, did you want to respond?

12 MS. MOONEY: Your Honor, this is the same
13 motion to strike as in -- given for numerous
14 witnesses at the hearing. The EIA data is publicly
15 available and government data. Mr. Rinebolt does
16 have experience in these areas, but the main thing is
17 that he's available for cross-examination and also
18 that the Commission can allow this testimony and give
19 it the weight that the Commission determines it will
20 give it. But this same motion to strike on the basis
21 it's hearsay has already been denied for many
22 witnesses before in the hearing so far.

23 MR. NOURSE: Your Honor, I agree. With
24 respect to the EIA data, it's, you know, like PJM
25 data. Excuse me. Many witnesses have used that and

1 have that in their testimony, including Staff of the
2 Commission cites EIA data, as well as other opposing
3 witnesses like OCA witness Medine, for example,
4 which, again, we would move to strike that, unless
5 you are granting something like this, then obviously
6 it needs to be done consistently. Thank you.

7 MS. MOONEY: This kind of testimony has
8 not been stricken prior to this.

9 EXAMINER SEE: And consistent with the
10 Bench's prior ruling, the motion to strike the cited
11 portions of Mr. Rinebolt's testimony is denied.

12 MS. BOJKO: Thank you.

13 EXAMINER SEE: Ms. Willis.

14 MS. WILLIS: Thank you, your Honor.

15 EXAMINER SEE: No. Did you have another
16 motion to strike?

17 MS. WILLIS: No. If you would like me to
18 come up with one, I can try.

19 EXAMINER SEE: No. Not asking for any
20 extra.

21 Okay. Mr. Dove, any cross-examination
22 for this witness?

23 MR. DOVE: No questions, your Honor.
24 Thank you.

25 EXAMINER SEE: Mr. Mendoza.

1 MR. MENDOZA: No questions, your Honor.

2 Thank you.

3 EXAMINER SEE: Ms. Leppla.

4 MS. LEPPLA: No questions, your Honor.

5 Thank you.

6 EXAMINER SEE: Mr. Kurtz, any questions?

7 MR. KURTZ: No questions.

8 EXAMINER SEE: Ms. Willis.

9 MS. WILLIS: Thank you, your Honor.

10 - - -

11 CROSS-EXAMINATION

12 By Ms. Willis:

13 Q. Good morning, Mr. Rinebolt.

14 A. Good morning, Ms. Willis.

15 Q. Now, Mr. Rinebolt, you are not licensed
16 to practice law in Ohio; is that correct?

17 A. I am not.

18 Q. And you are not acting as an attorney in
19 this case, correct?

20 A. I am not.

21 Q. The opinions that you present in your
22 testimony are not legal opinions, correct?

23 A. No. They are my opinions.

24 Q. Now, you indicate, on page 4, that you
25 have previously testified before the PUCO. Do you

1 see that reference?

2 A. Yes, I do.

3 Q. Now, would you agree with me,
4 Mr. Rinebolt, that none of your testimonies addressed
5 utility applications in forecast proceedings seeking
6 a finding of need for generation resources?

7 A. I don't see any cases there that are
8 titled "FOR," so I would have to agree with that.

9 Q. Thank you.

10 Now, on page 4 of your testimony, line
11 21, you state "The coal fleet is old." Do you see
12 that reference?

13 A. I'm sorry, which page?

14 Q. Page 4.

15 A. Okay.

16 Q. Line 21.

17 A. That's not -- not line 21 at page 4.

18 Q. I'm sorry, that's page 5. I'm one page
19 off.

20 A. I am not trying to be argumentative here.

21 Q. Absolutely. I appreciate that.

22 On page 5, line 21, there is a statement
23 that says "The coal fleet is old."

24 A. That is correct.

25 Q. Do you see that?

1 A. Yes.

2 Q. And there are you referring to AEP Ohio's
3 or AEP's coal fleet or Ohio's coal fleet?

4 A. I am referring to the coal fleet in PJM.

5 Q. Okay. And part of the coal fleet in PJM
6 would be Ohio's coal fleet; is that correct?

7 A. We are a part of PJM, that's correct.
8 And parts of Illinois as well.

9 Q. Okay. So you are generally familiar then
10 with the coal fleet, AEP's coal fleet in Ohio and
11 Illinois; is that right?

12 A. I'm generally familiar with the -- with
13 the status of the coal fleet, the age of the coal
14 fleet --

15 Q. Okay.

16 A. -- within the market area.

17 Q. And can you explain to me your
18 understanding of the age of Ohio's coal fleet?

19 A. It's old.

20 Q. Are you generally familiar with AEP's
21 current coal plants that are operating, the Gavin,
22 Cardinal, and Conesville plants?

23 MR. MENDOZA: Objection.

24 MR. NOURSE: Objection. I think that
25 misstates the facts not in evidence. There is no

1 foundation.

2 MS. WILLIS: Let me try to restate.

3 EXAMINER SEE: Okay.

4 Q. Are you generally familiar with AEP's
5 current open coal plants, the Cardinal and Conesville
6 coal plants?

7 A. I'm aware of the plants. I don't know
8 from an engineer's standpoint, but.

9 Q. You are generally familiar with those
10 plants?

11 A. Yes.

12 Q. Yes. And are you familiar with the OVEC
13 units that AEP has a share of, the coal-burning
14 units?

15 A. Yes.

16 Q. And you are also aware of the fact that
17 AEP has closed a number of its coal plants, correct?

18 A. Oh, I am.

19 Q. And would those plants be Beckjord,
20 Muskingum, Picway, and Poston if you know?

21 A. I don't know off the top of my head, but
22 those sound reasonable.

23 Q. And would those coal plant closures be
24 reflected in the data that you show on DCR-1 and -2?
25 If you know?

1 A. I mean, give me a chance to look at the
2 exhibits, please. Well, I think Exhibit DCR-1 is the
3 best graphic associated with it because it is a list
4 of coal-fired electric generation retirements. And
5 then it's reflected in DCR-2 but it's not as obvious
6 from the graphical standpoint.

7 Q. Okay. Thank you.

8 Now, Mr. Rinebolt, you consider yourself
9 an expert on climate change, do you not?

10 A. I do.

11 Q. And you also consider yourself an expert
12 on global warming, correct?

13 A. I prefer the word -- term "climate
14 change," but global warming, I think they are used
15 inter -- interchanged --

16 Q. Okay.

17 A. -- regularly.

18 Q. Very good. Now, in your -- in this
19 regard, in your testimony you, discuss long-term
20 advantages for -- from approval of these projects
21 from an environmental perspective; is that correct?

22 A. That is correct.

23 Q. And you cite, on page 11, to a recent
24 report of the Intergovernmental Panel on Climate
25 Change, correct?

1 A. Yes.

2 Q. And you also discuss the emissions from
3 the fossil fuel plants on lines 20, page 11?

4 A. I do.

5 Q. Now the emissions, those would be sulfur
6 dioxide, nitrogen oxide, carbon dioxide, and mercury?

7 A. As well as particulates.

8 Q. Okay. And you refer, on lines 21 and 22
9 of page -- may I have a moment, your Honor?

10 EXAMINER SEE: Yes.

11 Q. -- of page 11. Let me strike that and
12 start over.

13 You refer, on lines 21 through 22, on
14 page 11 of your testimony, to a publication, correct?

15 A. I do.

16 MS. WILLIS: Your Honor, may I approach?

17 EXAMINER SEE: Yes.

18 MS. WILLIS: We would like to mark at
19 this time, as OCC Exhibit 14, a four-page document
20 with the heading "Union of Concerned Scientists,
21 Science for a Healthy Planet and Safer World."

22 EXAMINER SEE: So marked.

23 (EXHIBIT MARKED FOR IDENTIFICATION.)

24 Q. (By Ms. Willis) Now, Mr. Rinebolt, I will
25 give you a moment to look at that.

1211

1 A. Yes. I have reviewed it. In fact, I
2 note there are other harmful pollutants issued by
3 coal plants that I did not include in all this.

4 Q. Thank you.

5 And would you agree that this is -- this
6 article is the article -- the link that you reference
7 on page 11 of your testimony, lines 21 through 22?

8 A. It is.

9 Q. Okay. Would you generally agree with me,
10 Mr. Rinebolt, that air pollution emissions are highly
11 concentrated among a small number of producers?

12 A. No.

13 Q. Would you agree with me, Mr. Rinebolt,
14 utilities, like AEP, have been and are a significant
15 source of air pollution emissions?

16 A. Yes. Within the utility sector, they are
17 a significant.

18 Q. Now, throughout your testimony you rely
19 on data from the U.S. Energy Information Agency; is
20 that correct?

21 A. That is correct.

22 Q. And for purposes of this discussion, can
23 we refer to that agency as "EIA"?

24 A. We may.

25 Q. For instance DCR-1, -2, and -3 and -4 are

1 derived from EIA data; is that correct?

2 A. They were produced by EIA.

3 Q. Okay. And EIA provides official energy
4 statistics from the U.S. Government; is that correct?

5 A. It is.

6 Q. And would you agree that EIA is well
7 known within the energy field?

8 A. I believe it is widely considered to be a
9 fair assessment of the energy sector.

10 Q. Okay. And would you agree with me, EIA
11 produces a lot of data?

12 A. Yes, they do.

13 Q. EIA, for instance, produces energy
14 forecasts and energy market data?

15 A. Yes. They actually produce a daily
16 summary of a particular issue that I get in my inbox
17 every day.

18 Q. And EIA also produces environmental data,
19 correct, including greenhouse gas data, electric
20 power plant emission data; is that correct?

21 A. That is correct. They just issued some
22 data indicating that the level of carbon emissions
23 increased in 2018.

24 Q. And you are aware that EIA produces
25 state-specific data; is that correct?

1 A. Yes. They have a state dataset.

2 Q. Okay. And as an expert in the energy
3 field, you rely on the reports made by EIA that's
4 correct?

5 A. I certainly utilize them for -- in my
6 work.

7 Q. And you are familiar with the EIA
8 state-specific information reporting, correct?

9 A. Yes.

10 Q. And in fact, you rely on the EIA
11 Ohio-specific data on page 9 of your testimony, lines
12 18 through 21, correct?

13 A. I do.

14 MS. WILLIS: Your Honor, may I approach
15 the witness?

16 EXAMINER SEE: Yes.

17 MS. WILLIS: At this time, your Honor, I
18 would like to mark, as OCC Exhibit 15, the Ohio State
19 Energy Profile.

20 EXAMINER SEE: So marked.

21 (EXHIBIT MARKED FOR IDENTIFICATION.)

22 Q. (By Ms. Willis) Now, the -- what we have
23 marked as OCC Exhibit No. 15, is that the State
24 Energy Profile that you relied on as part of your
25 testimony as you relay on page 9, lines 18 through

1 21?

2 A. No, it is not.

3 Q. And can you tell me the difference?

4 A. Yes. I -- I relied on a two-page summary
5 which is listed -- the link is in my testimony. This
6 is a more -- it appears to be a more comprehensive
7 summary of Ohio's energy profile.

8 Q. Would you accept, subject to check, that
9 if you brought the link up that the entire -- this
10 entire document would be contained within that link?

11 A. Yes, I believe that.

12 Q. Thank you.

13 Now, if you are looking at OCC Exhibit
14 No. 15, you can see that part of the State Energy
15 Profile for Ohio contains an overview, explaining the
16 analysis of Ohio's energy profile, correct?

17 A. Correct.

18 Q. And part of that overview concludes that
19 Ohio is among the top five coal-consuming states in
20 the nation; is that correct?

21 A. I don't see where it says the fifth
22 largest.

23 Q. If you could take a moment to -- if you
24 could turn to the second page of the overview, if you
25 could look at the second paragraph, Ohio -- stating

1 "Ohio is among the top five coal-consuming states in
2 the nation...." Do you see that reference?

3 A. Page 2 on -- this is a list of charts.

4 Q. I'm sorry. Page 2 of the overview.

5 A. Oh, okay.

6 MS. MOONEY: What page is that?

7 MS. WILLIS: It is unnumbered, but I
8 believe it's the -- it is 7 of 15.

9 MS. BOJKO: 8 of 15 on the bottom left.

10 THE WITNESS: Okay.

11 MS. WILLIS: Thank you.

12 A. Yes, that is the first line in the second
13 paragraph under the "Coal" subset heading.

14 Q. And there is also a statement that
15 90 percent of the coal consumed in Ohio is used for
16 electric power generation? Do you see that
17 reference?

18 A. Yes.

19 Q. Now, also as part of the Ohio State
20 Energy Profile that you relied on, you see on page 6
21 that there are "Electric Power Industry Emissions"
22 data showing carbon -- showing how much carbon
23 dioxide, sulfur dioxide, and nitrogen dioxide are
24 produced in Ohio, correct?

25 A. Well, that data is listed there, but I

1 didn't rely on it. I was using the EIA data to
2 indicate the mix of electric generation in the State
3 of Ohio. But I am happy to have this on the record.

4 Q. Thank you.

5 Now, we look at that particular topic,
6 "Electric Power Industry Emissions, Ohio," we see in
7 the right-hand column the two words that say "find
8 more." Do you see that?

9 A. Uh-huh.

10 MS. MOONEY: Your Honor, I don't see that
11 right now. What page is that on?

12 MS. WILLIS: I'm sorry. That would be
13 on -- it's the last page of the charts, before the
14 overview begins, at the very bottom, showing
15 "Electric Power Industry Emissions, Ohio."

16 MR. NOURSE: Page 6 of 15.

17 MS. WILLIS: Page 6 of 15, I'm sorry.

18 MS. MOONEY: Okay. 6 of 15 in OCC
19 Exhibit 15.

20 MS. WILLIS: Yes.

21 Q. (By Ms. Willis) And do you see the words
22 "find more"?

23 A. I do.

24 Q. And if you -- would you accept, subject
25 to check, that if you double clicked on that "find

1217

1 more" link, you could see the electric power industry
2 emissions from Ohio over a longer period of time than
3 2017?

4 A. I'll accept that subject to check.

5 MS. WILLIS: Your Honor, may I approach
6 the witness?

7 EXAMINER SEE: Yes.

8 MS. WILLIS: Your Honor, at this time, I
9 would ask to mark as OCC Exhibit No. 16, the Electric
10 Power Industry Emissions Estimates, 1990 through
11 2014.

12 EXAMINER SEE: So marked.

13 (EXHIBIT MARKED FOR IDENTIFICATION.)

14 Q. Now, Mr. Rinebolt, is this information
15 that is shown on this exhibit the type of information
16 you are familiar with?

17 MS. MOONEY: Is this OCC Exhibit 16?

18 MS. WILLIS: Yes.

19 A. It is the type of information I look at
20 from time to time. I haven't looked at this one
21 specifically in preparation for this case.

22 Q. Have you looked at this information
23 before though?

24 A. I am sure I have.

25 Q. Is the information that is shown on OCC

1 Exhibit 16 consistent with your understanding of coal
2 emissions in Ohio?

3 MS. MOONEY: Your Honor, where did she
4 say she got this original 16? From clicking on a
5 link from OCC Exhibit 15 or?

6 MS. WILLIS: Yes, your Honor, it is on
7 the -- that would be correct, Ms. Mooney.

8 MS. MOONEY: And what was the link?

9 MS. WILLIS: I believe it's the "find
10 more." It is linked. It is on the EIA website under
11 various links. There is probably a thousand links on
12 that website.

13 MS. MOONEY: Where's -- oh, "find more."
14 That's in that last column on page 6 of 15?

15 MS. WILLIS: That's my understanding.

16 A. Both the numbers for sulfur dioxide
17 emissions and carbon dioxide emissions look
18 appropriate given the closure of power plants in the
19 State of Ohio.

20 Q. Okay. Thank you.

21 Now, going back to your testimony on
22 page 11, you discuss emissions from fossil fuel
23 plants as being a concern in Ohio where fossil fuels
24 dominate, correct?

25 A. That is correct.

1 MS. WILLIS: Your Honor, may I approach?

2 EXAMINER SEE: Yes.

3 MS. WILLIS: At this time, I am going to
4 show Mr. Rinebolt what has previously been marked as
5 OCC Exhibit No. 13, a report called "Benchmarking Air
6 Emissions of the 100 Largest Electric Power Producers
7 in the United States."

8 MR. NOURSE: Your Honor, I think this
9 exhibit was moved and denied admission.

10 MS. WILLIS: That's correct. I referred
11 to it as being marked, but -- it is not in evidence
12 at this point, your Honor. OCC Exhibit No. 13.

13 EXAMINER SEE: That is correct.

14 Q. (By Ms. Willis) I want you to take a
15 moment to look at that document, Mr. Rinebolt.

16 MS. MOONEY: Your Honor, I would like to
17 say it's ironic that the parties would move to strike
18 Mr. Rinebolt's testimony on the basis that it's
19 hearsay because he didn't prepare the document and
20 now OCC is trying to get a document that was not
21 admitted in the record on the basis of Mr. Rinebolt's
22 testimony. I just think that's ironic.

23 MR. OLIKER: It just means the rules have
24 to be applied across the board.

25 EXAMINER SEE: Let's move on.

1 MS. WILLIS: I don't have any response to
2 that, your Honor. He is a witness. I guess I do,
3 I'm sorry. He is a witness. I am asking him about
4 his expertise and about information he may have
5 relied upon or he may recognize, and so I think
6 it's -- it's perfectly fine cross.

7 A. Well, I would note this is based on the
8 EIA data.

9 Q. Yes. Thank you.

10 A. So I've kind of looked through it. If
11 you want to point me --

12 Q. No. Go ahead and take your time. I want
13 you to review that.

14 A. All right. I have a skimmed through it.

15 Q. Thank you.

16 Now, do you recognize this as information
17 containing EIA data that is related to identifying
18 air emissions from electric power producers?

19 A. It includes not only EIA but it also
20 includes data from the EPA inventories.

21 Q. And is the information shown on this
22 exhibit, information of the type of which you would
23 be familiar?

24 A. It is the type of information I look at
25 for various purposes.

1 Q. And if we could turn to the data shown on
2 page 5. Are you familiar with the data shown on
3 page 5, and would I be correct to say that the data
4 shows that AEP is among the top 10 largest electric
5 power producers by emissions?

6 A. In terms of stack air pollutant
7 emissions, yes.

8 Q. And is the information shown here
9 consistent with your understanding of AEP's coal
10 plant emissions?

11 A. So far as it goes.

12 Q. And if we turn to page 10 of that -- of
13 OCC Exhibit 16.

14 EXAMINER SEE: 13.

15 Q. Are you familiar with the data shown on
16 that page and would it be correct to say that the
17 data shows AEP as being in the top 2 of 100 electric
18 producers in terms of the nitrogen oxide emission
19 rate?

20 A. Did you say No. 2?

21 Q. Yes.

22 A. No. 2 is associated electric
23 cooperatives. It's down the list.

24 Q. Within -- what -- if you had to rate it
25 in the list, what do you believe that this shows?

1 A. It shows that -- that AEP has invested in
2 controlling its NOx emissions when compared to some
3 of the other utility systems.

4 MS. WILLIS: Your Honor, I would ask that
5 the -- that Mr. Rinebolt's answer be stricken. It
6 was not responsive to the question I asked.

7 MS. MOONEY: Your Honor, I think it was
8 responsive. What does it mean to you and that's what
9 it means to him.

10 EXAMINER SEE: Motion --

11 MR. NOURSE: What does it show.

12 EXAMINER SEE: The motion to strike the
13 response is denied.

14 Q. (By Ms. Willis) Is the information shown
15 on this page, consistent with your understanding of
16 AEP's coal plant emissions?

17 A. Yeah. They are 31 on the list. They are
18 actually below Buckeye Power. That seems reasonable
19 to me.

20 Q. And are you familiar with the data shown
21 on page 11 of this document, and would I be correct
22 to state there that AEP -- the data shows that AEP is
23 in the top 3 of 100 electric producers in terms of
24 the SO-2 emission rates?

25 A. On page 11?

1 Q. Yes.

2 A. No. 2 is Omaha Public Power District.

3 Q. I'm sorry. I think I was on the wrong
4 page.

5 A. And AEP is --

6 Q. When I -- I'm sorry. Let me try again.

7 Mr. Rinebolt, I am looking at page 11,
8 where the "11" is at the bottom of the page, with the
9 slide entitled "SO-2: Total Emissions and Emission
10 Rates." Do you see that page?

11 A. I do. I do.

12 Q. Okay. And is the information shown here
13 consistent with your understanding of AEP's coal
14 plant emissions?

15 A. AEP is 17 on the list. And it is
16 consistent, they put in sulfur dioxide scrubbers on
17 Gavin about 15 years ago, I recall. Maybe a little
18 less.

19 Q. And if we go to page 12 of this document,
20 are you familiar with the data shown on page 12, and
21 would I be correct to state this data shows AEP's
22 total CO-2 total emissions and emissions rates,
23 correct?

24 MS. MOONEY: Your Honor, I object. The
25 way she phrased the question "Are you familiar with,"

1 and before she was phrasing the questions, "This is
2 the sort of data you look at," which is okay, but
3 "familiar with" I object.

4 A. I mean, the data is what the data is.

5 EXAMINER SEE: I am sorry, Mr. Rinebolt.
6 Hold on for a moment. There is an objection.

7 Ms. Willis, try that question again.

8 MS. WILLIS: Let me -- let me rephrase.

9 Q. (By Ms. Willis) Mr. Rinebolt, is the
10 information shown here on page 12 consistent with
11 your understanding of AEP's coal plant emissions?

12 A. Well, AEP is ranked 21. It looks like a
13 reasonable number.

14 Q. Okay. And let's turn to page 13 of that
15 document and would it be correct to say this would
16 show AEP rates with regard to the mercury emissions
17 and the emission rates?

18 A. Yeah. That would be based on the EPA
19 inventory, but AEP was one of the early -- one of the
20 companies to comply early with mercury and air toxic
21 rules.

22 Q. And is the information shown here
23 consistent with your understanding of AEP's coal
24 plant emissions?

25 A. Based on the EPA dataset, yes.

1 Q. And if we go to page 16 of the document,
2 would I be correct that this data shows the total
3 CO-2 emissions by state with AEP being No. 5 in total
4 emissions?

5 A. It indicates that Ohio is No. 5 in total
6 emissions.

7 Q. Thank you. I appreciate that.

8 Now, let's go to page 4 of your
9 testimony. And on page 4 of your testimony, you
10 state that the purpose of your testimony is to
11 support the need for the two solar projects, and I am
12 referencing, Mr. Rinebolt, lines 11 through 14.

13 A. Yes. And I spoke directly to the solar
14 projects, but I think the same is true for the wind
15 projects that make up the total 900 megawatts.

16 Q. Now, on page 7, lines 1 through 5, you
17 indicate that you believe one of the key
18 considerations in determining need is rate and bill
19 impacts, correct?

20 A. The question that I answer there is "What
21 are the projected impacts on rates and bills?" I
22 quote to the analysis by Ohio Power which is part of
23 the testimony they provided here and also notice --
24 note that based on -- or that based on data from DOE,
25 solar photovoltaics at utility-scale are now

1 cost-competitive with fossil fuel generation.

2 MS. WILLIS: May I have that answer
3 reread, your Honor, the question and answer reread?

4 (Record read.)

5 Q. Now, in your testimony, Mr. Rinebolt, you
6 reference the probabilistic analysis provided by Ohio
7 Power; is that correct?

8 A. That is correct.

9 Q. And you have accepted the conclusions of
10 Ohio Power in this regard, correct?

11 A. I think their conclusions are buttressed
12 by the fact that the cost of utility-scale
13 photovoltaic is cost-competitive to when compared to
14 fossil fuel technologies.

15 Q. And you did not conduct -- conduct an
16 independent review or analysis of the probability
17 that customers would receive benefits from the
18 renewable energy project; is that correct?

19 A. Oh, I did determine the customers would
20 receive a benefit. The benefit is displacing fossil
21 fuel generation with renewable energy because of the
22 reduced carbon emissions and other greenhouse gas
23 emissions.

24 Q. Mr. Rinebolt, do you recall having your
25 deposition taken on Thursday, January 10th, 2019?

1 A. Yes, I do.

2 Q. Do you have a copy of that deposition in
3 front of you?

4 A. I do not.

5 MS. WILLIS: May I approach, your Honor?

6 EXAMINER SEE: Yes.

7 MS. WILLIS: Ms. Mooney, do you have a
8 copy of that deposition transcript?

9 MS. MOONEY: No, not -- I mean I have it
10 on the computer, but I don't have a copy like that.

11 MS. WILLIS: Would you like a copy?

12 MS. MOONEY: Well, if you have one.

13 MS. WILLIS: Sure.

14 Q. (By Ms. Willis) Now, I would like you to
15 turn, Mr. Rinebolt, to the question that's posed on
16 line 21, page 81, of your transcript, of the
17 deposition transcript. And I am going to read the
18 question and the answer, and then I am going to ask
19 you if I read that correctly.

20 "Question: Okay. Now, am I correct that
21 you did not conduct an independent review or analysis
22 of the probability that customers would receive
23 financial benefits from the renewable energy
24 projects? Is that correct?

25 "Answer: That is correct."

1 Did I read that correctly, Mr. Rinebolt?

2 A. You did.

3 Q. Thank you.

4 MR. MENDOZA: Objection, your Honor.

5 It's improper use of a deposition.

6 MS. MOONEY: Also, what page was that on
7 in the deposition?

8 MS. WILLIS: 82 carrying over to 83.

9 A. 81 carrying over to 82.

10 Q. I'm sorry. I am having a little bit of
11 trouble this morning.

12 A. A lot of papers here.

13 EXAMINER SEE: So noted, Mr. Mendoza.

14 Go on, Ms. Willis.

15 MS. WILLIS: Thank you, your Honor.

16 MR. MENDOZA: Thank you, your Honor.

17 Q. (By Ms. Willis) Now, Mr. Rinebolt, you
18 don't have an understanding of how the probabilistic
19 analysis was done; is that correct?

20 A. I do not know how AEP's probabilistic
21 analysis was done.

22 Q. Now, Mr. Rinebolt, you believe that
23 increases in customer rates can be considered a
24 positive impact for customers; is that correct?

25 A. If the increase in rates achieves a

1 public policy goal, that is in the best interest of
2 customers, yes.

3 Q. Now, on page 8, lines 6 through 11, there
4 you are quoting from AEP witness Buser; is that
5 correct?

6 A. This is on my testimony?

7 Q. Yes.

8 A. Okay. Page 8, line 7.

9 Q. 6 through 11.

10 A. 6 through 11; yes, I am quoting his --
11 Dr. Buser's testimony.

12 Q. Thank you.

13 Now, Mr. Rinebolt, you would agree, would
14 you not, from your standpoint, what this is about is
15 that we need to build a lot of renewable energy
16 projects in this country; is that correct?

17 A. In the country and in the State of Ohio.

18 Q. Okay. And you would agree that we need
19 everybody to be powered by renewable energy
20 ultimately if we are going to combat climate change;
21 is that correct?

22 A. To the maximum extent feasible,
23 consistent with efficient grid operation.

24 Q. And your opinion is, Mr. Rinebolt, so
25 long as it's on the grid, it's good for customers; is

1 that correct?

2 A. That's a little overly simplistic. You
3 know, the data clearly indicates that utility-scale
4 solar photovoltaics is cost-competitive with any
5 other generation resource that's available today.
6 Rooftop solar is not cost-competitive. And utilities
7 generally are not the ones that are installing
8 rooftop solar, though apparently Florida Power &
9 Light begs to differ because they want to install
10 30 million panels. But -- and then community solar,
11 while more cost-effective than rooftop solar, is
12 again almost twice as expensive as utility-scale
13 solar. So cost does matter.

14 And to the extent that there are now
15 renewable technologies available that can be brought
16 to bear that can come on the grid and not
17 significantly raise pricing, I think, yes, we need to
18 maximize the amount of renewables that are done --
19 that are built out in a way that is cost-competitive
20 with other sources of generation.

21 Q. And do you recall, Mr. Rinebolt, making
22 the statement, during the deposition, that "So as
23 long as it's on the grid, I think it's good for
24 customers"?

25 A. Well, it's good from an environmental

1 standpoint. But I don't pay to put rooftop solar on
2 somebody else's house. They put it on themselves.

3 Q. Do you recall making that statement at
4 the deposition? And if I may refer you to page 97 of
5 the deposition, lines 20 through 21.

6 A. You accurately quoted me.

7 Q. Thank you.

8 A. That sentence anyway.

9 Q. Thank you.

10 Now, Mr. Rinebolt, would you agree with
11 me, that customers in Ohio, if they want to support
12 green energy in the market, they can choose to do so?

13 A. Customers in Ohio have the ability to
14 purchase green power, yes.

15 Q. Thank you. And they can certainly choose
16 to buy green power from a marketer; is that correct?

17 A. They can.

18 Q. And you would agree with me that -- let
19 me strike that.

20 You would also agree, Mr. Rinebolt, that
21 until we put as much solar voltaics on the grid as we
22 can, we haven't met the needs of Ohio customers.

23 A. That's correct. As I noted earlier, only
24 3 percent of the generation in Ohio is renewable
25 generation. So we've got quite a way to go to

1 maximize the potential.

2 Q. And, Mr. Rinebolt, in your opinion, until
3 we put the maximum amount of solar and wind on the
4 regional grid, we won't be protecting customers from
5 the impacts of climate change, correct?

6 A. That is how we will ultimately protect
7 customers against climate change, but 10 years ago,
8 when solar photovoltaics was way -- much more
9 expensive than conventional technologies, we were not
10 pushing for that. Of course, we also didn't have the
11 more recent data on climate change that -- that we
12 keep seeing from the Intergovernmental Panel on
13 Climate Change.

14 So we -- we are fortunate to have a
15 confluence of events. We have had renewable
16 technologies, specifically wind and utility-scale
17 solar come down in cost to the point where they can
18 displace fossil resources without having a
19 significant impact on rates that residential
20 customers pay.

21 MS. WILLIS: Your Honor, I would move to
22 strike the majority of that answer. I think he
23 answered me in the first sentence and then went on to
24 opine on matters that were not inquired into.

25 MS. MOONEY: Your Honor, I think it was a

1 fairly open-ended question and that his entire
2 response is appropriate.

3 EXAMINER SEE: And the answer stands.

4 Q. Would you agree with me, Mr. Rinebolt,
5 that if the price of solar comes down, we
6 theoretically could get to 100-percent renewable?

7 A. Technical experts believe generally, at
8 this point, that you can't go to 100-percent
9 renewable wholesale grid. Technically it -- you
10 cannot displace all the fossil fuel capacity for a
11 host of operational reasons that -- that I could
12 discuss but I don't think they are relevant at this
13 point.

14 We should put as much renewable -- or as
15 much renewable power on the grid as we can,
16 consistent with sound engineering practices.

17 Q. Now, Mr. Rinebolt, you don't know if AEP
18 Ohio's low-income customers are willing to pay higher
19 rates for renewable energy; is that correct?

20 A. I have not done a survey to determine
21 whether that is the case, nor have I looked at the
22 cross-tabs in the AEP Navigant study to determine
23 whether I could breakout low income in that.

24 Q. And you can't say that Ohio Power's
25 low-income customers want solar; is that correct?

1 A. I have not taken a survey to determine
2 that. I have constantly -- I am having discussions
3 with people whom our agency serve. If -- when I ask
4 them, some say yes; some look at me like they don't
5 know what I'm talking about; and some say if it's an
6 increase in cost, no. Pretty consistent with the
7 populous at large.

8 Q. Now, on page 8, lines 14 through 15, you
9 state that "corporations large and small are making
10 commitments to obtain 100 percent of their
11 electricity from renewable energy sources"; is that
12 correct?

13 A. That's correct.

14 Q. And you cite there -- or you refer there
15 to the Bloomberg article as the basis for that
16 statement?

17 A. Right. Now, the Bloomberg article is
18 actually rather dated. They've closed the
19 commitments for 2018 and it's 3.3 gigawatts, which is
20 down from the 2017 number, but that is attributed, at
21 least in part, to the tariffs which drove up the
22 price of solar.

23 MS. WILLIS: Your Honor, may I approach?

24 EXAMINER SEE: Yes.

25 MS. WILLIS: I would like to mark as OCC

1 Exhibit No. 17, the Bloom -- an article from
2 Bloomberg titled "Businesses Are Buying More
3 Renewable Power Than Ever Before."

4 EXAMINER SEE: So marked.

5 (EXHIBIT MARKED FOR IDENTIFICATION.)

6 Q. (By Ms. Willis) Is this the Bloomberg
7 article you referred to in your testimony,
8 Mr. Rinebolt?

9 A. It was the one that I provide a link for.

10 Q. Can you identify which corporations in
11 AEP's service territory, large and small, have made
12 commitments to obtain 100 percent of their
13 electricity from renewable energy resources?

14 A. Well, based on the list on page 2 of 3,
15 AT&T operates in this state, Wal-mart operates in
16 this state, Microsoft used to have a place up in
17 Findlay as a matter of fact but it's no longer owned
18 by Microsoft. I am not aware of whether Facebook has
19 any server farms in Ohio. I do not believe our
20 aluminum smelters are running any more so that would
21 not include Alcoa. T-Mobile there is a possibility.
22 We don't have any GM Resorts in the state, so I don't
23 think that even would apply. And while Nike does not
24 manufacture here, Google is one of the companies that
25 has been mentioned often, and as far as going

1 100-percent renewable, I cannot tell you, off the top
2 of my head, whether they have any server farms in the
3 state, however.

4 Q. And is your understanding that the
5 companies that are listed as "Green Giants" in this
6 article, obtain 100 percent of their electricity from
7 renewable energy resources?

8 A. They have made commitments to purchase
9 significant amounts of renewable energy. Whether it
10 is 100 percent for all of these companies, I can't
11 guarantee it.

12 Q. Do you know if it is 100 percent for all
13 of these companies?

14 A. I just said I don't know.

15 MS. WILLIS: Okay. Thank you.

16 Your Honor, that's all the questions I
17 have for Mr. Rinebolt.

18 EXAMINER SEE: Ms. Glover?

19 MS. GLOVER: No questions, your Honor.

20 EXAMINER SEE: Mr. Olikier?

21 MR. OLIKER: I have very little, your
22 Honor, so if I can go last, it may be nothing.

23 EXAMINER SEE: Ms. Bojko?

24 MS. BOJKO: Yes. Thank you, your Honor.

25 MR. NOURSE: First of all, we are still

1 going to go last, right?

2 EXAMINER SEE: Yes.

3 Ms. Bojko?

4 MS. BOJKO: I think he meant last of the
5 intervenors. I have agreed to go next. Thank you,
6 your Honor.

7 - - -

8 CROSS-EXAMINATION

9 By Ms. Bojko:

10 Q. Good morning, Mr. Rinebolt.

11 A. Good morning, Ms. Bojko.

12 Q. Page 6 of your testimony, line 12, the
13 question asks about statutory criteria for need. Do
14 you see that?

15 A. Yes.

16 Q. And your answer responds with citing to
17 the Ohio Administrative Code. Do you see that?

18 A. I do.

19 Q. And you are an attorney; is that correct,
20 sir?

21 A. I graduated from law school and did
22 practice here for a number of years.

23 Q. You would agree with me, the
24 Administrative Code is not a statutory provision,
25 correct?

1 A. No. In this case, the Ohio
2 Administrative Code amplifies the statutory
3 provision.

4 Q. And, Mr. Rinebolt, you -- you do believe
5 that the electric utility industry is going through a
6 period of rapid change right now; is that correct?

7 A. Absolutely.

8 Q. And you believe that new approaches to
9 producing natural gas have resulted in a decline in
10 natural gas prices.

11 A. That's correct.

12 Q. And a resulting decline in electricity
13 prices, correct?

14 A. Both have been beneficial to low-income
15 customers; all of us, as a matter of fact.

16 Q. An increase in market share for natural
17 gas comes at the expense of the coal industry; is
18 that fair?

19 A. It appears that that is -- those are
20 directly related.

21 Q. And you believe that natural gas is more
22 efficient than coal from an environmental standpoint,
23 correct?

24 A. It's more efficient from an engineering
25 standpoint because it gets twice as much electricity

1 out of equivalent amount of BTUs.

2 Q. And it's better for the environment, less
3 emissions.

4 A. Yeah, lower emissions obviously.

5 Q. And you would agree that over time,
6 natural gas has become a grater part of Ohio's
7 generation mix, correct?

8 A. Absolutely.

9 Q. Making Ohio more diversified, correct?

10 A. To some degree. I do list the
11 percentages of generation and their relative fuels in
12 the testimony.

13 Q. And to your knowledge this has happened,
14 the increase of natural gas and the more diversity of
15 Ohio's generation mix has happened in Ohio without
16 utility development of natural gas resources.

17 A. No. Natural gas -- the natural gas has
18 been driven by the excessive amount of natural gas
19 available, lack of adequate storage, and the need to
20 do something with the gas. So people have built
21 power plants to displace the coal plants that are not
22 competitive in PJM. But the natural gas plants are
23 competitive in the regional wholesale market.

24 Q. In Ohio, natural gas development, you
25 used the word "people have built." Those people have

1 been nonutility people and they have competitively
2 built natural gas resources in the State of Ohio,
3 correct?

4 A. There have been a number of companies
5 that have done it, yes.

6 Q. Nonutility companies.

7 A. Nonutility companies.

8 Q. And it looking at page 4 of your
9 testimony, lines 11 through 14, you describe the
10 purpose of your testimony is to support the need for
11 two specific solar projects; is that correct?

12 A. Yes. But as I noted earlier, this is a
13 bifurcated proceeding. It's about the need for
14 renewable energy. It's this phase of the proceeding.
15 So I would expand that answer to cover the entire
16 900 megawatts.

17 Q. You answered this in response to
18 Ms. Willis's questions regarding residential
19 customers, but I want to make sure the record is
20 clear, you have not taken a poll or done any studies
21 to determine how much customers would be willing to
22 pay for solar or renewable energy, right?

23 A. I have not.

24 Q. Any customers? That would be true for
25 any customers?

1 A. I have not done a study that applies to
2 any customers, that's correct.

3 Q. And you would agree that if AEP's
4 proposal is adopted, it could result in additional
5 charges on customers' bills, all customers --

6 A. It could result in additional charges.
7 It could actually pay off if it's sold into the
8 market at a price that's higher than the cost.

9 Q. And you are concerned, I believe you've
10 stated today, about climate change, correct?

11 A. Yes.

12 Q. And you personally think that
13 climate-change concerns outweigh the cost to
14 customers for the development of renewable
15 generation.

16 A. I think the development of renewable
17 generation is a cost-effective way of resolving the
18 problem we have with excess carbon emissions. You
19 needn't inherently pay more to put renewable energy
20 on the grid.

21 Q. And if the renewable energy, proposed in
22 this proceeding, results in an increase to customers,
23 an additional charge on their bill, you personally
24 believe that concerns regarding climate change
25 outweigh those additional costs?

1 A. As I noted earlier in -- in a response to
2 to Ms. Willis, yes, but I need to caveat that. As I
3 noted, 10 years ago, the renewables were not
4 cost-competitive, so they didn't provide us with a
5 viable option. The best option for reducing carbon
6 emissions at that point was to invest in energy
7 efficiency. And energy efficiency is still the
8 least-cost option to reduce carbon dioxide emissions,
9 methane emissions, to the extent they come from coal
10 plants, the others. The cleanest watt is the one you
11 don't use.

12 But now, because of research and
13 improvements in technology, you've got wind and
14 utility-scale solar, photovoltaics, are
15 cost-competitive with other generation. It's time to
16 expand the use of those technologies to further
17 reduce the amount of greenhouse gas emissions.

18 Q. And, sir, you have not done any studies
19 or surveys to determine whether customers support
20 your statements that you just made and whether those
21 customers believe that climate-change controls
22 outweigh the increase in costs on their bills?

23 A. Well, I'm not conceding an increase in
24 costs, so. As I've indicated, I did not -- I did not
25 survey customers to determine if they were willing to

1 pay more or if they were willing to pay less. I
2 didn't survey customers. From a public policy
3 standpoint, it is necessary for us to reduce
4 greenhouse gas emissions because of the impact that
5 warming of the earth is having on our climate.

6 Q. And, sir, you have reviewed AEP's
7 Application and testimony in this case, correct?

8 A. I have.

9 Q. And you have reviewed Mr. Torpey's
10 testimony where he has forecasted that there will be
11 a net cost to customers at least for the first
12 five -- approximately five years of the -- of the
13 projects, correct?

14 A. Yes.

15 Q. And you've also not done any research to
16 determine to what extent AEP's development of these
17 projects would affect climate change, correct?

18 A. Other than the obvious that it will
19 displace fossil energy technologies on the grid, on
20 the wholesale grid, and so it will reduce the amount
21 of greenhouse gas emissions.

22 Q. So you've done research on what fossil
23 fuels will be displaced by AEP's renewable generation
24 proposed in this case?

25 A. Well, I have looked at the power stack

1 within PJM. This is a zero-fuel-cost technology, so
2 it will be dispatched when it's available. That's
3 how PJM does it.

4 Q. And you're familiar with economic
5 dispatch?

6 A. I am.

7 Q. You would agree that development and
8 deployment of renewable resources from competitive
9 generation suppliers would provide similar benefits
10 in determining -- in terms of addressing climate
11 change?

12 MR. MENDOZA: Objection. Assumes facts
13 not in evidence. There's no basis that CRES
14 providers are developing renewable resources in Ohio.

15 MS. BOJKO: I object. I think there's
16 plenty of evidence in the record that suggests that
17 there are multiple people deploying renewable energy
18 in the State of Ohio.

19 MR. DARR: And to the extent there is not
20 in the record, there will be, which would complete
21 the impeachment anyway, your Honor.

22 EXAMINER SEE: The objection is
23 overruled.

24 Q. (By Ms. Bojko) Would you like me to
25 repeat that?

1 A. If you would, please.

2 Q. You would agree that development and
3 deployment of renewable resources from competitive
4 generation suppliers would provide similar benefits
5 in terms of addressing climate change?

6 A. No, I'm afraid I can't agree with that
7 because I have never seen a competitive retail
8 electric supplier invest in renewables at the scale
9 that is anticipated by this -- these cases.

10 Q. Well, would you -- strike that.

11 It is true that there have been people,
12 as you called them, nonutility people, that have
13 invested in the State of Ohio's large-scale
14 generating facilities that are now replacing
15 utility-owned generating plants, correct?

16 MS. LEPPLA: I would object. I would
17 just object again, your Honor. There is no basis for
18 that in the record that they have been replacing
19 utility scale.

20 MS. BOJKO: I think he just testified to
21 that, your Honor, a few minutes ago.

22 MR. NOURSE: Is she talking about gas
23 now?

24 MS. LEPPLA: I am just unclear as well.

25 MR. NOURSE: Object to that question.

1 MS. MOONEY: That question has already
2 been asked and answered as well.

3 MS. BOJKO: No, it's a different
4 question.

5 MS. MOONEY: Well, as far as the natural
6 gas, I think that we've already gone over that.
7 However, I am not afraid of Mr. Rinebolt's response
8 to this question.

9 MS. BOJKO: Your Honor, Mr. Rinebolt is
10 an expert in a variety of fields he stated today. I
11 think he can speak to it.

12 EXAMINER SEE: I am going to let
13 Mr. Rinebolt answer the question.

14 A. As I indicate in my testimony, Ms. Bojko,
15 the growth in the number of natural-gas
16 combined-cycle power plants has certainly displaced
17 coal and those plants have been developed by
18 independent power developers.

19 Q. Thank you.

20 A. So that is a reality. There are also
21 some very small solar projects that are built in Ohio
22 and do the same thing. But, again, it's a question
23 of scale. We need to make a large investment in
24 significant renewable energy generation in order to
25 achieve the goal of mitigating climate change.

1 Q. Fair enough. But I think you would agree
2 with me a little bit helps, wouldn't you,
3 Mr. Rinebolt?

4 A. A number of analysts have looked at
5 natural-gas combined-cycle as a transition technology
6 to a predominantly renewable energy future. I think
7 it's pretty clear that we need to get to renewables
8 as fast as we can. In fact, a number of analysts
9 believe that we actually need to go negative on
10 carbon emissions in order to prevent significant
11 impacts on the climate in the world.

12 Q. And, sir, you are aware that
13 municipalities have entered into purchase power
14 agreements or have actually constructed large solar
15 arrays?

16 MS. MOONEY: Your Honor, I object to
17 "municipalities." Like in America or Ohio or what?
18 Or Europe? China?

19 MS. BOJKO: I don't think they have
20 municipalities in Europe.

21 MS. MOONEY: They don't? I bet they do.

22 MS. BOJKO: They wouldn't be called
23 "municipalities" if they existed.

24 I will refine my question, your Honor.

25 Q. (By Ms. Bojko) Mr. Rinebolt, you are

1 aware, Ohio municipalities have entered into
2 long-term purchase power agreements for renewable
3 energy? We'll start with that one.

4 A. I am aware that Cincinnati has done so,
5 and I would not be surprised if others have. I
6 haven't looked at the contracts to know that, but the
7 issue is that that, in and of itself, does not expand
8 the amount of renewable generation. In the current
9 marketplace that can -- that means they are out
10 buying RECs. And if there is a greater demand for
11 RECs, then they will cost more because someone wants
12 to buy a lot of them. So the point that I am making
13 is that we need physical generation.

14 Q. Well, sir, you are aware that there are
15 Ohio municipalities that have actually constructed
16 solar energy facilities or other renewable facilities
17 in the State of Ohio, correct?

18 A. I believe that's true, yes.

19 Q. And those solar facilities would have the
20 same benefits to customers that you discuss in your
21 testimony with regard to climate change to some
22 extent, correct?

23 A. Every renewable energy facility that's
24 developed contributes to the end -- end result that
25 we need to achieve.

1 Q. And, Mr. Rinebolt, on page 10 of your
2 testimony, in addition to what Ms. Willis asked you,
3 I believe on page 10, lines 21 and 22 of your
4 testimony, you again discuss major corporations that
5 have a desire for green power; is that correct?

6 A. Yes. I am looking for page 10, but I
7 know I say that.

8 Q. Page 10, lines 21 to 22.

9 A. Right. I have a lot of papers strewn
10 across the desk, and I am trying to find page 10.
11 But --

12 Q. You would agree with me, sir, that one
13 way to meet a corporation's desire could be met
14 through a CRES provider's green product offering?

15 A. It certainly could.

16 Q. And you are aware that another way is for
17 these major corporations to build on-site renewable
18 generation?

19 A. That is true.

20 Q. Are you --

21 A. That has occurred.

22 Q. Are you aware that some of the
23 corporations that you discussed and highlighted this
24 morning have actually constructed on-site renewable
25 energy?

1 A. I know Wal-mart has put panels on top of
2 their stores. They've got really big flat roofs so
3 they're real good for it for the technology. I'm
4 trying to think about who else was on that list. But
5 suffice it to say that some companies do, where they
6 have appropriate sites for it. I think you are well
7 aware that Ball Metal and Whirlpool have erected
8 turbines, wind turbines up in Hancock County to
9 partially power their facilities. So, yeah, it does
10 happen.

11 Q. And you are aware that some of these
12 corporations have already met their renewable desires
13 through entering into purchasing of renewable energy
14 credits and they have announced that.

15 A. Well, the ones that are on the chart that
16 we talked about and the ones that I referenced have
17 made commitments. Some of the commitment will be
18 fulfilled by the construction of generation. Some of
19 it will be fulfilled by the purchase of RECs which --
20 and RECs, renewable energy certificates, are how you
21 keep score. It's an accounting methodology in a lot
22 of ways.

23 Q. Well, there are -- there are -- there are
24 Ohio -- in-state Ohio solar facilities, today, that
25 sell renewable energy credits to many corporations or

1 utilities or CRES providers in the State of Ohio,
2 correct?

3 A. I believe that's true. There are brokers
4 that collect the RECs that are generated by rooftop
5 systems and they sell them.

6 Q. As well as solar arrays behind
7 municipalities, correct?

8 A. There are arrays. I imagine the
9 municipality doesn't sell it, because if you sell the
10 REC, then you have -- the electricity is no longer
11 green. You have to retire the REC in order to take
12 credit for the green power.

13 Q. Right. Sitting here today, do you know
14 that there are no municipalities that sell their
15 renewable energy credits on the record?

16 A. I have already indicated I believe there
17 are some.

18 Q. And your support of this proposal, at
19 least in part today, is because you believe it will
20 combat climate change, as we have discussed, right?

21 A. I believe that putting more renewable
22 energy on the grid, reduces greenhouse emissions, and
23 will ultimately mitigate climate change, yes.

24 Q. And your undergraduate degree is in
25 Liberal Studies from Bowling Green State University;

1 is that correct?

2 A. That is.

3 Q. And then you stated you have a law
4 degree?

5 A. I did.

6 Q. Do you have --

7 A. I did.

8 Q. A degree in -- or have you ever studied
9 climate change in an academic setting before?

10 A. I have gone to lectures on climate change
11 that were done by professors who are specialists in
12 it. There was a professor at Ohio State that I was
13 fortunate to be able to spend a lot of time with who
14 had been doing ice core samples. His first name was
15 Lonnie, and I can't remember --

16 MR. McNAMEE: Thomas.

17 A. Thomas, yeah, and -- and, you know, it's
18 fascinating to look at the various -- that over the
19 eons how the concentrations of carbon dioxide in
20 the -- in the ice cores changed and the relationship
21 between the atmospheric density of greenhouse gas
22 emissions and impacts on the climate during those
23 times.

24 Q. Do you have any degrees in that?

25 A. No, I don't. I don't. When I graduated

1 from law school, we weren't really talking about
2 climate change in 1981. But I've been trying to
3 catch up ever since.

4 Q. Well, sir, I've printed out all -- all of
5 the documents that you've referenced in your
6 testimony and the links that you cite. Which of
7 these articles and publications have you written?

8 A. The publications that are cited in my
9 testimony?

10 Q. Yes, yes.

11 A. Well, I didn't write any of them. Many
12 of them -- most of what I cite is from the EIA.

13 Q. Okay. And have you conducted any
14 research that you cite to in these documents that I
15 could look to that you are -- that you author?

16 A. I did not conduct the research within the
17 EIA data. I don't work for EIA.

18 Q. Well, you cite to many other links and
19 data. Have you conducted any of the other research
20 outside the EIA documents?

21 A. Well, let's go through the documents.

22 Q. Sure. You cite to Bloomberg. Have
23 you -- did you write the Bloomberg article?

24 A. I did not write the Bloomberg article,
25 but I did go back, since the deposition, and looked

1 at press releases from these companies that indicated
2 that they were -- had made a certain level of
3 commitment to purchasing renewable energy resources.

4 Q. Did you write those newspaper articles?

5 A. No. I can't -- I can't speak for a
6 corporation as to its commitment to purchase
7 renewable energy.

8 Q. Did you contribute to, or author, the
9 National Renewable Energy Laboratory research
10 documents that you cited to in your testimony?

11 A. Oh, on the suitability of roofs for
12 solar?

13 Q. This one is called "Rooftop Solar
14 Technical Potential for Low to Moderate Income
15 Households in the United States."

16 A. No, I did not prepare that, but I did use
17 that data when determining policy relative to a
18 weatherization assistance program and using that --
19 those resources to invest in solar photovoltaics.

20 Q. You cite to the Institute for Energy
21 Economics and Financial Analysis, a Record Drop in
22 U.S. Coal-Fired Capacity. Did you author or were you
23 contribute -- a contributor to the research in this
24 document, sir?

25 A. That was simply a chart. I've done a

1 fair amount of research on the number of coal plants
2 that have gone off the grid and retired.

3 Q. This isn't a chart, sir. This is a
4 15-page document of research on this issue. Did you
5 contribute to the research article?

6 A. Not to that article.

7 Q. Did you contribute or were you an author
8 to the Ohio Association of Community Action Agencies,
9 State of Poverty in Ohio?

10 A. I did not write that, though I have used
11 that in prior testimony.

12 Q. Did you create the SunShot Progress and
13 Goals documents that you attach to your testimony,
14 and the SunShot Vision Study from the Energy
15 Efficiency and Renewable Energy Department -- or
16 Office, excuse me, of the Department of Energy?

17 A. I don't recall citing the SunShot in my
18 testimony. But I did refer to it during the
19 deposition because SunShot -- we worked with SunShot
20 when I was with DOE to, again, look at the
21 opportunities to put solar photovoltaics on
22 low-income housing.

23 Q. Did you contribute or -- to an article
24 from CleanTechnica, regarding its -- regarding a
25 Trump article?

1 A. That's not enough to tell me.

2 Q. You didn't write or contribute to it; is
3 that correct?

4 A. No. I don't even know what you are
5 talking about, so.

6 Q. You cited, in your testimony, to the
7 National Renewable Energy Laboratory, U.S. Solar
8 System Cost Benchmark Q1 2017. Your name is not
9 listed as an author. Did you contribute in this at
10 all?

11 A. No, I did not.

12 Q. Would your answer be the same for charts
13 provided by NREL, PV System Cost Benchmark Summaries,
14 that you cite to in your testimony?

15 A. I did not do the data analysis nor the
16 data collection. Those are considered to be quality
17 sources of data on various types of technologies. I
18 used those in my analysis.

19 Q. Did you contribute or -- you've agreed
20 with me, sir, without going through these, that you
21 did not write or you were not an author to any of the
22 EIA reports or charts that you have either attached
23 or cited to in your testimony?

24 A. No. I prefer to rely on the best
25 researchers in the world.

1 Q. And you also referenced a PJM report
2 regarding base residual auction results. You, sir,
3 did not have any part in this report, correct?

4 A. The base residual auction is what it is.

5 Q. I asked if you had a part in drafting the
6 report.

7 MR. MENDOZA: Your Honor, that question
8 is irrelevant. We have routinely taken
9 administrative notice of PJM documents in this
10 hearing room and in every hearing room at this
11 Commission, so there is no point asking a witness if
12 he has personal knowledge of a PJM document.

13 MS. BOJKO: Your Honor, that's not what I
14 asked him. I asked him if he authored the documents
15 attached to his testimony and that was merely one. I
16 asked him if he had a part in authoring. I am not
17 challenging the admissibility of that document. I
18 asked if he authored it.

19 EXAMINER SEE: And you can answer the
20 question, Mr. Rinebolt.

21 A. If I may, Ms. Bojko?

22 MS. BOJKO: Was there an answer to my
23 last question, your Honor? About whether he authored
24 -- I think he had already answered it before there
25 was an objection.

1 EXAMINER SEE: Yes, he had.

2 MS. BOJKO: Thank you.

3 Q. (By Ms. Bojko) Mr. Rinebolt, looking at
4 the attachments to your testimony, they are labeled
5 as Exhibit DCR-1 through DCR-4. Do you see those?

6 A. I see those.

7 Q. And those attachments, even though you
8 put your exhibit label on them, those attachments
9 have come directly from another source; is that
10 correct?

11 A. That is correct.

12 Q. And you were not involved in the
13 collection of data that was put into these charts
14 either; is that correct?

15 A. No. I sought out the data from credible
16 sources.

17 Q. And you have not independently verified
18 the accuracy of the data contained in Exhibits DCR-1
19 through -4, correct?

20 A. Not in a methodical basis.

21 Q. And let's turn to page 8 of your
22 testimony, sir. On page 8 of your testimony, you
23 discuss economic impacts that were proposed by the
24 projects and you were -- you state that you rely on
25 the analysis conducted by AEP witness Buser; is that

1 correct?

2 A. That is correct.

3 Q. And you did not independently verify,
4 Mr. Buser's analysis, did you?

5 A. No. I figured I would let you guys cross
6 him.

7 Q. And, sir, you have not worked on economic
8 modeling in any of the projects that you have worked
9 on at OP&E; is that correct?

10 A. I have not worked on economic impact
11 analysis at OP&E; however, I have worked on economic
12 impact analyses in the past.

13 Q. You have not designed an economic impact
14 model; is that correct?

15 A. It's not my art.

16 Q. And you have never been involved in
17 conducting -- conducting customer surveys regarding
18 renewable energy, have you?

19 A. I have been involved in conducting --
20 conducting surveys on energy efficiency and energy
21 efficiency technologies. I may well have been
22 involved, back when I worked for the Solar Energy
23 Industries Association, but I frankly couldn't point
24 you to the studies so.

25 EXAMINER SEE: Ms. Bojko, just a minute.

1 (Discussion off the record.)

2 EXAMINER SEE: Let's go back on the
3 record.

4 Ms. Bojko.

5 MS. BOJKO: Thank you, your Honor.

6 Q. (By Ms. Bojko) Mr. Rinebolt, you would
7 agree that policy changes in Ohio, alone, will not
8 combat climate change, correct?

9 A. Ohio, alone, cannot resolve the issues
10 associated with climate change, but it's part of the
11 fix.

12 MS. BOJKO: Thank you. Thank you,
13 Mr. Rinebolt.

14 I have no further questions, your Honor.

15 EXAMINER SEE: Let's take a brief recess,
16 5 minutes.

17 (Recess taken.)

18 EXAMINER SEE: Let's go back on the
19 record.

20 Ms. Whitfield

21 MS. WHITFIELD: I do not have any
22 questions for this witness.

23 EXAMINER SEE: Mr. Collier?

24 MR. COLLIER: No questions.

25 EXAMINER SEE: Mr. Darr?

1 MR. DARR: Thank you, your Honor.

2 - - -

3 CROSS-EXAMINATION

4 By Mr. Darr:

5 Q. Mr. Rinebolt, you state on I believe it's
6 page 7 of your testimony that you anticipate that the
7 project impacts on rates and bills of customers will
8 be essentially positive, correct?

9 A. That's the projection that AEP makes. I
10 cite to that. I also note that the price of
11 utility-scale photovoltaics are cost-competitive with
12 other forms of generation. Given that, it should be
13 a fairly neutral impact, if not positive.

14 Q. And if it were positive, that
15 nonetheless would -- that would not change your
16 recommendation, would it?

17 A. No, it would not.

18 Q. Is there a threshold beyond which it
19 would change your recommendation, a customer impact,
20 that it would change your recommendation?

21 A. Well, this is my opinion, okay? If it
22 upped generation charges more than 10 percent, I
23 would really want to take a harder look at it, but I
24 just don't see those projections in this case.

25 Q. Now, at page 5, line 6, you conclude that

1 there is sufficient need that justifies "ratepayer
2 investment." Do you see that?

3 A. I do.

4 Q. And by "ratepayer investment," I am
5 trying to understand what you mean, given that you
6 believe that, over the term of the project, customers
7 would see either a neutral or positive effect on
8 their bills. What is the ratepayer investment that
9 you are referring to here?

10 A. Well, the -- it's not an investment in a
11 traditional sense as though it was a
12 vertically-integrated utility building a new power
13 plant and putting it in rate base and recovering on
14 that. We have a REPA. We have a purchase agreement.
15 The role that the customers play in this is to
16 mitigate or to recognize the costs to AEP associated
17 with some of the financing, and -- and then the
18 sis -- the structure is that the power is sold into
19 the PJM market. It can be above market or it can be
20 below market and customers are either credited or
21 debited based on that relationship compared to cost.

22 There are also potential revenue streams
23 from the renewable energy certificates and others
24 that could have an impact on whether customers
25 receive a positive benefit or -- or -- beyond the

1 benefit of displacing fossil fuel power.

2 Q. So if I understand that answer correctly,
3 the investment that customers would be making is
4 associated with the contract -- contract for
5 differences approach that is being proposed in this
6 application; is that correct?

7 A. That's correct.

8 Q. And so, what we are recognizing here is
9 that there may be some risk to customers that the
10 forward projections that the Company has made, that
11 you cite on page 7, might be wrong, correct?

12 A. There's always that possibility.

13 Q. Now, in regard -- you've been -- you were
14 Executive Director of Ohio Partners for Affordable
15 Energy from 1996 to 2016, correct?

16 A. Correct.

17 Q. And when presented with a contract for
18 differences approach with regard to the Purchase
19 Power Agreement Rider during your tenure as Executive
20 Director, Ohio Partners for Affordable Energy opposed
21 that rider, did they not?

22 MS. MOONEY: Object. Is he referring to
23 OVEC? Is that what you are referring to there?

24 MR. DARR: I am asking whether or not he
25 opposed the PPA Rider while he was Executive Director

1 of Ohio Partners for Affordable Energy.

2 MS. MOONEY: It that a reference to AEP's
3 PPA rider?

4 MR. DARR: It is, your Honor. If we need
5 to make it more specific.

6 MS. MOONEY: Thank you.

7 A. Mr. Darr, just to make sure I understand,
8 is this the OVEC PPA that we are taking about?

9 Q. We are talking about the Purchase Power
10 Agreement Rider sought for and authorized for AEP
11 Ohio, which currently collects the above-market costs
12 associated with OVEC.

13 A. I can't recall for sure, but I think we
14 signed the settlement in that case.

15 Q. Do you recall, in 2015, filing pleadings
16 on behalf of Ohio Partners for Affordable Energy,
17 indicating that approving such a Purchase Power
18 Agreement Rider would directly contravene the
19 decision of the General Assembly to ensure that
20 the -- to ensure that generation is competitive and
21 that there is no cross-subsidization of any
22 competitive product or service?

23 A. That sounds like something I would write.

24 Q. And is it fair to say that Ohio Partners
25 for Affordable Energy's position was that such a

1 Purchase Power Agreement Rider would subsidize rates
2 that AEP Ohio can charge for power from OVEC because
3 distribution customers pay the difference between
4 cost and market? Does that sound like something you
5 would write as well?

6 A. Yes, I wrote that. It was about a coal
7 plant that was built in the 1950s.

8 Q. And would you agree that the Purchase
9 Power Agreement Rider that was in play at that time
10 was based on a contract for differences approach
11 similar to that presented in this case?

12 A. As I recall, yes.

13 MR. DARR: No further questions.

14 Thank you, your Honor.

15 EXAMINER SEE: Mr. Olikier.

16 MR. OLIKER: Thank you, your Honor. Just
17 a few questions.

18 - - -

19 CROSS-EXAMINATION

20 By Mr. Olikier:

21 Q. Good afternoon, Mr. Rinebolt.

22 A. Good afternoon, Mr. Olikier.

23 Q. In your testimony you identify business
24 support for renewables, correct?

25 A. Correct.

1 Q. Am I correct you rely upon a Bloomberg
2 article?

3 A. I provided a Bloomberg article that had a
4 chart that laid it out. I have also looked at press
5 releases from various companies making commitments to
6 purchase renewables.

7 Q. And you are aware that Bloomberg presents
8 other projections regarding costs of renewable
9 energy?

10 A. Well, Bloomberg is a news service that
11 works in the business space and, yes, I believe they
12 do some of that.

13 Q. And you find Bloomberg to be a credible
14 source?

15 A. Well, at least in the context of listing
16 companies that have made renewable energy
17 commitments. I mean, you read the press releases.
18 They either have or they haven't.

19 Q. Okay. With respect to businesses, you
20 agree they may contract with developers of
21 distribution generation to achieve their renewable
22 goals?

23 A. Yes, absolutely.

24 Q. And some of those companies can build
25 rooftop solar, correct?

1 A. Yes. In fact, we are quite interested in
2 building rooftop solar, particularly on affordable,
3 multifamily projects, and I am working on a couple of
4 these on the east coast.

5 Q. And also some of those rooftop projects
6 can exceed 7 or 8 megawatts, can't they?

7 A. Yeah. Yes, that's true.

8 Q. And you are familiar with the 8-plus
9 megawatt facility IGS put on Amazon's roof? That's
10 the largest rooftop facility in New Jersey?

11 A. I have -- I did see that in the press,
12 yes, yes.

13 Q. Okay. And turning to -- first, you would
14 agree that in the event that the application is
15 authorized, and 900 megawatts of solar and wind are,
16 in fact, constructed in Ohio, that could depress
17 renewable energy credit prices?

18 A. My testimony indicates that the demand
19 for green power should improve the market for RECs
20 and that's a demand argument. Obviously bringing
21 900 megawatts of new supply will have an effect of
22 depressing the REC market to the extent that demand
23 does not climb to absorb that or go beyond current
24 demand, the demand that can absorb the RECs from
25 900 megawatts.

1 As I indicated, there are commitments in
2 2018 for corporations to purchase 3.3 gigawatts of
3 elect -- of renewable electricity, so. There's still
4 going to be a need for some RECs.

5 Q. Okay. And so I understand, first, am I
6 correct that earlier in your testimony you identified
7 support for energy efficiency?

8 A. I always support energy efficiency.

9 Q. Okay. And as part of your support for
10 energy efficiency, you have historically supported
11 volumetric-based distribution, transmission, and
12 generation rates?

13 A. Yes.

14 Q. So, for example, you oppose concepts like
15 the straight fixed variable, right?

16 A. Absolutely. High customer charges, yes.

17 Q. And the reason for that opposition is
18 that with volumetric rates, if a customer reduces
19 their usage, they reduce their bill, correct?

20 A. They reduce their bill more than they do
21 with the high customer charge.

22 Q. Right. And that promotes energy
23 efficiency, correct?

24 A. Well, it certainly makes energy
25 investments in energy efficiency more remunerative.

1 It pays you back.

2 Q. Okay. Thank you.

3 And you are familiar with AEP Ohio's
4 current typical bills for residential customers; am I
5 correct?

6 A. I am an AEP customer, yes.

7 Q. And there's a nice pie chart in the bill,
8 right?

9 A. Oh, yes, I get -- I get the information
10 every quarter.

11 Q. Am I correct that at this point in time,
12 typically more of the pie is for the delivery charges
13 than the generation charges?

14 A. That has been a byproduct of moving to
15 Choice. I've noticed it's traditionally -- when
16 utilities were vertically-integrated, about
17 two-thirds of the price was generation and one-third
18 was distribution. Now, those percentages have almost
19 flipped. It's like 60-percent distribution,
20 40-percent generation, as I recall off the top of my
21 head.

22 Q. But consistent with the discussion we've
23 been having, AEP has a customer charge plus
24 significant portions of the delivery charges are
25 volumetric, correct?

1 A. That's correct. They have a modest
2 customer charge that's consistent with good public
3 policy.

4 Q. And am I correct that one of the benefits
5 for behind-the-meter generation, such as rooftop
6 solar, is it acts as a form of energy efficiency. By
7 reducing the customer's total throughput.

8 A. Well, it reduces the customer's demand to
9 purchase power from the grid. So unless you reduce
10 the usage required to run the house, okay, the load
11 of the house, you have an increase, you haven't
12 decreased efficiency.

13 Let me put it another way, okay? If I'm
14 buying a thousand kilowatt-hours a month and my solar
15 panel array generates 500 a month, okay, I'm still
16 using a thousand. Energy efficiency is when you
17 reduce the use to the point where say I only use 900.
18 So that means I've put in a more-efficient
19 refrigerator or a more-efficient air conditioner or
20 better lighting or something like that. That's
21 ultimately efficiency.

22 Now, there are other ways that you can
23 look at efficiency. There is economic efficiency or
24 other types of efficiency and, in fact, one of the
25 points I'm making here is that it's more efficient to

1 invest in utility-scale solar because it's lower cost
2 than rooftop.

3 Q. Okay. Let's take a step back. If you
4 put solar panels on your roof, you will reduce your
5 distribution bill, all else being equal, correct?

6 A. You will reduce -- to the extent that the
7 distribution charges are volumetric and offset by
8 self-generation, yes.

9 Q. Okay.

10 A. There are some net metering schemes that
11 only give you credit for the generation, not for the
12 distribution, but you won't have use of the
13 distribution so.

14 Q. And those schemes that you referred to
15 deal with the portion or month in which a customer
16 produces more than they have used for the amount that
17 is greater, just the net that's greater than usage --

18 A. That --

19 Q. -- that is cashed out at the energy-only
20 portion of the SSO rate?

21 A. That's correct. I didn't mean to talk
22 over you.

23 Q. But for the portion up to when they are
24 an excess producer, that would net out their
25 distribution bill, right?

1 A. Uh-huh.

2 Q. Okay. And then in your testimony you
3 identify certain physical limitations. Even though
4 certain physical structures may be unable to
5 accommodate solar panels, you agree there is still an
6 opportunity for those residents to have access to
7 renewable energy through the competitive market,
8 correct?

9 A. Yes.

10 MR. OLIKER: Thank you, your Honor.
11 Those are all the questions I have.

12 Thank you, Mr. Rinebolt

13 THE WITNESS: Thank you.

14 EXAMINER SEE: Mr. McNamee?

15 MR. McNAMEE: No questions, your Honor.
16 Thank you.

17 EXAMINER SEE: Mr. Nourse?

18 MR. NOURSE: Thank you, your Honor. Just
19 a couple.

20 - - -

21 CROSS-EXAMINATION

22 By Mr. Nourse:

23 Q. Good afternoon, Mr. Rinebolt.

24 A. Good afternoon, Mr. Nourse.

25 Q. A couple of follow-up questions. When

1 you were talking with Mr. Olikier about the bill
2 proportion of wires charges to generation, is that
3 where -- your observations about an average
4 residential customer?

5 A. Yes.

6 Q. So if one used more energy, those
7 proportions would change, more or less energy than an
8 average?

9 A. Yes.

10 Q. Okay. And earlier -- actually several
11 times you mentioned the phrase "utility-scale solar."
12 What -- what do you mean by utility-scale solar?

13 A. Well, I guess in Ohio it would be --
14 larger than 50 megawatts would be considered utility
15 scale. But -- but, frankly, the scale that we're
16 discussing in this case, 900,000 megawatts, that's
17 where you see combined-cycle turbines coming in. I
18 mean, you need to make substantial investments and
19 there are economies of scale. So the larger the
20 arrays you invest in, the lower ultimately the cost.

21 Q. Let's take a 50-megawatt solar, that's
22 your minimum. Do you know how much acreage that
23 would take up, approximately?

24 A. Not off the top of my head. It would
25 really depend on the technology that you are using,

1 whether you are using trackers or whether you are
2 using solid-mounted panels.

3 Q. Well, is it possible to do utility-scale
4 solar on a rooftop?

5 A. No, it is not.

6 Q. And do you know if any of the municipal
7 renewable projects that you discussed with Ms. Bojko
8 were utility scale?

9 A. To my knowledge, the hydro dams on the --
10 on the Ohio River are not larger than 50 megawatts,
11 and I am not aware of any solar installations in the
12 state that reach that size.

13 Q. Okay. And, finally, Mr. Darr had used
14 the term "contract for differences" in asking his
15 questions. Do you recall that?

16 A. I do.

17 Q. And what does that term mean to you?

18 A. Well, the thrust of it is it's shorthand
19 for if the power is sold into PJM at a loss, the
20 customers make up the delta. And if it's sold into
21 PJM at a profit, the profit flows back to the
22 customers. It's a netting process like we have with
23 a number of riders in the State of Ohio.

24 Q. So you used that term in answering
25 questions about that just to -- in the context of the

1 net cost structure of the Renewable Generation Rider
2 that's been approved by the Commission?

3 A. Yes.

4 Q. Okay. And would you agree that under the
5 RGR, no ratepayers are signing contracts?

6 A. I agree.

7 MR. NOURSE: Okay. That's all I have.
8 Thank you, your Honor.

9 EXAMINER SEE: Any redirect, Ms. Mooney?

10 MS. MOONEY: Could I have just a second?

11 EXAMINER SEE: Yes.

12 MS. MOONEY: Your Honor, we have no
13 redirect, and I would move for the admission of OP&E
14 Exhibit 1.

15 EXAMINER SEE: Okay. Are there any
16 objections to the admission of OP&E Exhibit 1?

17 MS. BOJKO: Your Honor --

18 MR. COLLIER: No objection to the
19 admission, subject to the motions that were made.

20 MS. BOJKO: I would agree. No objections
21 subject to what we've already -- we've already
22 objected to, except for the one piece that was
23 granted on page 13, lines 4 through 14.

24 MS. WILLIS: For the record, OCC concurs.

25 MR. OLIKER: As does IGS and IGS Solar,

1 LLC.

2 EXAMINER SEE: Okay. With that, OPAE
3 Exhibit 1 is admitted into the record.

4 (EXHIBIT ADMITTED INTO EVIDENCE.)

5 EXAMINER SEE: Ms. Willis.

6 MS. WILLIS: Thank you, your Honor. OCC
7 would move for the admission of Exhibits 13, 14, 15,
8 16, and 17.

9 EXAMINER SEE: Are there any objections
10 to the admission of OCC's Exhibits 13 through 17?

11 MR. NOURSE: Well, your Honor, the
12 Company objects to 13. I believe only six pages of
13 that document were discussed, and I would ask that we
14 only admit an excerpt of that document that includes
15 those six pages and they were pages 5, 10, 11, 12,
16 13, and 16.

17 MS. BOJKO: Your Honor, just as --

18 EXAMINER SEE: Just a minute. Do you
19 have any objections to the other OCC exhibits?

20 MR. NOURSE: No, your Honor. That was
21 the only one of those listed objections we object to.

22 EXAMINER SEE: Okay. So Exhibits 14, 15,
23 16, and 17 are admitted into the record.

24 (EXHIBITS ADMITTED INTO EVIDENCE.)

25 EXAMINER SEE: Ms. Bojko, you were

1 saying?

2 MS. BOJKO: Thank you, your Honor. I
3 would say, just as AEP's counsel argued with regard
4 to customer complaints and numerous other documents
5 throughout the last week, I think that it's only fair
6 and to put it in context that the whole document be
7 admitted with the preface and the summary and the
8 description of the results of the charts that were
9 referred to. So in fairness, just as other documents
10 have been admitted for completeness, I think that
11 this too needs to be admitted for completeness.

12 MS. WILLIS: Your Honor, we would concur
13 with that. I think it's under the Rules of Evidence.
14 I think it's 10 -- 1003, the entirety of documents is
15 preferred over excerpts from documents.

16 MR. NOURSE: First of all, your Honor,
17 the -- it's certainly unfair to generalize. The
18 customer complaints documents that was referenced was
19 actually a workpaper and information that was
20 provided in its entirety and related to the Navigant
21 survey that's been admitted into evidence. So that's
22 completely different from a document which we do not
23 know where it even comes from. The witness wasn't,
24 you know, aware of it or didn't cite it in his
25 testimony. So this is just a data dump, your Honor.

1 And I think consistent with your ruling the other day
2 on IGS Exhibit 6, only the pages that were addressed
3 in the record need to be -- you know, are appropriate
4 for admitting again to avoid data dumps that
5 witnesses aren't familiar with.

6 MS. WILLIS: And, your Honor, if I might
7 briefly respond to that.

8 MR. OLIKER: To be clear, IGS consented
9 to the limited admission, so I think it is different.

10 MR. NOURSE: That was very reasonable of
11 you, Joe.

12 MR. OLIKER: I try to be.

13 EXAMINER SEE: Ms. Willis.

14 MS. WILLIS: Yes. I would take issue
15 with the data dump. This witness testifies
16 throughout his testimony about the emissions and the
17 importance of -- of renewable power to address
18 emissions. It is very much consistent with his
19 testimony. He said he is familiar with the data.
20 Consistent with his understanding, it's based on
21 sources that he relied on that are EIA, including EPA.
22 I think the whole document should be in to give
23 context and explain the basis of the study.

24 MS. BOJKO: Your Honor, I would just add
25 that AEP did ask for the renewable standard impacts,

1 the different quarters to be admitted for
2 completeness. It just wasn't the customer reports.
3 They also argued that the complete data response that
4 contained all of the Company announcements, that that
5 be admitted as a whole and not only the documents
6 that Ms. Willis discussed during her
7 cross-examination.

8 And then I believe there were some Apples
9 to Apples charts that were IEU exhibits that AEP
10 asked for other dates and pages of those documents to
11 be admitted for completeness.

12 MR. NOURSE: Well, none of those are the
13 same, your Honor, and we did agree to excerpt the
14 Company's statements, as well, for that document. I
15 mean, saying if the witness was asked about data
16 related to AEP Ohio and there is more recent data on
17 the same topic, that has nothing to do with, again,
18 if these things were important, they could have been
19 covered in cross or sponsored by their own witness,
20 they weren't either, so the voluminous document
21 shouldn't just be dumped into the record.

22 MR. DOVE: Your Honor, I would just
23 simply request if it's admitted, it is limited in its
24 use to what it was used for today since this was
25 previously used to question one of my witnesses and

1 then denied admittance at that point, so I don't want
2 it to be a backdoor way to get it in to cite.

3 EXAMINER SEE: Okay.

4 MS. MOONEY: OPAC would agree with
5 Mr. Dove on that.

6 EXAMINER SEE: OCC Exhibit 13 is admitted
7 into the record as it relates to Mr. Rinebolt's
8 testimony.

9 (EXHIBIT ADMITTED INTO EVIDENCE.)

10 MR. DOVE: Thank you, your Honor.

11 EXAMINER SEE: With that, let's take a
12 lunch break until 5 after the hour.

13 (Thereupon, at 12:30 p.m., a lunch recess
14 was taken.)

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1281

1 Tuesday Afternoon Session,
2 January 22, 2019.

3 - - -

4 EXAMINER PARROT: Let's go back on the
5 record.

6 Ms. Blend.

7 MS. BLEND: Thank you, your Honor. AEP
8 Ohio calls John Torpey.

9 (Witness sworn.)

10 EXAMINER PARROT: Please have a seat.

11 (EXHIBIT MARKED FOR IDENTIFICATION.)

12 - - -

13 JOHN F. TORPEY

14 being first duly sworn, as prescribed by law, was
15 examined and testified as follows:

16 DIRECT EXAMINATION

17 By Ms. Blend:

18 Q. Good afternoon, Mr. Torpey.

19 A. Good afternoon.

20 Q. Good afternoon. Thank you.

21 State and spell your name.

22 A. John, J-o-h-n, F., Torpey, T-o-r-p-e-y.

23 Q. Thank you.

24 And, Mr. Torpey, by whom are you employed
25 and in what capacity?

1 A. I'm employed by the American Electric
2 Power Service Corporation as the Managing Director of
3 Resource Planning and Operational Analysis.

4 Q. Thank you.

5 And do you have a copy of what's been
6 marked as Exhibit AEP Ohio Exhibit 14 in front of
7 you?

8 A. I do.

9 Q. Would you please identify that document.

10 A. It is the direct testimony of Jon F.
11 Torpey on Behalf of Ohio -- Ohio Power Company, filed
12 September 19, 2018.

13 Q. And was this testimony prepared by you or
14 under your direction?

15 A. It was.

16 Q. Do you have any changes or corrections to
17 your testimony at this time?

18 A. I have a few.

19 On page 13 -- I'm sorry.

20 On page 10, line 13, in the parentheses
21 it says "as shown on Table 3...." The "3" should be
22 replaced with a "4." So it will read "as shown on
23 Table 4 of Exhibit JFT-1."

24 And then --

25 MS. BOJKO: I am sorry. Can we have that

1 page number and reference read back?

2 MS. BLEND: Sure. It's page 10, line 13.

3 MS. WHITFIELD: I'm sorry. What was the
4 correction again?

5 THE WITNESS: "Table 3" should be "Table
6 4."

7 MS. WHITFIELD: Okay. Thank you.

8 THE WITNESS: Are we good?

9 EXAMINER PARROT: Go ahead.

10 A. On the Exhibit JFT-1 on page 19, about
11 halfway down the page, at the end of the page there
12 is a phrase "approximately 600." That number "600"
13 should be "650." And then two lines below that there
14 is another approximately "600" MW, that should also
15 say "650."

16 And there's one more. On page 34 of JFT
17 -- Exhibit JFT-1, the fourth full paragraph that
18 starts "The appliance saturations are based on
19 historical trends from APCo...." "APCo" should be
20 replaced with "OPCo." O-P-C-o.

21 Q. Thank you, Mr. Torpey.

22 And with those corrections, if I asked
23 you the questions contained in your direct testimony
24 today, would your answers be the same?

25 A. They would.

1 MS. BLEND: Thank you, your Honor. At
2 this time, the Company moves for admission of AEP
3 Ohio Exhibit 13, subject to cross-examination.

4 MR. DARR: Motion to strike, your Honor.

5 EXAMINER PARROT: Thank you, Ms. Blend.

6 Go ahead, Mr. Darr.

7 MR. DARR: On grounds that have been
8 previously advanced with regard to the relevance of
9 this testimony, IEU would move to have pages 5,
10 starting at line 1 through 13, line 7, and section 6
11 through 8 of JFT-1 stricken. Motion to strike --
12 this motion to strike is based on the fact none of
13 this testimony is relevant to the determination of
14 the reliability of the system. Given that "need" is
15 defined by statute in the rule in terms of meeting
16 peak load based on reliability -- based on
17 projections. The -- the testimony and related
18 portions of the report are not relevant and should be
19 removed from the record -- should not be omitted in
20 the record.

21 MR. MICHAEL: OCC joins.

22 MR. OLIKER: As would IGS and IGS Solar.

23 MS. BOJKO: OMAEG joins.

24 MS. WHITFIELD: As would Kroger.

25 MR. COLLIER: Same with OCA.

1 EXAMINER PARROT: And the reference, one
2 more time, Mr. Darr?

3 MR. DARR: Both pieces?

4 EXAMINER PARROT: Just with respect to
5 the testimony, so beginning page 5, line 1 through
6 what was the?

7 MR. DARR: 13, line 7.

8 EXAMINER PARROT: Thank you.

9 Mr. Darr, your motion to strike is
10 denied.

11 Ms. Bojko.

12 MS. BOJKO: Thank you, your Honor. I
13 have an additional motion to strike. Three pieces of
14 testimony all for the same reason/rationale, so I
15 will list off the testimony that we are moving to
16 strike.

17 Page 5, lines 12 through 18. On line 12
18 starting with "The first analysis." And ending on 18
19 with the word "impact."

20 Page 6, the first block of the Investment
21 Benefit Summary regarding the PJM impact analysis.

22 And lastly, your Honors, page 10 --

23 EXAMINER SEE: I am sorry, Ms. Bojko. Go
24 back to the one on page 6.

25 MS. BOJKO: It's the first block of the

1 charted noted "PJM Impact" analysis.

2 EXAMINER SEE: Okay.

3 MS. BOJKO: The first row. And then
4 lastly, your Honors, page 10, line 2, starting with
5 the question, through 19. And again, that question
6 is summarizing the results of the impact analysis.
7 All three portions of the testimony regarding the PJM
8 impact -- PJM impact analysis are summaries and
9 regurgitation of Company witness Ali's testimony.

10 Mr. Torpey did not perform this PJM
11 impact analysis so, at best, the testimony is
12 cumulative, but at worst, your Honors, this testimony
13 is hearsay. Mr. Torpey lacks foundation. He lacks
14 personal knowledge. He admitted, in the deposition,
15 that he did not perform this PJM analysis.

16 Under Rule 602, Ohio Rules of Evidence, a
17 witness may not testify to a matter unless evidence
18 is introduced sufficient to support a finding that
19 the witness has personal knowledge of the matter.
20 Here, he is summarizing and regurgitating the PJM
21 analysis from Company witness Ali. And Mr. Torpey
22 has no personal knowledge, did not conduct the
23 analysis, and took no part in the analysis. Thank
24 you.

25 MS. BLEND: May I respond, your Honor?

1 EXAMINER PARROT: You may.

2 MS. BLEND: The representation that
3 Mr. Torpey didn't perform the PJM impact analysis
4 described in his testimony and in the IRP is
5 incorrect and misstates both -- ignores the record
6 that was developed during the cross-examination of
7 witness Ali, and also misstates Mr. Torpey's
8 deposition, as well as his prefiled testimony on his
9 IRP.

10 As witness Ali explained, and as
11 Mr. Torpey explained in deposition and as is
12 explained in his testimony, Mr. Torpey took three
13 sets of information from witness Ali for the years
14 2021, 2024, and 2027, and then interpolated and
15 extrapolated those results to come to the PJM impact
16 analysis that's described in his testimony. So for
17 that -- for those reasons he does have personal
18 knowledge of that analysis and it should stay in his
19 testimony.

20 And with respect to specifically the
21 description on page 5, lines 12 through 18 of
22 Mr. Ali's testimony, that was just setting up the
23 analysis upon which Mr. Torpey's analysis built,
24 which was provided by Mr. Ali, and it's a fair
25 summary and characterization of that analysis and it,

1 too, should remain in Mr. Torpey's testimony. Thank
2 you.

3 MS. BOJKO: Your Honor, just to make sure
4 that the record is clear, I'm not asking to strike
5 Mr. Torpey's analysis that took Mr. Ali's analysis
6 and manipulated it to Mr. Torpey's conclusions. What
7 I am moving to strike is a summary or analysis that
8 was performed by Company witness Ali.

9 If you look on all of the pages that I
10 reference, except for the chart, it specifically says
11 "as described by Company witness Ali," "as
12 performed," "as calculated by Company witness Ali."
13 Mr. Torpey did not calculate these portions or the
14 results of the Operational Analysis Group's results
15 for years 2021, '24, and '27.

16 MS. BLEND: And, your Honor, again
17 Mr. Torpey is summarizing his analysis on page 6.
18 That was his analysis.

19 With respect to the paragraph on page 10
20 of his testimony, beginning on line 7, Mr. Torpey, as
21 he just explained, is the Managing Director of the
22 Resource Planning and Operational Analysis Group, and
23 his group, including him and under his supervision,
24 did perform the analysis described in that paragraph.

25 EXAMINER PARROT: Your motion to strike

1 is denied, Ms. Bojko.

2 MS. BOJKO: Thank you. I have nothing
3 further, your Honor.

4 EXAMINER PARROT: Mr. Mendoza.

5 MR. MENDOZA: No questions, your Honor.
6 Thank you.

7 EXAMINER PARROT: Mr. Kurtz.

8 MR. KURTZ: Yeah, briefly.

9 - - -

10 CROSS-EXAMINATION

11 By Mr. Kurtz:

12 Q. Good afternoon, Mr. Torpey.

13 A. Good afternoon, Mr. Kurtz.

14 Q. By way of foundation, Mr. Bletzacker did
15 the AEP Fundamentals Forecast that you use in your
16 analysis?

17 A. That's correct.

18 Q. Okay. What inputs or variables from
19 Mr. Bletzacker did you use?

20 A. I used his energy prices, his PJM energy
21 prices, so he has forecast of hourly energy prices
22 for the 20-year period that we are looking at here,
23 and his forecast of capacity prices.

24 Q. And what goes into his energy price
25 forecast? Does coal -- do forecasts of coal prices

1 and natural gas prices go into that energy price
2 forecast?

3 A. I'm sure Mr. Bletzacker would have
4 explained that when he was here, but I believe he
5 uses forecasts of fuel prices, coal and natural gas
6 prices, in developing his energy price forecast.

7 Q. Okay. Who -- you used a discount rate,
8 for net present value purposes, in exhibits -- pages
9 21 and 22 of 47. I guess maybe you should turn to
10 those pages.

11 A. I'm there.

12 Q. Okay. You used a discount rate for
13 present value of 8.5 percent; is that correct?

14 A. That's correct.

15 Q. Is that AEP's weighted average aftertax
16 cost of capital?

17 A. It's the AEP's Ohio weighted average
18 aftertax cost of capital, yes.

19 Q. So that would be the standard discount
20 rate in a utility planning analysis for a project
21 that the utility was going to build, would it not?

22 A. We use that rate in our IRP analysis and
23 Certificate of Need filing analysis, yes.

24 Q. Okay. But here the -- the utility is not
25 going to own the renewable power plants at issue.

1 A. We will not own them, no.

2 Q. So why is it appropriate to use the
3 utility's cost of capital, weighted average cost of
4 capital, as opposed to a consumer cost of capital?

5 A. Well, there is a few reasons. One would
6 be we -- we would all agree that we have to discount
7 the future cash flows. It's pretty much standard
8 practice in utility economics when we do these
9 economic evaluations to use the utility's cost of
10 capital.

11 Certainly, a customer could look at the
12 same data and put their cost of capital in there and
13 determine whether or not this project has benefits to
14 them as well, but from our standpoint, it's a number
15 that we've used throughout our IRP filings; so just
16 to be consistent in how we perform the IRP analysis,
17 we used it here.

18 Q. And if you did, in fact, use a lower
19 discount factor than 8.5 percent, the net present
20 value benefits in your analysis would be even bigger,
21 would they not?

22 MR. OLIKER: Objection. Your Honors,
23 it's clearly friendly cross.

24 MR. KURTZ: If I have to go through it
25 again, I haven't taken a position. I am building a

1 record.

2 MR. OLIKER: It doesn't matter, your
3 Honor. He is trying to augment things in the record
4 to say this could be more beneficial than what AEP
5 has proposed in a different scenario. That's
6 friendly cross.

7 EXAMINER PARROT: Overruled. He's
8 already answered.

9 Q. (By Mr. Kurtz) Could you repeat your
10 answer?

11 A. A lower discount rate would show an
12 increased benefit.

13 Q. Because the benefits are somewhat
14 back-end loaded?

15 A. Correct.

16 Q. Now, on page 21 -- let's go to page
17 22 first. This has the wind -- the wind REPA.

18 A. Correct.

19 Q. Okay. Now, you use a 5 percent -- for
20 purposes of calculating the capacity revenue, you
21 assumed that 5 percent of the 250 megawatts would be
22 sold into the market, correct?

23 A. We assumed a capacity credit of 5 percent
24 of nameplate, yes.

25 Q. So on line -- or Column L, the capacity

1 credit values are really pretty de minimus or small,
2 at least anyway, would you agree?

3 A. The \$200,000, yes.

4 Q. Okay. So the real money from the wind
5 project is going to come from the energy market, not
6 the capacity market.

7 A. For the wind project, yes.

8 Q. Okay. Now, by the same token, if you
9 assumed the 5 percent capacity value, if you bid this
10 into the market and there was a capacity performance
11 event and the wind failed to show up and got a
12 penalty, it would be a relatively small penalty
13 because only 5 percent of the capacity is getting bid
14 in.

15 MR. MICHAEL: Objection, friendly cross.

16 EXAMINER PARROT: Overruled.

17 A. What -- it wouldn't be a large penalty
18 because we use a small percentage and that's part of
19 the reason why we use a small percentage was to be
20 conservative in the amount of capacity the Company
21 might bid in.

22 Q. And by the same token, if there was a
23 capacity performance bonus payment, it would be
24 relatively small also.

25 MR. MICHAEL: Your Honor, I would object

1 to this line of questioning.

2 MR. KURTZ: That's not -- the bonus is
3 the opposite of the penalty. It's not --

4 EXAMINER PARROT: Hold on, Mr. Kurtz.

5 MR. MICHAEL: May I assert my objection,
6 Mr. Kurtz, please? Thank you. I think this may be
7 Phase II issues, your Honor. This has to do with the
8 cost of the proposed REPA and not the need.
9 Penalties, bonus, things of that matter are Phase II
10 issues, not Phase I.

11 MR. OLIKER: Your Honor, they are
12 directly addressed by the testimony of William Allen
13 in that case and, therefore, they have been slated by
14 the Company, itself, as Phase II.

15 MR. KURTZ: I would actually favor that
16 ruling because Dr. Lesser's testimony repeatedly
17 relies upon capacity performance penalties in his
18 testimony, so that will be a good basis for a motion
19 to strike.

20 MS. BLEND: Your Honor, AEP also opposes
21 the motion on the basis that Mr. Torpey's analysis,
22 which includes his break-even analysis, is relying
23 upon the current realities of the PJM market, and
24 which includes these capacity performance penalties
25 and bonuses.

1 EXAMINER PARROT: The objection is
2 overruled.

3 Go ahead, Mr. Torpey.

4 A. There would be very small -- small
5 penalties or small benefits.

6 Q. Okay. Do you expect those issues to be
7 addressed in Phase II if there is a Phase II?

8 A. I don't know if they are being addressed
9 by me, but I am sure it was brought up here.
10 Somebody will have to address it.

11 Q. Okay. Turn back a page to the solar
12 REPA. There you use a 95 -- excuse me -- a 19
13 percent capacity value?

14 A. Correct.

15 Q. So there's relatively more capacity value
16 for the solar compared to the wind, correct?

17 A. Compared to the wind, yes.

18 Q. And there's also relatively greater
19 capacity performance penalty or bonus risk or reward
20 with the solar versus the wind.

21 A. Correct.

22 Q. Now, you have not put in the debt
23 equivalence in your economic analysis; is that
24 correct?

25 A. There is no -- there is no debt

1 equivalence in my economic analysis.

2 Q. That is a true cost of owning these REPAs
3 that would have to be factored into Phase II if there
4 was a Phase II, would you agree?

5 A. This was a generic analysis, so it wasn't
6 including other costs the Company may incur. But to
7 the extent the Company is asking for a debt
8 equivalence, then that would have to be addressed in
9 Phase II.

10 MR. KURTZ: Thank you, your Honor. No
11 more questions.

12 EXAMINER PARROT: Mr. Olikier.

13 MR. OLIER: Thank you, your Honor.

14 - - -

15 CROSS-EXAMINATION

16 By Mr. Olikier:

17 Q. Good afternoon, Mr. Torpey.

18 A. Good afternoon, Mr. Olikier.

19 Q. Good to see you again.

20 A. Yes. Likewise.

21 Q. Turning to your testimony, I would like
22 to start with your background. Can you explain what
23 your role was in 1999?

24 A. In 1999?

25 Q. Yes.

1 A. Well, during the period from 1994 through
2 2004, I had positions where I was managing the
3 planning and budgeting for the fossil and hydro
4 generation fleet in AEP, for all of AEP. And that
5 position title changed over time, depending on
6 various reorganizations but, for the most part, it
7 was same function where I would be involved with
8 doing the power plant budgeting and variance
9 reporting and, for various portions of that also,
10 outage maintenance scheduling.

11 Q. And you are aware that legislation was
12 passed in Ohio, around 1991, to restructure the
13 retail electric market?

14 A. I don't remember the exact year, but I
15 know that's probably -- that sounds right.

16 Q. And you were not involved in the process
17 to which Ohio restructured its retail electric
18 market, correct?

19 A. I was not.

20 Q. And in your role as Director - Integrated
21 Resource Planning, you provided services only to the
22 regulated AEP operating companies; is that correct?

23 A. Yes.

24 Q. And typically the regulated operating
25 companies that you provided service to are

1 vertically-integrated companies that own generation?

2 A. Typically they were, yes.

3 Q. And currently, AEP Ohio is not
4 vertically-integrated, correct?

5 A. They are not vertically-integrated,
6 correct.

7 Q. And you would agree, somewhere around
8 2008, Ohio modified its retail electric restructuring
9 legislation, correct?

10 A. I don't remember the exact year, but I
11 know they modified it in that time frame.

12 Q. And you were not involved in the passage
13 of that legislation which is commonly referred to as
14 Senate Bill 221?

15 A. I was not involved with that.

16 Q. And between 2000 and 2007, while there
17 were price spikes, at times, due to events such as
18 Hurricane Katrina, would you agree that, generally
19 speaking, it was a time of rising energy prices?

20 A. I don't recall specifically what prices
21 were doing. I know they were higher than they are
22 today, but I don't know if -- I don't know what the
23 trend was necessarily.

24 Q. And a key driver of those rising prices
25 was natural gas prices and coal prices?

1 A. Well, the key driver of energy prices is
2 natural gas and coal prices.

3 Q. And, for example, in 2007, it was a time
4 period, 2007 to 2008, when coal prices were
5 increasing to unseen levels?

6 A. I don't recall the specific prices back
7 then. It's 12 years ago. I just don't remember.

8 Q. If you remember, was 2007 or 2008
9 generally the peak of coal prices over the last 20
10 years?

11 A. I mean, that would have been a better
12 question for Mr. Bletzacker. I just -- I mean,
13 central APCo, northern APCo, Powder Basin coal?

14 Q. Central Appalachian.

15 A. I think they were high but, again, it was
16 a time when the Company was -- or there was a -- say
17 investment in acid rain mitigation, so any coal with
18 high sulfur content, their prices would have become
19 depressed over time. Lower sulfur coals were
20 becoming higher priced. So, I mean, it just depended
21 on the type of coal, I believe.

22 Q. But low sulfur coal prices were very
23 high, correct?

24 A. Again, I don't have specific -- I just
25 don't remember the prices of coal.

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1 Q. And would you agree that between 2000 and
2 2007 was a time period of rising demand?

3 A. Yeah. I think demand was rising from the
4 early 2000s up through, pretty much through 2009 when
5 we had the recession.

6 Q. Okay. And in the 2007 time period, you
7 actually performed an analysis to determine whether
8 Ohio Power Company and Columbus Southern Power
9 Company would have sufficient capacity to meet
10 demand, correct?

11 A. Well, at that point in time, Ohio Power
12 and Columbus Southern Power were part of what was
13 considered the AEP East pool, so any analysis we did,
14 we did as part of the pool; so to the extent that the
15 AEP Ohio's pool needed additional capacity, at that
16 point it would have been a determination of which
17 operating company would have added that capacity.

18 Q. And going back to the 2000 to 2005 time
19 frame, you were not involved in Ohio Power Company or
20 Columbus Southern Power Company's proceedings before
21 the Ohio Commission.

22 A. Not to my knowledge -- I don't remember.
23 I don't believe I was. I don't remember any
24 involvement.

25 Q. Okay. And you understand -- if I refer

1 to the restructuring amendments that occurred in
2 2011 -- 2008, if I call that "Senate Bill 221," you
3 will know what I am talking about?

4 A. I know some of the provisions. I mean,
5 if you ask me specific provisions I may not be aware
6 of those, but sure.

7 Q. But if I refer to it as "Senate Bill
8 221," for sure you will know the legislation?

9 A. Restructuring.

10 Q. Yes.

11 A. Fine.

12 Q. As part of Senate Bill 221, am I correct
13 that renewable portfolio standards were enacted?

14 A. I'll agree with that. They were enacted
15 around that time.

16 Q. And your understanding is that the
17 legislation required utilities in Ohio to supply a
18 portion of their energy requirements using both solar
19 and wind resources in amounts that increased over
20 time?

21 A. That's my recollection, yes.

22 Q. And just as you were not involved in the
23 legislative process between 1999 and the legislation
24 that happened again in 2008, you have not been
25 involved in the legislative process in Ohio after

1 2008, correct?

2 A. I don't think I've been involved in any
3 legislative processes in Ohio.

4 Q. Okay. But you are aware there were
5 changes to the renewable portfolio standards at some
6 point in time after initial enactment as part of
7 Senate Bill 221, correct?

8 A. Yes. There was somewhat of a pause in
9 the increase in the amount of renewables required.

10 Q. And there was also an elimination of the
11 requirement to physically locate a portion of the
12 renewable requirements in the State of Ohio, correct?

13 A. I believe I heard another witness talk
14 about that, so I will agree with that, yes.

15 Q. Okay. And regarding your job
16 responsibilities, it was in 2007 that you assumed the
17 role of Director - Integrated Resource Planning?

18 A. Correct.

19 Q. And, at the time, there were already
20 requirements to file integrated resource plans in
21 Ohio, right?

22 A. There was a requirement, yes.

23 Q. And you don't know how long that AEP Ohio
24 has been required to file integrated resource plans,
25 do you?

1 A. It started in '07. I know the
2 requirement had to do with changes in -- were
3 triggered by changes in the load forecast. And when
4 I started, I don't think we filed -- so I only know
5 really from when I started. I don't think there was
6 one filed right before I came on as the Director and,
7 to my recollection, we only filed one integrated
8 resource plan in Ohio, and it was around the 2012,
9 2013 time frame.

10 Q. And I think you just said this, that an
11 integrated resource plan was required to be filed
12 when there is a change in the load forecast, correct?

13 A. I believe that was the trigger, yes.

14 Q. And the reason, logically, why that would
15 be is if this is a large jump in the load forecast,
16 there may be a need to build new generation.

17 A. Well, right. But at the time, you know,
18 the Ohio utilities were vertically integrated, so
19 clearly there was a concern that they needed -- on
20 the PUCO's part, I am assuming -- needed to
21 understand that the utilities had enough capacity or
22 planned to have enough capacity to meet their load
23 obligation.

24 Q. And with respect to your testimony in
25 this case, first, can you tell me did you -- maybe I

1 missed this in your introduction, have you only
2 brought one document up to the stand with you?

3 A. I brought up the amended -- well, the IRP
4 filing, the Amended LTFR which includes the IRP
5 filing. I also brought up, because I'm assuming
6 somebody would ask me at some point, I brought up all
7 the forms with the LTFR filing that we made back in
8 April.

9 Q. Okay. Let's break that up so I
10 understand it. There was an initial filing in April
11 of 2018, correct?

12 A. That's correct.

13 Q. And that was filed as a Long-Term
14 Forecast Report filing?

15 A. Right. It's sometimes called a "forms
16 filing" but, yes, it's the filing of the Long-Term
17 Forecast Report forms.

18 MR. OLIKER: And can counsel for AEP
19 clarify, is that part of the testimony you've marked
20 or is that separate?

21 MS. BLEND: We marked it as -- the
22 4/16/18 forms filing is AEP Ohio Exhibit No. 1, the
23 first day of hearing, and we indicated at that time
24 that Mr. Torpey was sponsoring the D forms and the R
25 forms, and that Mr. Ali was sponsoring the T forms.

1 MR. OLIKER: Okay.

2 Q. (By Mr. Oliker) Now, let's move on to
3 something else. You said you brought up the Amended
4 Long-Term Forecast Report filing. Is that the -- are
5 you referring to what is contained in Exhibit JFT-1
6 or are you referring to the Amended LTFR application?

7 A. No. JFT-1.

8 Q. Okay. Okay. Going back to what's been
9 marked as AEP Ohio Exhibit 1, am I correct that the
10 portions of this document you said you were
11 sponsoring are the distribution and generation forms?

12 A. Distribution and I think they're called
13 "resource forms" but, yes, the R forms. The D forms
14 and R forms.

15 Q. Okay. And these forms correspond with
16 Ohio Administrative Code Section 4901:5-5-06, if you
17 know?

18 A. I believe that is the R forms. I am not
19 sure if it lists the D forms.

20 Q. The D forms in -- are those listed in
21 Section 4901:5-5-05 for energy and demand forecast
22 for electric utilities?

23 A. I'll take your word for it. I don't have
24 that code in front of me here.

25 Q. Okay. And am I correct that the forms,

1 included in the April filing, show the volume of
2 electricity that AEP Ohio must acquire to meet the
3 obligation of capacity and energy that are in the
4 distribution forms and the resource forms?

5 A. Yes.

6 Q. Okay.

7 A. Well, I think -- hold on.

8 The R forms only have capacity. So
9 they're not specifying, at least the ones I am
10 looking here, I don't think they specify energy or
11 ones in megawatts. R6 is also megawatts. R7 is
12 megawatts. R8 is megawatts. So I don't see
13 megawatt-hours. I am assuming it's just capacity.

14 Q. Okay. And the D forms, they provide a
15 forecast of load in the distribution grid; is that
16 correct?

17 A. Yes.

18 Q. Okay. And the projections of
19 distribution and generation in the D and the R forms,
20 they don't go out beyond 10 years, do they?

21 A. 10 years, correct.

22 Q. Okay. Turning to page 2 of your
23 testimony, you identify, on page 2, that you
24 coordinate short-term and long-term generation
25 production costing and other resource planning models

1 used in the ultimate development of operating and
2 capital budget forecasts for the Company and AEP.
3 Regarding the statement, do you agree there is a
4 difference in how AEP models short-term and long-term
5 generation costs?

6 A. Yes.

7 Q. And long-term forecasting looks at
8 optimizing the resource that should be added to a
9 portfolio over the planning period to result in the
10 lowest present value of revenue requirements?

11 A. Right. We have a long-term model that
12 performs an optimization function and we use that in
13 our resource planning or other Certificate of Need
14 filings, and that model selects the optimal
15 portfolio. We are currently doing planning right now
16 for I&M. We just submitted plans for Arkansas and --
17 and in Oklahoma.

18 Q. In trying to achieve the lowest present
19 value revenue requirement, is another way of saying
20 resource planning at a reasonable cost, right?

21 A. We used the term "reasonable cost," yes.

22 Q. Mr. Torpey, you are responsible, I
23 believe you just mentioned this, for preparing
24 integrated resource plans in states other than Ohio?

25 A. Yes. Again, we just filed a plan in

1 Arkansas for SWEPCo, in Oklahoma for Public Service
2 Oklahoma, and we are working on the Indiana Michigan
3 plan as we speak.

4 Q. And when you are preparing an integrated
5 resource plan, the first step is to develop a
6 forecast of customer demand, correct?

7 A. That is input into the plan.

8 Q. And when you say "customer demand," you
9 are referring to capacity and energy, correct?

10 A. We do look at capacity and energy
11 requirements of the -- the utility, yes.

12 Q. Okay. And when you are forecasting the
13 lowest present value revenue requirement, you also
14 consider a forward forecast of energy prices,
15 correct?

16 A. We do, yes.

17 Q. And you agree that you typically consider
18 multiple scenarios for projections of wholesale
19 market prices to make an informed decision?

20 A. We will look at multiple scenarios, yes.

21 Q. And your testimony indicates that you
22 were involved in the submission of integrated
23 resource filings in other states. You state, "I
24 regularly model actual performance and review the
25 preparation of forecasted information for use in

1 regulatory proceedings," correct?

2 A. Yes.

3 Q. And although you rely upon
4 Mr. Bletzacker's Fundamental Forecast, you do not
5 review whether Mr. Bletzacker's Fundamental Forecasts
6 have been accurate over time, correct?

7 A. I don't monitor the accuracy of his
8 forecasts, correct.

9 Q. And, in other words, you don't do any
10 comparisons of Mr. Bletzacker's forecasts of energy
11 prices to determine whether, over time, actual prices
12 manifest in the way that he projects?

13 A. No. And, you know, Mr. Bletzacker's
14 forecast, and I am sure he explained it, is a
15 weather-normalized forecast. So you would have to
16 take into account the, you know, the sea -- of -- of
17 weather and, you know, do some calculations in that
18 regard, and I don't do that.

19 Q. Okay. Going back to page 4 of your
20 testimony, this is on line 20, under point 3, when
21 you mention "forecasts of peak load and energy
22 consumption," does that relate to the forms we
23 identified from the April filing?

24 A. Yes.

25 Q. Okay. And on page 5, you refer to, on

1310

1 line 11, the Company completed four separate analyses
2 associated with large-scale renewable projects.
3 Energy projects in Ohio. When you refer to the four
4 separate analyses, am I correct that the first
5 analysis was provided by witness Ali?

6 A. Witness Ali provided me some data points
7 that I incorporated in the analysis that we
8 performed. He provided data points for the years
9 2021, 2024, and 2027.

10 Q. But analyses 2, 3, and 4 were based upon
11 the Fundamentals Forecast provided by witness
12 Bletzacker, correct?

13 A. That was an input into those analyses.

14 Q. And in -- on page 6 and in various
15 portions of your testimony, you cite to a
16 probabilistic analysis you performed for solar and
17 wind resources, correct?

18 A. Yes.

19 Q. Regarding this analysis, the starting
20 point for your calculations was the market energy
21 price provided by the base fundamental analysis
22 provided by witness Bletzacker?

23 A. The base fundamental forecast, yes.

24 Q. And, in fact, the baseline for each
25 simulation was solely the base fundamental forecast,

1 correct?

2 A. Well, I did two. Well, for every
3 simulation that was performed, the base fundamental
4 forecast was the starting point, yes.

5 Q. And to be clear, you did not use any of
6 the other fundamental forecasts performed by
7 Mr. Bletzacker in your probabilistic analysis?

8 A. Not in the probabilistic analysis. The
9 reason is, is the probabilistic analysis --
10 Mr. Bletzacker's other forecasts, his low and his
11 high, for instance, are based on one standard
12 deviation difference from his base fundamental
13 forecast. What I did was I took his base fundamental
14 forecast and looked at the standard deviations over
15 time for energy prices and applied those to his base
16 fundamental forecast. So I'll say, in essence, I
17 would have arrived at, you know, a similar conclusion
18 that I would have arrived at had I used his
19 fundamental -- his other fundamental forecast.

20 Q. But you agree that Mr. Bletzacker never
21 provided you a low case forecast that contained the
22 assumption of no carbon regulation?

23 A. He only has a, we call it a "status quo
24 forecast," which is based off his base fundamental
25 forecast but assumes no carbon burden in the future.

1312

1 Q. And so we're clear, the low case that you
2 just referred to assumes that there's a burden on
3 carbon emissions in 2028, correct?

4 A. It does, yes.

5 Q. Okay. And you would agree, to the extent
6 the fundamental forecast overstate energy and
7 capacity prices, that the proposed solar and wind
8 projects may not result in a net benefit to
9 customers?

10 A. I would say to the extent future prices
11 are different than the fundamental forecast prices,
12 the results would be different; so they could either
13 be higher or lower than what we are showing in our
14 analysis.

15 Q. And to be clear, you didn't run any
16 probabilistic simulation of whether the solar and
17 wind project would result in a net benefit in the
18 absence of carbon regulation.

19 A. I did not do -- the simulation analysis I
20 did in this JFT-1, I only did using the base
21 fundamental forecast which included carbon.

22 Q. Okay. And am I correct that it is not
23 part of your job responsibility to forecast the
24 enactment of environmental regulations?

25 A. I do not forecast the enactment of

1 environmental regulations, correct.

2 Q. And on page 7, where you say "Because
3 renewable resources have little to no variable costs
4 the energy they generate displaces generation
5 resources with higher variable costs," in this
6 statement are you saying that the proposed resources
7 would push marginal generation resources out of the
8 dispatch stack such that they are not selected to
9 provide energy to the grid?

10 A. That's generally the way it works. I
11 think witness Ali explained how that works in the PJM
12 market.

13 Q. And can you turn to Exhibit JFT-1, page
14 20.

15 A. Yes.

16 Q. And if I look under "Combined Renewable
17 Load LMPs," if I look under "Load Cost," am I correct
18 that the nominal values listed under "Load Cost"
19 between 2021 and 2040 is a reduction in locational
20 marginal prices for each year in the AEP zone or
21 throughout PJM?

22 A. It's the -- this is for the AEP Ohio
23 load. So it's related to -- and we say "reduction"
24 -- it's the combined renewable LMPs. So that dollar
25 value, that 1.6, I guess it's \$1.6 billion, 1.64

1 would be the cost of the load that AEP Ohio was
2 purchasing at that PJM -- in -- at that PJM LMP.

3 Q. Mr. Torpey, did you say billion or
4 million?

5 A. Well, it's in millions, so it's
6 1,640,000,000. It's 46,249 gigawatt-hours at \$35 a
7 gigawatt hour.

8 Q. Okay.

9 A. Or megawatt-hour, I'm sorry. It's a big
10 number, yes. And that's compared to the 1 million --
11 1-billion-642 purchased without the renewable.

12 Q. Okay. That's the part I am trying to
13 connect here. Thank you.

14 A. Yeah.

15 Q. So if we compare the difference between
16 load cost with the LMPs and then the load cost
17 between the baseload LMPs without renewables, would
18 you agree that on a nominal basis each year, that is
19 the lower amount that generation resources will be
20 paid in PJM? In the AEP zone?

21 A. Right. If we added 650 megawatts of
22 renewable resources, the cost of generation, and it
23 could be the cost that's paid by AEP Ohio or the cost
24 that's paid to the generators, would be 1-billion-640
25 as opposed to 1-billion-642 without the renewables.

1 Q. Okay. Going back to page 7 of your
2 testimony, you mention that the net cost of energy
3 compares the estimated contract cost of the renewable
4 resource to the avoided cost of energy and capacity
5 from the market. And my question is: Would you
6 agree that the proposed resources in the Application,
7 do not change the amount of capacity that companies
8 like IGS Energy or Ohio Power Company would have to
9 pay for?

10 A. Correct.

11 Q. And you would agree that the
12 determination on this Application that AEP has filed
13 in this case will have no impact on the total amount
14 of energy that Ohio Power Company or other
15 load-serving entities in the AEP zone must procure?

16 A. Did you say the "determination" of --
17 what was the word?

18 Q. The consequence of this case will have no
19 impact on the total amount of energy that Ohio Power
20 Company or other load-serving entities in the AEP
21 load zone must procure.

22 A. Right. They would procure the amount of
23 energy required to meet the AEP Ohio load.

24 Q. Okay. And on page 8, line 12, you
25 indicate that "Data provided by responsive bidders to

1 the Company's RFPs were the basis for expected hourly
2 energy output values"; is that correct?

3 A. Yes. We looked at the RFPs to determine
4 what load curve we should use for the analysis that
5 we performed.

6 Q. So I'm correct that the bidders gave you
7 a forecast of the specific hours the facilities would
8 operate?

9 A. They do that, yes.

10 Q. Okay. And you personally did not do any
11 independent analysis to validate whether the
12 projections were reasonable, correct?

13 A. The people that review the RFPs, our
14 Renewable Energy Group and I believe Navigant also
15 was reviewing the RFPs, I believe they did that
16 review, but I did not do that review.

17 Q. And the person in the AEP team that
18 performed that review is not testifying in this case,
19 correct?

20 A. He would be testifying in the next part,
21 next phase.

22 Q. That's Joe Krasch?

23 A. Joe "Karrasch."

24 Q. Karrasch. And the capacity factors you
25 present in your testimony, particularly the

1 attachment Exhibit JFT-1, were also derived from the
2 RFP from the bidders, correct?

3 A. Well, it's based on the energy output,
4 and the energy output then is used to calculate the
5 capacity factor, yes.

6 Q. Okay. And when we've been referring to
7 "capacity factor," you would agree we're talking
8 about the total output of these facilities related to
9 the nameplate capacity, correct?

10 A. Yes.

11 Q. And capacity compensation is also an
12 assumption in your testimony; am I correct?

13 A. We have a capacity credit value that's in
14 my exhibits, yes.

15 Q. And that's the -- the capacity
16 compensation is based upon the total amount of
17 capacity these facilities clear in the PJM capacity
18 auctions, correct?

19 A. Well, what they would bid in and clear in
20 the auction. So a percent -- a smaller percent of
21 their nameplate.

22 Q. Okay. And you agree that changes have
23 recently been proposed to the PJM market? For
24 capacity?

25 A. I am aware there is a filing before FERC,

1 that's looking at modifying how capacity is
2 compensated in the PJM market.

3 Q. But you are only vaguely familiar with
4 the details of the proposals before FERC, correct?

5 A. I'm -- right. I did not -- I am not
6 involved in the filing. I have a one- or
7 two-question-down knowledge of what's going down.

8 Q. Okay. So you don't know the ins and outs
9 of the filings before FERC; is that correct?

10 A. I knew there's some various proposals by
11 different parties. I could tell you -- I could name
12 what they are, but in terms of the actual, you know,
13 how they actually work, I would get in trouble if I
14 tried to answer those questions.

15 Q. Okay. I will stay away from them.

16 And on page 9 -- sorry. Just take a step
17 back.

18 On the definition of "capacity factor,"
19 would you agree that that is defined as the actual
20 output, divided by the nameplate rating, times 8,760?

21 A. I would, except in a leap year. You have
22 to add another 24 to the denominator.

23 Q. Thank you for that clarification.

24 And am I correct, for purposes of
25 providing your testimony, you looked at Wyandot

1 Solar's performance?

2 A. We used -- for the -- for my simulation,
3 the probabilistic simulation, we looked at the output
4 from Wyandot Solar to get a range of outputs, on an
5 annual basis, from a solar facility.

6 MR. OLIKER: Okay. And -- may I
7 approach, your Honor?

8 EXAMINER PARROT: You may.

9 MR. OLIKER: I would like to mark a
10 discovery response as IGS Exhibit 7. And I believe
11 these are public.

12 MS. BOJKO: Which number did you say?

13 MR. OLIKER: IGS Exhibit 7 which is --
14 it's a discovery response titled IGS-INT-01-011,
15 Attachment 1, page 1 of 1.

16 MS. BLEND: Mr. Oliker, do you have the
17 complete -- I'm sorry. Do you have a copy of the
18 request and written response to which this was
19 attached?

20 MR. OLIKER: I do not. I do not have it
21 with me. I'm sorry.

22 (EXHIBIT MARKED FOR IDENTIFICATION.)

23 Q. Mr. Torpey, do you understand what has
24 been marked as IGS Exhibit 7?

25 A. Yes.

1 Q. Does this appear to be the capacity
2 factor for the Wyandot Solar facility?

3 A. Yeah. After we had our nice little
4 discussion last week, I went back and looked at some
5 of the output from Wyandot, and it seems to have a
6 capacity factor from, I'll say, May through September
7 of like 22 percent generally and then it's pretty
8 low. It's in the low teens or single digits in the
9 winter so, but on average it was in the mid -- mid to
10 high teens. And, you know, keep in mind, Wyandot, of
11 course, is 2010 technology. It's fixed tilt which is
12 different than what we are proposing here. So it's
13 not surprising that these capacity factors are lower
14 than the ones we are using in our application -- not
15 our Application -- our generic resource analysis.

16 Q. Mr. Torpey, thank you for that response,
17 but can -- the capacity factors that are contained on
18 IGS Exhibit 7, those are annual capacity factors,
19 correct?

20 A. Correct, yes.

21 Q. And these appear to be the correct
22 capacity factors for Wyandot Solar?

23 A. If you got them from the Company, I am
24 sure they are correct.

25 Q. Okay. And you have no reason to doubt --

1 have you seen this specific document before?

2 A. I don't recall seeing this but, again,
3 the numbers I did look at were a year or two old and
4 it was the same range so. There is no reason to
5 doubt that this is incorrect.

6 Q. Sorry, I didn't mean to step on your
7 answer.

8 A. This appears to be accurate, yes.

9 Q. Okay. And, now, going to your attachment
10 which starts at I believe it's Exhibit JFT-1, can you
11 turn it to page 21, please?

12 A. Yes.

13 Q. And this is a table that provides the
14 generic solar REPA benefits, correct?

15 A. Yes, it is.

16 Q. And the capacity factor identified on
17 this table is in Column E, correct?

18 A. Column E, yes.

19 Q. And am I correct that you show the
20 capacity factor going down from 2021 to 2040?

21 A. I do.

22 Q. And that's consistent with what you
23 experienced with Wyandot, correct, solar panels
24 simply degrade over time?

25 A. Well, whether it's consistent or not with

1 Wyandot, solar panels do degrade over time, and they
2 did go down a little bit at Wyandot too.

3 Q. Okay. And going to the solar capacity
4 credit, that's in Column K, right?

5 A. Yes.

6 Q. And that's simply the nameplate,
7 multiplied by 19 percent or 400 megawatts, multiplied
8 by 19 percent?

9 A. Correct.

10 Q. And am I correct that there's no
11 degradation in the capacity value bid into PJM; it's
12 simply fixed at 76 megawatts from 2021 to 2040?

13 A. We just fixed it, yes.

14 Q. Okay. Thank you.

15 And you're familiar with the Production
16 Tax Credit.

17 A. Correct.

18 Q. You are also familiar with the Investment
19 Tax Credit?

20 A. Yes.

21 Q. You agree that the Production Tax Credit
22 is a credit applied to each megawatt-hour of
23 renewable energy produced by that facility that the
24 owner is allowed to deduct from their taxes?

25 A. That's a good definition, yes.

1 Q. And on an annal basis, the Production Tax
2 Credit reduces the otherwise applicable taxes for the
3 recipient of the Production Tax Credit.

4 A. Correct.

5 Q. And could you explain how the Investment
6 Tax Credit works or the ITC as it's commonly
7 referred?

8 A. Yes. It's a deduction of the installed
9 cost of the renewable facility, solar facility, and
10 it's, again, a credit that, depending on when
11 parameters about when construction started and when
12 the facility went into service, there is different
13 amounts that can be deducted. Right now it's
14 30 percent. Again, depending on the in-service date,
15 but. So if -- if the cost was \$100, you could deduct
16 \$30 from your income taxes, federal taxes.

17 Q. Am I correct that if a facility is the
18 subject of either the PTC or the ITC, and it does not
19 have a corresponding increase in payroll or other
20 taxes, the existence of the ITC and the PTC could
21 result in a net reduction in federal income taxes
22 collected?

23 A. Well, certainly for the person that's
24 paying the tax, there -- or installing the facility,
25 they're entitled to that credit, so they would pay

1 less tax. And that's a decision that the Federal
2 Government has made, as a policy decision, to support
3 the renewable energy in this region.

4 Q. And your testimony in Exhibit JFT-1, at
5 page 13, discusses projections of renewable
6 installation costs, correct?

7 A. Are you referring to Figure 2?

8 Q. Yes, I am.

9 A. Yeah. And I have to mention something
10 here because I realize something after our nice
11 conversation last week that I misspoke when I said --
12 because I think I said that the Investment Tax Credit
13 was included in these values and that was after
14 further reflection, and I think Mr. Allen was on the
15 stand and mentioned that they weren't. So I went
16 back and looked and, sure enough, these numbers do
17 not reflect the Investment Tax Credit.

18 What they do reflect is specifically with
19 the reduction in the residential cost, that the tax
20 credit expires and, therefore, suppliers of
21 residential solar systems were looking to lower their
22 costs. So when we had our nice little sitdown last
23 week, I incorrectly mentioned that the Investment Tax
24 Credit was included in these numbers.

25 Q. And I think you just mentioned your

1 deposition. Did you provide any corrections to your
2 deposition transcript?

3 A. I did not, no. I just realized that over
4 the last day or so.

5 Q. But to be clear, when you knew your
6 answer was incorrect in the deposition, you did not
7 correct it?

8 A. I mentioned it to my counsel and they
9 advised me that if it came up on the stand, I would
10 correct it on the stand.

11 Q. And discussing page 13 of your testimony,
12 you cite, as a source, the Bloomberg Energy New
13 Finance?

14 A. "Bloomberg New Energy Finance."

15 Q. Thank you. And that report was created
16 in H2 2017, correct?

17 A. Yes.

18 Q. Can you give us an idea of when "H2" is?

19 A. It's after the month of June -- after --
20 sometime the last half of the year. I don't know the
21 specific date it came out.

22 Q. But "Bloomberg New Energy Finance H2 2017
23 U.S. Renewable Energy Outlook" is the primary source
24 for this table?

25 A. Yes.

1 Q. And the large-scale solar line, which is
2 the blue line, is for facilities larger than 10
3 megawatts, correct?

4 A. It's utility scale. I'm not 100-percent
5 sure what their definition is. I believe it's at
6 least 10 megawatts. It could be a little larger, but
7 I believe that's pretty close.

8 Q. And the commercial solar line is rooftop
9 but smaller than 10 megawatts, correct?

10 A. That's my recollection, yes.

11 Q. And on the left side there is some -- it
12 says "Cost to Install (Nominal dollars per WAC)"; is
13 that correct?

14 A. Yes.

15 Q. And when it says "Cost to Install
16 (Nominal dollars per WAC)" that is the total cost of
17 installing one of these types of systems, correct?

18 A. That's my understanding, yes.

19 Q. And if you wanted to know the cost of
20 installing solar on someone's roof, we would need to
21 know the size of the system and how many watts are in
22 the system, correct?

23 A. Correct.

24 Q. And a typical residential installation is
25 5 kilowatts, correct?

1 A. 5 or -- I think that's right.

2 Q. So for 2019, if you wanted to know how
3 much it cost to install a solar system, we would
4 simply multiply 5,000 watts by about \$3.20?

5 A. Yep.

6 Q. So that's about \$16,000 today, correct?

7 A. Right.

8 Q. Okay. And the solar facilities
9 identified in the Application, would you agree they
10 correspond with the blue line for large scale?

11 A. They would, although we didn't go back
12 and try to determine -- we are basing the analysis on
13 a REPA, so we are just paying for the energy output,
14 but we would expect it would be representative, the
15 cost to install would be representative of the blue
16 line.

17 Q. And the PPA prices you have presented in
18 the generic solar table are based upon what AEP
19 believes that solar would cost in 2021, correct?

20 A. Well, the REPA -- it would be the REPA
21 price in 2021, for solar installation installed in
22 2021, yes.

23 Q. Right. So to be clear, you didn't assume
24 the 2019 installation prices from this table. You
25 assumed the 2021 prices?

1 A. Correct.

2 Q. Okay. And if we look at 2022 on Figure
3 2, the cost of residential rooftop solar is projected
4 to be close to half of what it is today?

5 A. We're showing rooftop solar being reduced
6 considerably, yes.

7 Q. By about half.

8 A. Well, let's see. 2022, so rooftop would
9 go from down today, 2019, so you are about \$3.20 and
10 you go down to about \$1.60 or so; yeah, about half.

11 Q. And the cost difference between
12 residential rooftop solar in 2022 and large-scale
13 solar has narrowed significantly, correct, in 2022?

14 A. Right. The installed cost has narrowed,
15 but you need look at the total cost because the
16 capacity factor for rooftop solar tends to be a lot
17 less than the capacity factor for universal or
18 large-scale solar because they don't do fixed -- they
19 don't do fixed tilt -- I'm sorry, single-axis
20 tracking, the houses might not be perfectly aligned
21 with the path of the sun. So there is more, from an
22 energy standpoint, the total cost of energy, the
23 levelized cost of energy, you are going to get a
24 lower cost from the utility scale than you would with
25 the residential.

1 Q. And that cost difference between
2 large-scale installations and residential rooftop in
3 2022 is projected to be about 20 cents per watt,
4 correct?

5 A. That's what the table shows, yes.

6 Q. And to be clear, at the time of your
7 deposition, you believe these figures included the
8 modeling of the Investment Tax Credit phaseout,
9 correct?

10 A. Yeah. We've done figures like this for a
11 number of different purposes and sometimes we include
12 it and sometimes we don't, and I thought this was one
13 where we did, but I was corrected.

14 Q. And going back to what we described
15 earlier as the cost of a residential installation,
16 using 50 kW and about \$1.80 per watt, that's a
17 residential installation at about \$9,000?

18 A. That's the math, yes.

19 Q. Now, going back to page 21 and generic
20 solar, if the Company were to wait to execute a REPA
21 until 2024, would you agree that on a net present
22 value basis, all else being equal, there would be
23 more net benefits to customers?

24 A. Well, if you waited -- if you got the
25 same price REPA? That's what you are saying, if we

1 just delayed doing this for two years?

2 Q. Can you answer my question?

3 A. Well, I am trying to clarify what you are
4 asking me. You said if we delayed, all else being
5 equal, so would that -- one of the things being equal
6 would be the price of the REPA?

7 Q. Sure. Sure.

8 A. Yeah, so if the price of the REPA was
9 still \$45, to the extent that -- well, you would have
10 to do the calculation but you get -- you would not
11 have some initial upfront costs here for the first
12 two years. You would have benefit toward the end but
13 we are taking the -- if you took the present value
14 back to 2021, it could be, you know, pretty close.
15 You would probably have to do the math. In terms of
16 the nominal value, I would agree, but the absolute
17 value, you would have to do the calculation.

18 MR. OLIKER: Your Honor, may I approach,
19 please?

20 EXAMINER PARROT: You may.

21 Q. Mr. Torpey, I took your deposition last
22 week, correct?

23 A. You did.

24 Q. And I presented a copy of the deposition
25 transcript before you. Does it appear to be a true

1 and accurate copy?

2 A. It does.

3 Q. And can you turn to page 74.

4 A. Yep. I'm there.

5 Q. And on line 24:

6 "Question: And if that were, if the
7 company were to wait to execute a REPA until 2024,
8 would you agree that on the net present value basis,
9 all else being equal, there would be more net
10 benefits to customers?"

11 And an objection to form from Ms. Blend.

12 "Answer: Certainly if you agree with the
13 assumption that the solar panel prices would continue
14 to decline or cost to install solar would continue to
15 decline and you waited a longer period of time to
16 install those, they were the sale cost, the longer
17 you wait if you assume energy prices are increasing
18 over the life of the facility, you could get a more,
19 higher benefit over the life." Did I read that
20 correctly?

21 A. Yes.

22 Q. Okay. Thank you.

23 A. But to be clear, we said here, the prices
24 were the same. They weren't declining. We said \$45.
25 So it is the same price. This answer says if you

1 assume prices would decline. I asked you to clarify
2 what you meant by "price," and you said assume the
3 price was the same. So it's a little different
4 answer. I do agree and I did agree nominally the
5 benefit would be larger. But it's a slightly
6 different question.

7 Q. Okay. And, Mr. Torpey, based on your
8 experience, if AEP Ohio would wait until the 2024
9 start date, would you expect that the REPA price
10 would be lower than \$45 per megawatt-hour?

11 A. I mean, it could -- prices are going
12 down. It would depend on how the supplier or the
13 developer would be able to monetize the ITC so -- it
14 could go down, yes. But it could be, you know, it
15 would depend on the ability of the developer to
16 monetize the ITC, but it could go down.

17 Q. And -- okay. On page 14 of your exhibit,
18 when you say "Environmental requirements and
19 renewable energy mandates at both the federal and
20 state levels can impact the cost of energy and
21 capacity. Those impacts are inherent in the 2018
22 Base fundamentals forecast of capacity and energy
23 utilized in this report." With respect to that
24 statement, one of those mandates is the price impact
25 of a burden on carbon emissions, correct?

1 A. One of those mandates, did you say?
2 Because we said renewable energy mandates.

3 Q. I said one of -- well, let me change the
4 question. With respect to the statement, you're
5 referencing a burden on carbon emissions, correct?

6 A. That's one of the things that could
7 result from that, yes.

8 Q. And there's currently no burden on carbon
9 emissions in the State of Ohio?

10 A. In the State of Ohio, there's not.

11 Q. And could you turn to page 15 of your
12 exhibit, please.

13 A. Yes.

14 Q. And particularly I'm focused on "The
15 addition of 900 megawatts of green energy would
16 increase the Company's contracted renewable energy
17 supply to approximately 6.1 percent from 1.3 percent
18 of customer energy use." Is the 6.1 percent derived
19 based upon a comparison to standard service offer
20 load?

21 A. It's total Ohio load. Total AEP Ohio
22 connected load.

23 Q. And where did you get this information
24 from?

25 A. I calculated it.

1 Q. Do you know what the total connected AEP
2 Ohio load is?

3 A. I used the -- if you look at the forms,
4 if you look at form, I believe it's D1.

5 MS. BLEND: You're referencing the forms
6 in AEP Ohio Exhibit 1.

7 A. The LTFR filing, yes. So if you look at
8 Form D1 and you look at, I think I used the 2019
9 number, and it doesn't really matter because the math
10 works out the same because they are all pretty close,
11 if you look at Column No. 6, "Total End User
12 Consumption," that's the load that I used.

13 Q. What's that number that you used?

14 A. That's the -- basically the load
15 connected to AEP Ohio distribution wires.

16 Q. Can we get the number though, for the
17 record, that's used?

18 A. Okay. Let's see. 43,274,186.

19 Q. Is that --

20 MR. COLLIER: That number --

21 A. That is in megawatt-hours.

22 MR. COLLIER: Your Honor, I couldn't
23 quite --

24 A. I'll restate it. And really, I mean,
25 it's 43.3 million megawatt-hours would get you there,

1 but the number was 43,274,186.

2 Q. And how many gigawatt-hours is that? If
3 you know?

4 A. Well, it's 43 million megawatt-hours, so
5 it's 43,000 gigawatt-hours.

6 Q. Thank you.

7 You would agree that if a customer
8 contracts for electric supply with a company like
9 IGS, a CRES provider, they can have more than 1.3
10 percent of their energy provided from renewables?

11 A. I think I heard testimony here that it's
12 around 4 percent or so is the requirement, but I
13 would agree they could have more than 1.3 percent,
14 yes.

15 Q. In fact, you don't know exactly how much
16 they have.

17 A. I don't know how much they are getting
18 right now.

19 Q. And you have no information on whether
20 CRES providers currently provide contracts that are
21 based on 100-percent renewable energy?

22 A. I've been sitting in this room where
23 people have offered testimony and shown Apples to
24 Apples charts with those 100-percent renewable energy
25 options on them.

1 Q. Okay. And on page 16 you talk about,
2 also on page 15, under the header "Projected System
3 Reliability, Projected System Adequacy, and Future
4 Fuel Supply Adequacy," you indicate that PJM
5 Interconnection is responsible for ensuring safety,
6 reliability, and security of the bulk electric power
7 system; is that correct?

8 A. Yes, it is.

9 Q. And your testimony does not question
10 whether PJM is adequately providing for safety,
11 reliability, and security of the bulk power system,
12 correct?

13 A. I am not questioning what PJM is doing,
14 no.

15 Q. Okay. Now, going back to Table 5 on
16 Exhibit JFT-1, so I can understand the math that's
17 being done here, to determine solar energy, you
18 took -- well, can you walk me through the process?

19 A. Sure.

20 We had a load shape that we used that was
21 informed by the RFPs that we received, responses to
22 the RFPs. So we pick a load shape for this analysis
23 and that -- what that shows is the generation in
24 every hour of the year for the entire year. So over
25 8,760 hours is the amount of megawatt-hours being

1 generated by a solar facility. When you sum up those
2 hours -- so we applied that load shape to a
3 400-megawatt generic facility. So when you sum up
4 those hours, you get, in 2021, under Column D, 813.9
5 gigawatt-hours. So it's the sum of the generation
6 over the course of a year.

7 The Capacity Factor is simply a
8 calculation of 813.9, divided by the nameplate
9 rating, 400, times 8,760; the number of hours in a
10 year. The cost is -- the cost of the REPA is the
11 cost we assume for this REPA.

12 And the Solar Total Cost would be the \$45
13 per megawatt-hour times the 813.9 gigawatt-hours. So
14 that's the total cost.

15 The Solar Energy Priced at Market, Column
16 H, we looked at our fundamental forecast projection
17 for each hour of the year and applied the
18 gigawatt-hours that we were -- the generation at each
19 other times that price and actually that gave us
20 Column I. And when you divide Column I by Column D,
21 which is the generation, you get the cost per
22 megawatt-hour. So it's a weighted average cost per
23 megawatt-hour of the energy that we are avoiding
24 buying from the PJM market.

25 Q. Okay. Let's take a step back there.

1 First, you have -- the REPA price you've
2 modeled, that's in Column F, right?

3 A. Column F, yes.

4 Q. And then Column G is the anticipated
5 total amount that would be paid to the REPA developer
6 annually, correct?

7 A. Correct, based on the generation, yes.

8 Q. And then the market price for energy that
9 you would assume for each year, that's in Column H,
10 right?

11 A. Yes. But that's essentially the weighted
12 average of all the hours we calculated.

13 Q. It's the around-the-clock price, right?

14 A. It's -- it's a weighted average. It's
15 not necessarily around the clock, because primarily
16 it's generating during the day, so it's normally not
17 -- it's pretty close to the fundamental forecast
18 on-peak price. It's not exactly the on-peak price
19 because, again, it's a weighted average based on
20 generation.

21 Q. Okay. Thank you.

22 And the column that we look at to
23 determine whether, based upon the base fundamental
24 forecast, it's a cost or a credit, is Column M,
25 right? In each year?

1 A. You would look at Column M compared to
2 Column G to see if you're getting a cost or a credit
3 from the energy sales into the PJM market versus what
4 you are paying for the REPA.

5 Q. And so to be clear, Column M is -- it
6 starts with -- Column M is the result of adding up
7 Column U and Column L and comparing that to Column G,
8 correct?

9 A. Well, you could -- you could just add the
10 numbers because the negative numbers are subtracting
11 when you are adding them typically. So it's 36 minus
12 30.8, minus 1.4, should get you 4.4.

13 Q. Which indicates in 2021, under the
14 generic solar modeled here, these facilities would be
15 a cost of \$4.4 million?

16 A. Right. Which works out to about ten
17 cents a megawatt-hour for AEP Ohio.

18 Q. And then in 2022, it's \$3.9 million?

19 A. It goes down, yes.

20 Q. And again, you see that these solar
21 facilities would be a cost in 2023 and 2024?

22 A. Right.

23 Q. And if you are to eliminate the solar
24 capacity credit value in Column L, you would agree
25 that the generic solar REPAs would also be a cost in

1 2025 and 2026?

2 A. Well, on this chart it would be but,
3 again, we are not taking into account the avoided
4 costs on Column -- from Table 4 which is also a
5 credit, but for purposes of what we did here in
6 Table 5, yes, if you eliminate Column L, then you
7 would increase Column M by whatever you took out of
8 Column L.

9 Q. And likewise, Column M, in 2027, would be
10 a cost if you eliminate Column L. Or --

11 A. The .3 -- it would basically break even,
12 .3. \$300,000 divided by 46,000 gigawatt-hours.

13 Q. You just referenced, a little while ago,
14 the analysis done by witness Ali; is that correct?

15 A. Well, I referenced the analysis that I
16 did using three data points from witness Ali.

17 Q. Are you familiar -- what is your level of
18 familiarity with PJM's market operations?

19 A. You can ask me questions about it. I
20 will let you know when I get too deep.

21 Q. Do you listen in, do you have familiarity
22 with the PJM stakeholder process?

23 A. I do not participate in the stakeholder
24 process. I am aware they have various stakeholder
25 processes. I do not participate.

1 Q. Are you familiar with the ancillary
2 service market?

3 A. I am familiar there is an ancillary
4 service market and yes.

5 Q. What's your familiarity with the
6 ancillary service market?

7 A. That there is certain products that can
8 be offered into the ancillary service market above
9 and beyond just energy. So reg up, reg down, there's
10 others, spinning reserve.

11 Q. What's your definition of reg up?

12 A. It's to increase -- it's basically to
13 keep the frequency at that 60 Hertz. And likewise,
14 reg down, depending on other things that are going
15 on, it's to stabilize the market, to stabilize the
16 grid.

17 Q. And those are resources that have to be
18 relied upon any time there is a deviation of
19 frequency on the transmission grid?

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

21 Q. And are you familiar with the term
22 "uplift"?

23 A. I've heard it used before here. I think
24 when you were questioning witness Ali.

25 Q. Did you hear it before?

1 A. I've heard that term.

2 Q. And has uplift been a challenge that PJM
3 has been trying to address for a decade or longer?

4 A. I have not really -- that's where this
5 questioning gets too deep.

6 Q. Okay. Do you have any idea of the total
7 amount of uplift costs that have been collected from
8 load-serving entities in any given year?

9 A. I do not.

10 Q. Okay. And I think you may have covered
11 this, earlier with Mr. Kurtz, the capacity credit
12 value in Column K, that's based upon a 19 percent
13 unforced capacity level for solar bid into the PJM
14 capacity market, correct?

15 A. Based on 19 percent of the nameplate
16 would be bid in, so yeah, we consider that the
17 unforced capacity that was bid in.

18 Q. And I believe you had the conversation
19 with Mr. Kurtz that part of the reason for modeling
20 19 percent was the potential for capacity performance
21 penalties, correct?

22 A. Right. It was really just to have a
23 conservative value for capacity knowing that there
24 could potentially be capacity performance penalties.

25 Q. Okay. And going back to capacity factor

1 in Column E, would you agree that, all else being
2 equal, if the capacity factor is actually lower, the
3 revenues that would be paid to the PPA developer
4 would also be lower but so would the cost considering
5 the PPA revenue requirement?

6 A. If the fee -- well, we know that if they
7 generate less energy, we are going to pay them less
8 money. We are paying them per megawatt hour
9 generated.

10 Q. So you will earn less money but you will
11 pay them less money, right?

12 A. Right. It depends on what the market
13 price is when they are not generating. If they are
14 not generating when the price is low and they are
15 still generating when the price is high, it might not
16 be that big of a deal but, correct. Directionally
17 that's correct.

18 Q. But the -- let's say, turning back to the
19 Wyandot Solar, if you were to look at the 17.6
20 percent capacity factor from Wyandot, and just assume
21 with me for a second that it turns out the actual
22 capacity factor is closer to 18 percent. Would you
23 agree that that would be a reduction in revenues to
24 the PPA developer of probably over \$5 million a year,
25 all else being equal?

1344

1 A. Have you done the math or do you want me?
2 5 percent reduction?

3 Q. Yes.

4 MS. BLEND: May I please have that
5 question read back?

6 MR. OLIKER: Sure.

7 (Record read.)

8 A. Let me make sure -- let me -- I think the
9 question you are asking is rather than having a 23.2
10 percent capacity factor, if we had an 18 percent
11 capacity factor, would that equate to, instead of
12 being \$36.6 million in Column G, it's something
13 closer to \$31 million; is that what you're saying?

14 Q. Now that I have had to do the math on my
15 computer, would you agree that going from 23.2
16 percent to an 18 percent capacity factor would reduce
17 the payments to the developer, under line G, from
18 36.6 million to about 28.4 million?

19 A. Assuming your math is correct.

20 Q. Subject to check.

21 A. There would be a reduction, a linear
22 reduction in payments to the developer based on the
23 lower capacity factor.

24 Q. All right. And again, turning to Column
25 H, where you have the Solar Energy Priced at Market,

1 that information is based upon Mr. Bletzacker's
2 Fundamentals Forecast, correct?

3 A. Yes.

4 Q. Okay. And you agree that from 27 -- 2027
5 to 2028, there is approximately an
6 11-dollar-a-megawatt price increase?

7 A. It goes from 44.6 to -- I'm sorry. 27 --
8 35.2 -- am I reading this right?

9 Q. I am in Column H, Mr. Torpey.

10 A. Okay. Yeah, 44.6 to 55.6, so that would
11 be 11.

12 Q. Okay. And the price increase between '27
13 and '28 is related to a burden on carbon emission,
14 correct, primarily?

15 A. Carbon. And I believe Mr. Bletzacker may
16 have addressed this too, when I read his testimony, I
17 think he said also increases in natural gas prices
18 may have also contributed to that as well, but that
19 is the year that carbon went into effect.

20 Q. Okay. Now, when we were talking about
21 capacity performance and the 19 percent capacity
22 factor, would you agree that the limitations or fears
23 related to capacity performance penalties would not
24 apply to an individual that installed
25 behind-the-meter generation? Because they are not

1 bidding into the capacity market generally, correct?

2 A. Just to be clear, it's not 19 percent
3 capacity factor. It's -- although PJM does use that
4 term, from time to time, but it's capacity credit.
5 Are you asking me, does -- does a behind-the-meter
6 resource worry about capacity performance credits --

7 Q. Yes.

8 A. -- capacity performance penalties? I
9 don't believe they get assessed capacity performance
10 penalties.

11 Q. And that's because behind-the-meter
12 generation is often more of a peak-shaving type of
13 facility if you are familiar with that term?

14 A. I'm familiar with the term, but I
15 wouldn't -- I mean that's not necessarily -- I mean,
16 it can depend on the load shape of the facility that
17 you install, the solar -- if we are talking about
18 solar panels, if you install the solar panels on, it
19 could reduce their peak to some degree. You know, it
20 all depends on, again, if it's a residential house --
21 if it's a residence, depending on which way their
22 roof is pointed, I think the peaks occur, you know,
23 on a summer day, when people come home from work and
24 crank up the AC, so it could be 6 o'clock, 7 o'clock
25 at night for an individual household, you know,

1 depending on the orientation of their roof, you know,
2 maybe they are getting -- the sun is starting to set,
3 maybe they are getting good solar irradiation, maybe
4 they are not. So I think there are a lot of factors.
5 I certainly wouldn't say it doesn't shave -- it
6 wouldn't shave anybody's peak. I don't know that we
7 just say a blanket statement it always shaves the
8 peak.

9 Q. Historically, and I believe you referred
10 to some of this in your answer -- first, let's take a
11 step back.

12 Customers are currently assigned capacity
13 obligation by PJM Interconnection based upon the five
14 highest hours of usage, correct?

15 A. When you say "customers," load serving
16 entities? Is that what you are talking about?

17 Q. Yes.

18 A. Yes.

19 Q. And the five highest hours of usage
20 between June and September; is that correct?

21 A. I believe that's correct.

22 Q. And those hours have historically
23 occurred between the hours of 3 and 6 p.m.?

24 A. They have, yes.

25 Q. Okay. And a customer's capacity or a

1 load-serving entity's obligation is established in
2 the year before a PJM planning year for capacity,
3 correct?

4 A. I believe that's the way it works, yes.

5 Q. So whatever you do between, say, the
6 summer, between June and September, will affect what
7 you pay in the following year, starting on June 1,
8 correct?

9 A. It will affect how much capacity you need
10 to acquire; the load-serving entity needs to acquire.

11 Q. Right. And if a residential customer's
12 solar happens to be producing at full capacity during
13 those five hours, it will reduce their peak up to the
14 amount that the solar is producing, correct?

15 A. It could, yes.

16 Q. Okay. And it's possible that amount
17 could be greater than 19 percent? Capacity factor
18 relative to nameplate?

19 A. Well, I mean, even this project would be
20 greater than 19 percent on that hot summer day too.
21 The 19 percent is for an emergency called, you know,
22 at some point when it's pouring rain out and this
23 isn't producing its full load, but certainly this is
24 also, you know, this project is producing -- would be
25 producing more than 19 percent during those peak

1 periods as well. And PJM even, you know, their
2 load -- effective load carrying study designs roughly
3 60 percent capacity for fixed tilt -- I'm sorry --
4 single axis tracking.

5 Q. Just so I'm clear, the answer is yes?

6 A. For the residential?

7 Q. Yes.

8 A. The residential -- well, having solar
9 panels on residential homes could reduce the amount
10 of load that the LCD needs to purchase, I think
11 that's where this started.

12 Q. Yes. The amount of the reduction could
13 be greater than 19 percent of a nameplate capacity of
14 the solar that's installed, correct?

15 A. It could or it could be less, yes.

16 Q. Okay. And earlier you were discussing
17 integrated resource plans that have been filed by
18 other AEP operating companies?

19 A. Yes.

20 Q. And am I correct that one of the
21 operating companies you referred to was Southwestern
22 Electric Power Company?

23 A. I did.

24 Q. And they filed an Integrated Resource
25 Planning Report to the Arkansas Public Service

1 Commission, correct?

2 A. On December 1 or 2, the end -- just
3 recent.

4 Q. December 14?

5 A. December 14, close enough, yes.

6 MR. OLIKER: Your Honor, may I approach,
7 please?

8 EXAMINER PARROT: Yes.

9 MR. OLIKER: And as IGS Exhibit 8, I
10 would like to mark an excerpt of the Integrated
11 Resource Planning Report to the Arkansas Public
12 Service Commission, filed by Southwestern Electric
13 Power Company, on December 14, 2018.

14 EXAMINER PARROT: So marked.

15 (EXHIBIT MARKED FOR IDENTIFICATION.)

16 Q. And, Mr. Torpey, do you see the document
17 that's been marked as IGS Exhibit 8?

18 A. Yes.

19 Q. And does this appear to be an excerpt of
20 the Integrated Resource Planning Report to the
21 Arkansas Public Service Commission?

22 A. It does.

23 Q. And does it appear to be a true and
24 accurate excerpt?

25 A. Yes, it does.

1 Q. And turning to page 51, am I correct that
2 there is a similar table to which you have in Figure
3 2, page 13?

4 A. It has residential and commercial solar
5 resources in a cost to install in nominal dollars per
6 AC -- per watt-AC with those resources.

7 Q. And the resource is based on Bloomberg
8 New Energy Finance H1 2018 U.S. Renewable Energy
9 Market Outlook; is that correct?

10 A. Correct.

11 Q. And am I correct, in 2022, based upon
12 this projection, it would be approximately \$1.50 per
13 watt-AC for a residential rooftop solar installation?

14 A. That's what this says, yes.

15 Q. So if we were to do the math on that,
16 using our 5-kilowatt example, for a typical
17 residential installation, it would be \$7,500 to
18 install solar on the roof in 2022.

19 A. Yes.

20 Q. And to be clear, if we were to compare
21 that line to Figure 2 in your testimony, residential
22 solar is now projected, in 2022, to be cheaper than
23 utility-scale solar projected in your testimony in
24 this case on a per-watt basis.

25 A. Well, we are not showing what the utility

1 scale is on this chart.

2 Q. But the line --

3 A. The line would have come down for them as
4 well.

5 Q. And then if you turn to the back where
6 there is a break-even analysis, am I correct that the
7 asterisk says "Residential discount rate soon to be
8 10 percent"?

9 A. That's on this, yes.

10 Q. Thank you.

11 Now, turning back to your testimony in
12 JFT-1 in the break-even analysis of solar, and I
13 believe this is on page 23.

14 A. Yes.

15 Q. And here, the break-even solar energy
16 cost per megawatt-hour in Column F is identified as
17 \$56.82 -- well, \$56.82, correct?

18 A. Correct.

19 Q. And under those assumptions, if we turn
20 to Column M, am I correct that there would be nominal
21 losses of, you know, approximately \$70 million or
22 more before the resource started to earn a profit on
23 an annual basis?

24 A. It could be cost in the first -- right,
25 through, was it 2027, and I believe they add up to

1 pretty close to 70 million.

2 Q. All right. And once again, am I correct
3 that the energy values that you have included in
4 Column H for Solar Energy Priced at Market are based
5 on Mr. Bletzacker's base fundamental forecast?

6 A. Hold on. I got my pages out of order.
7 Yes.

8 Q. Okay. And to be clear, you did not
9 validate whether Mr. Bletzacker's price projections
10 for energy are accurate, correct? You relied upon
11 his testimony?

12 A. Well, no one validated if they are
13 accurate because it hasn't happened yet.

14 Q. But to be clear, you didn't undertake any
15 analysis to determine whether his forecast was
16 accurate?

17 A. His job is to do the forecast, so I get
18 the forecast from him. I assume he is doing a good
19 job.

20 Q. Okay. Turning back to your testimony and
21 this is on page 31 of JFT-1, you talk about the
22 elasticity of demand. Am I correct that you are
23 saying that the higher price someone has to pay, the
24 more likely they will change their behavior? Is that
25 generally the concept of elasticity of demand?

1 A. You are on 31 of JFT-1? Is that what you
2 said?

3 Q. In general, when you are speaking on page
4 30 --

5 A. 30.

6 Q. -- and 31, you are referring to the
7 concept of elasticity of demand, right?

8 A. Yes. In the second -- well, the first
9 full paragraph on 31, yes.

10 Q. And when you are talking about concepts
11 of elasticity of demand, you are saying that the
12 higher a price someone has to pay, the more likely
13 they will change their behavior, correct?

14 A. Well, elasticity measures the change in
15 behavior from changes in price of one commodity, so
16 it's a measure of that, yes.

17 Q. And you use prices or rates provided by
18 the EIA, correct, in your analysis?

19 A. In the -- to develop the load forecast,
20 the Load Forecasting Group uses EIA data because it
21 provides the detail by -- first of all, it's retail
22 price data and it provides the detail by customer
23 class and geographic region that they are analyzing.

24 Q. And when you say the "retail price," you
25 are referring to the bundled distribution,

1 transmission, and generation rate?

2 A. That would be the retail price, yes.

3 Q. Okay. And that is because there are
4 volumetric components to distribution, transmission,
5 and generation rates?

6 A. I don't know if that's -- I mean, they
7 are just using that because it accurately reflects --
8 it fits into the models they are using to calculate
9 their load forecast.

10 Q. Well, let's put it this way: When you
11 are referring to the refrigerator or furnace or
12 industrial equipment, when -- when a customer is
13 evaluating whether or not they could perhaps buy a
14 more-efficient piece of equipment, that only helps
15 them from a rate perspective if they're -- if their
16 bill goes down, right?

17 A. Well, it would help -- from an
18 energy-efficiency perspective, if they combine a
19 more-efficient piece of equipment, they would use
20 less electricity, and it could either be a demand or
21 volumetric change.

22 Q. Okay. Thank you.

23 And the assumption is, as rates go up
24 higher, if there is an ability to reduce their total
25 throughput that would lower their bill, the customer

1 is more likely to do it, right?

2 A. Again -- well, I think it's explained in
3 the writeup here, but yeah, as the rates go up, to
4 the extent that a customer has a choice between
5 different forms of energy, for instance, switching to
6 a gas furnace as opposed to an electric furnace, or a
7 gas water heater instead of an electric water heater,
8 they can make that decision.

9 Q. And with respect to a customer that might
10 be considering installing rooftop solar, you agree
11 that the customer could avoid a portion of the
12 otherwise applicable generation, transmission, and
13 distribution bill?

14 A. I believe it would reduce their rates,
15 and depending on how it's split between those
16 components, yes, it would reduce those in different
17 magnitudes.

18 Q. So let's do an example. If a customer
19 has monthly usage of 750 kWh, would you agree that
20 could be a typical residential customer?

21 A. Yes.

22 Q. If that customer installs a 5-kilowatt
23 solar facility on their roof, with an average
24 capacity factor annually of 18 percent, you agree
25 that the customer would have monthly production of

1 approximately 650 kWh?

2 A. If that --

3 Q. Subject to check.

4 A. I am assuming you are doing the math
5 correctly which we have had issues with before. I
6 would say subject to check, I guess.

7 Q. And in that example, if their typical
8 usage is 750 kWh, before the solar goes on the roof,
9 and then their solar produces 650 kWh within the
10 month, all else being equal, that customer will get a
11 bill from AEP for the customer charge and then
12 100-kilowatt hours multiplied by all the volumetric
13 components?

14 A. Right. And I'm not a rate or bill
15 expert, but that sounds like the way it should work,
16 yes, or would work.

17 Q. Okay. And that -- that equation that we
18 just did, that's something a customer would consider
19 when they are installing solar panels because that
20 would be their avoided cost from the utility, right?

21 A. It would be their avoided cost of energy
22 and whatever other components, capacity, that are
23 included in that volumetric charge, yes.

24 Q. And potentially distribution and
25 transmission, correct?

1 A. Parts of that could be included as well,
2 yes.

3 Q. Okay. And we've talked, from time to
4 time, about JFT-1, page 13, Figure 2. You would
5 agree that the future cost of installation
6 projections, in both Figure 2 and what was filed
7 before the Arkansas Public Service Commission, that
8 does not include any of the additional benefits that
9 a customer may receive for reducing their
10 distribution bill, correct?

11 A. Well, two things. It's not the benefit
12 but it also doesn't show -- I mean it shows a cost to
13 install but, again, it's not a cost per megawatt-hour
14 or cost per kilowatt-hour of that system, so it does
15 not show a benefit, a reduction in price. But, you
16 know, we do make reference to this break-even, you
17 know, I think is what you were talking about, right?

18 Q. No, I am not actually.

19 A. I thought you said it was something the
20 customer would consider, in terms of reducing rates,
21 is cost, right? So, I mean, most customers do a
22 break-even type analysis. They want to know when
23 they are going to get a payback on an installation.
24 You know, if I am going to switch to a higher,
25 more-efficient furnace or more-efficient water

1 heater, you know, it will cost an extra \$200. I
2 would like to know is that going to pay back, you
3 know, in terms of reduced electric billings by six
4 months, a year, two years, over the life.

5 And, you know, as we said in this filing,
6 and there's no Figure 14 here, you just have Figure
7 13. We do say discount rates for residential
8 customers vary and are based on the individual's
9 financial situation. Figure 14 shows how the value
10 of a customer's DG system can vary based on the
11 discount rate. So, you know, we don't know what the
12 customer's discount rate is. So for each individual
13 customer, you are going to get a different answer.

14 MR. OLIKER: Can I have my question read
15 back, Karen?

16 (Record read.)

17 Q. And the answer to that question is no, it
18 does not include any of those benefits, correct?

19 A. Those figures do not include benefits.

20 Q. Okay. Thank you.

21 And to be clear, the utility-scale solar
22 proposals that are identified -- or let me take a
23 step back.

24 The Figure 2 on page 3 of JFT-1 where it
25 identifies large-scale solar, that's in front of the

1 meter, correct?

2 A. Yes.

3 Q. So, therefore, any large-scale solar
4 installation that's identified on that line would
5 have no avoided distribution benefits for a customer,
6 correct?

7 A. It would not impact the customer's
8 distribution cost.

9 Q. Okay. And to be clear, you are not
10 familiar with how residential rooftop solar
11 installations are financed; is that correct?

12 A. I have not investigated it personally.

13 Q. Okay. And you are not aware of whether
14 residential rooftop solar is typically financed
15 through a purchase power agreement between the
16 customer and the developer?

17 A. Again, I haven't researched that. I am
18 assuming people just buy them outright and put them
19 on their house, or they could buy them through a
20 service like yourself and pay a monthly fee.

21 MR. OLIKER: And can I have one minute,
22 your Honor? Unless does the witness need a break or?
23 It might be a good time for that.

24 EXAMINER PARROT: How much more do you
25 have, Mr. Oliker?

1 MR. OLIKER: I'm not sure. I want to
2 look through my notes, your Honor.

3 EXAMINER PARROT: Go ahead and do that.
4 (Pause in proceedings.)

5 MR. OLIKER: Thank you, Mr. Torpey. No
6 more questions.

7 Thank you, your Honor.

8 EXAMINER PARROT: All right. Let's take
9 a quick 5-minute break. Thank you, Mr. Oliker.

10 (Recess taken.)

11 EXAMINER PARROT: Let's go back on the
12 record.

13 Mr. Michael.

14 MR. MICHAEL: Thank you, your Honor.

15 - - -

16 CROSS-EXAMINATION

17 By Mr. Michael:

18 Q. Mr. Torpey, if I could direct your
19 attention to pages 21 and 22 of JFT-1, please, which
20 would be Tables 5 and 6.

21 A. Yes.

22 Q. Those are estimates based on your
23 analysis of hypothetical data and inputs from other
24 AEP employees, correct?

25 A. Well, it's real data. I mean, it's

1 projected costs for energy prices in the future,
2 projected costs for capacity prices, and then an
3 estimate of what a generic REPA would cost.

4 Q. But it's not actual data, correct? It's
5 projected or forecasted data, correct?

6 A. Well, it can't be actual because it
7 starts in 2021 so it has to be forecasted.

8 Q. So, for example, if we stick with Table
9 5, Mr. Torpey, the \$45 per megawatt-hour of solar
10 energy is hypothetical and not based on any specific
11 REPA or project, correct?

12 A. It's based on our -- our -- AEP's -- AEP
13 Ohio's knowledge of the REPA market, the solar
14 market, and what a reasonable-priced solar REPA would
15 be if it was executed in 2021.

16 Q. So no specific REPA or project though,
17 correct?

18 A. It's not a specific project.

19 Q. And for the solar energy priced at 55.6
20 dollars per megawatt-hour at PJM market in 2028,
21 nobody knows for sure what their energy price in 2028
22 will be, correct?

23 A. I don't know of anybody that can predict
24 that far out into the future with -- as to what their
25 actual energy price would be.

1 Q. Similarly, nobody knows for sure what the
2 capacity price will be in 2028, correct?

3 A. No. We can make projections based on our
4 fundamental forecasting which Mr. Bletzacker does.

5 Q. And suffice it to say then, Mr. Torpey,
6 that were we to change any of the prices reflected in
7 either Table 5 or Table 6, then the net present value
8 of the estimated revenue requirement would also
9 change, correct?

10 A. If I change the numbers on the
11 spreadsheet, the answer would change, yes.

12 Q. It's true, Mr. Torpey, that in your
13 testimony you do not present the net present value of
14 the economic benefit or cost of 900 megawatts of
15 renewables, correct?

16 A. Right. We did the 400 megawatts of
17 generic solar and 250 megawatts of generic wind.

18 Q. And it's true, Mr. Torpey, that you
19 didn't compare the REPA's reported benefits to a
20 gas-fired combined-cycle plant, correct?

21 A. In this analysis, we didn't look at
22 capacity resources which a combined-cycle power plant
23 would be because it would be uneconomic. As stated
24 on JFT-1, page 9, we talk about fossil resources, and
25 at the second sentence from the bottom of the first

1 paragraph, "Acquiring any of the options in Table 1,"
2 includes combined-cycle plants, "would result in
3 increased cost to customers over the life of the
4 asset. These assets are generally acquired by
5 utilities to satisfy a capacity need." And being
6 that we are not trying to satisfy a capacity need, we
7 did not analyze a combined-cycle plant.

8 Q. Okay. And let me ask you this real
9 quick, Mr. Torpey: Are you using the same PJM energy
10 and capacity prices in both the generic case and the
11 RDR case?

12 MS. BLEND: Objection to the extent
13 Mr. Michael is now seeking to discuss issues that
14 have been reserved for Phase II of this proceeding.

15 MR. MICHAEL: Well, I think the extent to
16 which, your Honor, the witness either uses the same
17 or changes the numbers he's relying on, reflects on
18 the credibility of those numbers, so I think it's
19 germane to this case.

20 EXAMINER PARROT: Mr. Michael, I'm not
21 sure I follow your question, so if you could rephrase
22 it, please. Let's start there.

23 MR. MICHAEL: Certainly, your Honor.

24 Q. (By Mr. Michael) Mr. Torpey, you have
25 submitted testimony in Case No. 18-501, correct?

1 A. Is that the next case?

2 Q. No, it is not.

3 A. That's this case?

4 Q. Correct.

5 A. Yes.

6 Q. Okay. And I will refer to that as the
7 generic case because you modeled generic renewables,
8 correct?

9 A. Very good, yes.

10 Q. And you also submitted testimony in
11 18-1392, which I will refer to as the specific case,
12 correct?

13 A. Yes.

14 Q. And in both cases, stated generally,
15 you're modeling the economic benefits or costs of the
16 renewables, correct?

17 A. I am, yes.

18 Q. Okay. And we just -- we went through
19 today, here at some length, the PJM energy and
20 capacity prices that you have used in the generic
21 case as reflected on Tables 5 and 6, correct?

22 A. Correct.

23 Q. And my question is: Do you use the same
24 energy and capacity prices in the specific case that
25 you do in the generic case?

1 MS. BLEND: Same objection, your Honor.
2 I think there's a risk that Mr. Torpey's answer is
3 going to require him to get into a lot of the details
4 from the Phase II case which your Honors have
5 explicitly said shouldn't be part of the record for
6 this phase of these proceedings. So that's the
7 concern.

8 MR. MICHAEL: And I would just respond,
9 your Honor, that I think it's a yes or no question,
10 so I don't completely understand how it would require
11 him to get into specifics of anything in the second
12 case. But we get one bite at the apple in the first
13 phase of the case, and so I think we need an
14 opportunity to understand the extent to which this
15 witness is offering credible numbers, and I think in
16 this case and I think the degree to which he is using
17 the same or different numbers in the two cases will
18 certainly inform whether or not he is using credible
19 numbers in this case.

20 MS. BLEND: But in order to provide
21 context for an explanation around his answer,
22 Mr. Torpey is going to have to provide details,
23 whether it's in response to Mr. Michael's question or
24 whether it's on redirect.

25 MR. MICHAEL: I would suggest we start

1 with a yes or no to my question, and we will see if
2 we need to get in any sort of details, and counsel
3 can object at that point.

4 EXAMINER PARROT: The objection is
5 sustained, Mr. Michael. Let's focus on the present
6 case.

7 MR. MICHAEL: Thank you, your Honor.

8 Q. (By Mr. Michael) Mr. Torpey, if need
9 exists, you do not compare, in your analysis,
10 nonrenewable or alternatives to renewables to meet
11 that need, correct?

12 A. When we talk about need, just so we're
13 specific here, because "need" has been a term that's
14 thrown around, we are talking about a resource
15 planning need.

16 Q. Yes.

17 A. Not specifically a capacity need. And
18 when we do resource planning, we look at the
19 portfolio that -- in this case, we look at the
20 portfolio that lowers or has the least -- lowers the
21 cost, the present value cost of revenue requirements.
22 So from a plant -- from a perspective of the
23 resources I looked at for this filing, I looked at
24 resources that will lower the present value of the
25 revenue requirements. And as I stated on Exhibit 1,

1 page 9, in the paragraph below the table, other
2 resources, fossil resources, would not lower the
3 present value of revenue requirements. So,
4 therefore, we focused our analysis on the renewable
5 energy projects.

6 MR. MICHAEL: Okay. Thank you,
7 Mr. Torpey. I have no further questions.

8 EXAMINER PARROT: Thank you, Mr. Michael.

9 MR. MICHAEL: Yes, your Honor.

10 EXAMINER PARROT: I said thank you.

11 Mr. Whitt.

12 MR. WHITT: Yes, ma'am. Let me relocate
13 over this way.

14 - - -

15 CROSS-EXAMINATION

16 By Mr. Whitt:

17 Q. Good afternoon, Mr. Torpey. Just a few
18 questions.

19 A. Sure.

20 Q. I'm assuming you are aware that AEP Ohio
21 filed an Integrated Resource Plan in April of 2018?

22 A. It was a Long-Term Forecast Report.

23 Q. Thank you.

24 Did you have any involvement in the
25 preparation of the April Long-Term Forecast Report?

1 A. Yes. Somebody on my staff put together
2 the forms -- the resource forms, the R forms.

3 Q. And I assume you supervised that person?

4 A. Yes.

5 Q. Okay. And the amended Long-Term Forecast
6 Report was filed in September of 2018, correct?

7 A. Correct. Hold on. Is that right? Oh,
8 right, yes, I'm sorry, correct.

9 Q. When did you either yourself or -- when
10 was work on the September Long-Term Forecast Report
11 started approximately?

12 A. Early August.

13 Q. Of 2018?

14 A. Of 2018, yes.

15 Q. And if you look at Exhibit JFT-1 on
16 page 6, the last sentence of the first full paragraph
17 says "Consistent with the ESP IV Order, the purpose
18 of the Company's 2018 LTFR Amendment filing is to
19 demonstrate the need for at least 900 megawatts of
20 renewable energy projects in Ohio." Did I read that
21 correctly?

22 A. Yes, you did.

23 Q. And then on page 7, the first sentence of
24 the first full paragraph has similar language. It
25 says "The purpose of this filing is to demonstrate

1 the need for up to 900 megawatts of renewable energy
2 projects in Ohio." Did I read that correctly?

3 A. You read that correctly, yes.

4 Q. And is it fair to say that -- well, were
5 you present for the testimony or have you read
6 Mr. Allen's testimony where he discusses the PPA
7 Rider case?

8 A. I was here when Mr. Allen was testifying,
9 and he was up here for a long time, so I don't know
10 if I remember all of his testimony, but I was here
11 when he was testifying.

12 Q. And is it your general understanding that
13 in the PPA Rider case, AEP committed, subject to
14 obtaining cost approval for cost recovery, had
15 committed to developing 900 megawatts of renewable
16 generation?

17 A. Yeah. I believe -- and, again, I don't
18 know if the term was "at least 900 megawatts" or "up
19 to 900 megawatts." 900 megawatts was, let's say,
20 bogey that we were supposed to hit.

21 Q. And that was a commitment made in the PPA
22 Rider Stipulation, correct?

23 A. I don't know -- I think that's correct.
24 I don't remember the specific filing but I think
25 that's correct.

1 Q. Okay. And after AEP made that commitment
2 in April of 2018, it filed its original Long-Term
3 Forecast Report, correct?

4 A. It did, yes.

5 Q. And within a week or two after the filing
6 of the April Long-Term Forecast Report, I assume you
7 are aware that the Commission issued an Order in the
8 ESP IV case?

9 A. Is that the Order we referenced in the
10 first paragraph in the Executive Summary?

11 Q. I believe that it is.

12 A. Okay. In that case, I am aware of it.

13 Q. Okay. And the ESP IV Order, you
14 understand, approved a cost recovery mechanism
15 subject to a finding of need in specific projects?
16 Correct?

17 A. I believe, that's correct.

18 Q. And AEP Ohio recognized that it could not
19 avail itself of this cost-recovery mechanism unless
20 it submitted documentation of need, correct?

21 A. I believe that's the first step, yes.

22 Q. And you testified that you started that
23 process in August of 2018, correct?

24 A. Yeah. And when I say "started," we might
25 have been gathering data a little before that, but I

1 know the analysis that goes into the tables in my --
2 in the IRP report were performed during the month of
3 August.

4 Q. Okay. And then in September, you filed
5 the report along with the other information that
6 would be reflected in the Commission's docket,
7 correct?

8 A. Correct.

9 Q. If we can go to page 7 of your testimony.

10 A. Yes.

11 Q. On page 7, line 4, you state "The net
12 effect of displacing higher cost resources with lower
13 cost resources is a reduction in the PJM LMP." That
14 was your testimony, correct?

15 A. Correct.

16 Q. And then at page 10, line 14, you say
17 again "In general, this savings would apply to any
18 entity in PJM purchasing energy at this load hub."

19 A. Yes.

20 Q. You are again referring to prices within
21 PJM, assuming that these renewable projects are built
22 with lower prices within PJM, correct?

23 A. Correct.

24 Q. And on page 12, line 19, actually line
25 18, I won't read it out loud, we can all read it, but

1 it would be -- would it be fair to paraphrase your
2 testimony as indicating that the addition of
3 renewable energy projects would benefit not only AEP
4 Ohio customers but customers of other Ohio utilities?

5 A. Yes.

6 Q. So is it -- it's fair to say then that
7 the benefits of adding the additional renewable
8 capacity that you discuss in your testimony would be
9 realized by persons and entities who are not AEP Ohio
10 customers, correct?

11 A. Well, it's an ancillary benefit as a
12 result of doing these projects. By doing -- by doing
13 these projects, and we are talking about the generic
14 projects here, we would lower -- we would lower costs
15 to AEP Ohio customers, but also as a result of that,
16 because we are putting zero cost energy into the
17 grid, it lowers -- I think witness Ali talked about
18 having this AEP load zone and this region having no
19 congestion, it happens to lower the LMP for all --
20 all entities purchasing from that load zone; so there
21 is a -- an ancillary benefit, if you will, that
22 accrues as a result of doing these projects.

23 Q. And that benefit accrues, as you just
24 indicated, to people and entities who are not AEP
25 Ohio customers, correct?

1 A. It could.

2 Q. And the cost of the resources that will
3 produce those benefits are borne or will be borne if
4 the Commission -- subject to Commission approval, by
5 AEP Ohio customers, correct?

6 A. Well, AEP Ohio customers get the full
7 benefit of those resources. This is an ancillary
8 benefit. It's, you know --

9 Q. Well, sir --

10 A. Go ahead.

11 MS. BLEND: Your Honor, I would request
12 that the witness be able to finish his answer.

13 Q. Yeah. If you need to go ahead, I didn't
14 mean to cut you off.

15 A. I was just saying there's -- there is an
16 ancillary benefit. And currently, AEP Ohio customers
17 are getting the benefit from wind resources installed
18 by APCo, by wind resources installed by I&M, by
19 renewable projects installed by others who are tied
20 into the AEP Ohio grid. So this is not something we
21 are doing just to lower the price at the LMP hub.
22 Again, it's an ancillary benefit that would accrue to
23 anybody purchasing energy from the LMP -- from the
24 AEP zone LMPs.

25 Q. Well, it an ancillary benefit -- whether

1 it's ancillary or not, it's an important-enough
2 benefit that you mentioned this benefit in your
3 testimony, correct?

4 A. I mentioned the portion that would apply
5 to the AEP Ohio customers. So the \$31 million that I
6 mentioned in my testimony is what would apply to the
7 AEP Ohio customers.

8 Q. But we also just went over three pieces
9 of testimony in three different places where you
10 indicated that there would also be benefits to
11 persons who are not AEP Ohio customers, correct?

12 A. Other people -- yes, whoever buys energy
13 at the -- in the AEP Ohio zone would also see these
14 benefits. But they would not see the other benefits
15 of the renewable projects, over the 20-year REPA
16 period, lowering their overall revenue requirement.

17 Q. On page 9 of your testimony, the question
18 and answer that begins on line 16, you discuss the
19 eligibility of the owner of a renewable energy
20 facility being entitled to tax credits; is that
21 right?

22 A. Production Tax Credit, yes.

23 Q. Okay. And AEP is not proposing to own
24 any renewable facilities, correct?

25 A. We will not -- for the generic resources

1 we analyzed here, we will not be the owner of the
2 facility.

3 Q. And any owner would get the benefit of
4 that tax credit whether that owner is AEP or somebody
5 else, correct?

6 A. Whoever -- whoever owns the facility and
7 generates the energy gets the benefit.

8 Q. And that benefit will accrue to that
9 person regardless of the Commission's decision in
10 this case, correct?

11 A. Well, unless they don't build it.

12 MR. WHITT: That's all I have. Thank
13 you.

14 EXAMINER PARROT: Thank you, Mr. Whitt.

15 Ms. Bojko

16 MS. BOJKO: Thank you, your Honor.

17 - - -

18 CROSS-EXAMINATION

19 By Ms. Bojko:

20 Q. Good afternoon, Mr. Torpey.

21 A. Good afternoon.

22 Q. In addition to the IRP that you attached
23 to your testimony, your testimony explains the
24 methodology used by AEP to develop its assumptions
25 for the renewable resource costs, correct?

1 A. The assumptions for the costs, yes.

2 Q. And your testimony also presents the
3 economic benefit analysis associated with addition of
4 renewable resources, correct?

5 A. It does, yes.

6 Q. And it's my understanding from
7 discussions you've had today that you utilized
8 Company witness Ali's analysis of the impact of the
9 renewable facilities on LMP prices in your IRP
10 analysis, correct?

11 A. He provided input for one of the analyses
12 that I performed, yes.

13 Q. And he used the PROMOD simulation as
14 referenced in the IRP on page 19, correct, Mr. Ali?

15 A. He used PROMOD, yes.

16 Q. And you also utilized the Fundamentals
17 Forecast provided by witness -- Company witness
18 Bletzacker in your IRP analysis, correct?

19 A. I did use witness Bletzacker's
20 Fundamentals Forecast, yes.

21 Q. And his analysis included a carbon burden
22 or cost associated with carbon compliance, correct?

23 A. In 2028, yes.

24 MS. BOJKO: Your Honor, at this time, I
25 would like to have marked as OMAEG 5, a discovery

1 response to OCC-RFA-10-007. May I approach, your
2 Honor?

3 EXAMINER PARROT: You may. So marked.

4 (EXHIBIT MARKED FOR IDENTIFICATION.)

5 Q. (By Ms. Bojko) Mr. Torpey, do you have in
6 front of you what's been marked as OMAEG Exhibit 5?

7 A. Well, it's not marked, but I have what
8 you handed me which is OCC-RFA-10-007.

9 Q. Thank you.

10 And you are a responsible party listed
11 for this response; is that correct?

12 A. I see my name here, yes.

13 Q. Would you agree with me, sir, the effect
14 of including the cost of carbon in the Fundamentals
15 Forecast will increase the operating cost of natural
16 gas-fired combined-cycle plants which increases the
17 benefits of the renewable energy projects under the
18 AEP Ohio impact analysis that you performed?

19 A. It appears that we admitted that was
20 true.

21 Q. Sir, you did not utilize the Production
22 Tax Credit analysis contained in witness -- Company
23 witness Allen's testimony, as the PTCs were not
24 included in the IRP analysis, correct? Let me --
25 I'll rephrase, sir.

1 You did not use the Production Tax
2 Credits analysis from witness Allen's testimony
3 because the Production Tax Credits were not included
4 in the IRP analysis, correct?

5 A. I'm not sure of Witness Allen's tax
6 credit analysis, but the tax credit is assumed to be
7 in the REPA price for -- the Production Tax Credit we
8 are talking about, is assumed to be in the wind, the
9 generic wind REPA price. So we would have
10 included -- I mean, we would have assumed that that
11 price reflects the Production Tax Credit.

12 Q. Right. You would have assumed it from
13 your RFPs that you received. You, yourself did, not
14 include an additional assumption with regard to
15 Production Tax Credits, right?

16 A. You can't take it twice, so we didn't
17 take it, right. We just assumed the -- and we
18 weren't -- just to be clear, we weren't using costs
19 from the RFP -- from the proposals. I mean, we saw
20 the cost from the proposals so we knew what they
21 were, but we were using costs from other sources for
22 purposes of this generic filing.

23 Q. Okay. But there is -- I'm sorry.

24 A. So -- and those costs that we assumed
25 were based on the developer receiving the Production

1 Tax Credit.

2 Q. Right. You assumed that the developer
3 would be able to receive a Production Tax Credit and
4 would have included that in their price, correct?

5 A. For the generic resource that we modeled,
6 yes.

7 Q. You, yourself, did not add or take that
8 into an additional account in your analysis, and you
9 state that on page 9 of your testimony, correct?

10 A. Right. We assumed the developer would
11 use the Production Tax Credit.

12 Q. Okay. And your IRP analysis, it did
13 include the ITC credits, the investment tax credits?

14 A. Again, we assumed that the developer
15 would have taken advantage of the ITC, and this is
16 the -- you know, again, for the analysis that I did,
17 the generic developer for the price that we estimated
18 here that we came up with, we assumed that reflected
19 the benefit of that developer taking an ITC.

20 Q. Well, on page 21 and -- page -- let's
21 start there of your Exhibit JFT-1. Here you
22 specifically have a footnote that states that the
23 projected annual total costs is inclusive of return
24 and ITC, correct?

25 A. Yeah. That would -- this is a

1 spreadsheet we use for our analyses whether we're
2 purchasing -- we are building the resource or doing a
3 REPA, so in the cases where we are -- where we, AEP,
4 is the developer and we can take advantage of the
5 ITC, we would include the ITC in that column. In
6 this case, it's a REPA price, so the REPA -- we
7 assume that the REPA includes the value of the ITC.

8 Q. Okay. And did you have or you're just
9 assuming -- again, you are just assuming it's in the
10 REPA.

11 A. Well, we estimated a price -- I'm sorry.
12 We estimated a price for a REPA. And that price
13 would have assumed that the developer would have
14 taken advantage of the ITC.

15 Q. Okay. And in that assumption, you made
16 no assumptions with regard to construction start date
17 of any of the renewable facilities, correct?

18 A. Well, we assumed that construction would
19 start such that the developer would be eligible for
20 the -- I think we assume the 30-percent ITC for --
21 the developer would have available to them a
22 30-percent Investment Tax Credit and that would drive
23 the price of this REPA. It's a start date. It's
24 also an in-service date too.

25 Q. Depending on the tax credit, correct?

1 A. Right, right, yes. There is a
2 difference.

3 Q. And, sir, your analysis did not include
4 REC values or any revenues derived from REC sales,
5 correct?

6 A. That is correct.

7 Q. And I believe you've mentioned this a
8 couple of times, but I think your testimony here
9 today is that you would agree with me that AEP does
10 not have a capacity need, correct?

11 A. AEP Ohio does not have a capacity
12 obligation.

13 Q. And, sir, you also would agree with me
14 that AEP Ohio has no specific energy need that the
15 projects would satisfy.

16 A. No. AEP Ohio obtains its energy from
17 people that bid into the SSO auction or from CRES
18 providers. So AEP Ohio does not have a specific
19 need. But that's not inconsistent with our other --
20 even our other vertically-integrated companies in PJM
21 where we sell all their capacity into the PJM market
22 and just buy back their load requirements from the
23 PJM market. So this would be handled no different --
24 the generic resources that I am looking at here are
25 no different than any other generation resources in

1 PJM, whether it's a company like AEP Ohio or a
2 vertically-integrated company.

3 Q. Okay. And you mentioned, to Mr. Oliker,
4 that you have testified on behalf of American
5 Electric Power Company in other states in front of
6 other state commissions, correct?

7 A. I don't know that he specifically asked
8 me that. He asked me about filing IRPs, but I have
9 testified in front of other commissions.

10 Q. Thank you for that clarification.

11 In fact, you've testified on behalf of
12 American Electric Power Service Company subsidiaries
13 Appalachian Power Company, APCo, and Wheeling Power,
14 before the Public Service Commission of West
15 Virginia, correct?

16 A. I did.

17 Q. And you also have testified on behalf of
18 APCo before the Virginia State Corporation
19 Commission, correct?

20 A. I have.

21 Q. And both subsidiaries are a part of the
22 AEP eastern transmission system?

23 A. Yeah, they are part what we call the AEP
24 east zone or east league, yes.

25 Q. And both states are part of the 13 states

1 that are part of the PJM regional transmission
2 organization?

3 A. Yes.

4 Q. In both of those cases, you were
5 testifying regarding a proposal by the APCo and
6 Wheeling Power -- by APCo and Wheeling Power to
7 recover costs associated with a proposal related to
8 renewable energy, correct?

9 A. For that case? Well, the specific cases,
10 that the -- what year was that?

11 Q. On June 5, 2017, in the West Virginia
12 APCo and Wheeling Power case, AEP sought approval to
13 recover costs associated with a 50-megawatt wind
14 project and 175-megawatt wind project for a total of
15 225 megawatts, correct?

16 A. Right, yes.

17 Q. And on the same day in Virginia, APCo
18 filed for approval to recover costs from customers
19 for the same wind facilities, correct?

20 A. Correct.

21 Q. And as in the case before the Ohio
22 Commission, you would agree with me that in both the
23 West Virginia and Virginia cases, need was an
24 essential issue in those cases, correct?

25 A. I think cost was the bigger issue, but

1 the -- I know the Virginia Commission did talk about
2 need in their -- their Order.

3 Q. And West Virginia also had a section on
4 need; isn't that correct?

5 A. I don't recall their Order specifically,
6 but I'm assuming -- I mean if you say it's in there,
7 it could be in there.

8 Q. As in the current case before the Ohio
9 Commission, and in the proposals before the Virginia
10 and West Virginia Commissions, the subsidiaries did
11 not assert there was a capacity need, correct?

12 A. We did not.

13 Q. As in the current case before the Ohio
14 Commission, and in the proposals in both the West
15 Virginia and Virginia cases, the AEP subsidiaries did
16 not state there was an RPS need for the facilities,
17 correct? A renewable portfolio standard need?

18 A. I don't believe we stated that, correct.

19 Q. And just in this case before the Ohio
20 Commission, the subsidiaries claimed that the
21 renewable facilities were needed to provide a
22 lower-cost source of energy compared to purchases
23 through PJM's wholesale market, correct?

24 A. Yeah. When we filed that though, keep in
25 mind, right after we filed that, there was tax reform

1 enacted and the tax reform -- because -- and those
2 facilities are different than the renewable that
3 we're looking in this generic case in that those
4 would have been owned by the Company and, therefore,
5 the Company would have taken -- been able to take
6 advantage of the Production Tax Credit for those
7 facilities. And because they were owned by the
8 Company when tax reform hit, it lowered the value of
9 the Production Tax Credits to the developer which
10 would have been AEP or APCo. So the economics of
11 those projects really went south with tax reform.

12 Those commissions approved the Bluff
13 Point REPAs, a year before, with no need, all right?
14 So West Virginia and Virginia approved a similar wind
15 project, similar to what we are doing here, a
16 renewable energy REPA project, even though there was
17 no need. The reason they didn't approve the Beech
18 Ridge project and the Hardin project were because the
19 economics just went -- went south and it was very
20 little benefit that we could monetize or provide.

21 Q. Well, that's your opinion of the West
22 Virginia and Virginia Orders, right? That's not what
23 they said in their Orders, correct?

24 MS. BLEND: Objection, your Honor.

25 Ms. Bojko is asking Mr. Torpey what he understands or

1 recalls from those cases.

2 MS. BOJKO: Oh, no, I did not.

3 MS. BLEND: And he's provided an answer
4 regarding -- regarding in response to her
5 questions -- I'll just leave it at that.

6 MS. BOJKO: Your Honor, I was going to do
7 a motion to strike but realizing that would probably
8 be denied, I took the alternative path of challenging
9 or questioning the things that Mr. Torpey just said
10 to me, which I have a right to challenge the validity
11 and credibility of the statements that he just made.
12 Nowhere in the Orders does it say what he just said.
13 It recognizes the tax impact and the effect, but it
14 does not draw the same conclusions that Mr. Torpey
15 just claimed, so I asked him if that was his
16 interpretations.

17 EXAMINER PARROT: The objection is
18 overruled.

19 Mr. Torpey, you may answer Ms. Bojko's
20 pending question.

21 THE WITNESS: Could I have the question
22 reread --

23 EXAMINER PARROT: Yes.

24 THE WITNESS: -- or restated?

25 (Record read.)

1 A. I can tell you with West Virginia, they
2 were ready to approve the Beech Ridge project before
3 tax reform, even if Virginia didn't approve it; and
4 then after tax reform, they didn't want to approve
5 it. That's my recollection of what happened in West
6 Virginia.

7 MR. OLIKER: Your Honor, I move to strike
8 that answer to the extent he is trying to speak on
9 behalf of another Commission. I don't think he has
10 the capacity to do that.

11 MS. BLEND: And, your Honor, Ms. Bojko
12 asked him what the other Commission said.

13 MS. BOJKO: No, I did not.

14 MS. BLEND: So he answered.

15 EXAMINER PARROT: The answer stands.

16 Q. (By Ms. Bojko) We'll get into the direct
17 words from the Commission, sir. First, I wanted to
18 ask a couple additional foundation questions if you
19 would allow me to do so. Just so the record is
20 clear, one of the facilities was actually located in
21 Ohio; is that correct?

22 A. The Hardin facility, yes.

23 Q. And at least in one of the cases, an APCo
24 subsidiary -- or American Power southern companies'
25 subsidiaries claimed that certain large commercial or

1 industrial customers desire electric power from
2 renewable generation; same as in this case, correct?

3 A. I'm sorry, who said that.

4 Q. Your subsidiary. One of your companies
5 you testified on behalf of.

6 A. In the Hardin -- Beech/Hardin case?

7 Q. Yes.

8 A. And you are asking me if we testified?

9 Q. In the West Virginia case, isn't it true
10 that APCo and Wheeling Power, in their application
11 and proposal, they claimed certain large commercial
12 and industrial customers desire electric power from
13 renewable generation, just as you claim commercial
14 customers desire renewable energy in this case,
15 correct?

16 A. I think there was testimony filed by the
17 Rate Director of Appalachian Power in West Virginia
18 that stated that there were customers that were
19 looking for renewable energy products and that was
20 one of the benefits that these projects would
21 provide.

22 Q. In both of the cases that we've been
23 discussing, you initially adopted the testimony of
24 Benjamin Mears that had been filed in support of the
25 proposals; is that correct?

1 A. Yes.

2 Q. And then you also filed rebuttal
3 testimony in both cases; is that correct?

4 A. I believe I did, yes.

5 Q. Let's go through each of the cases.
6 In -- start with the West Virginia case.

7 MS. BOJKO: Your Honor, at this time, I
8 would like to mark three documents. OMAEG Exhibit 6
9 which would be Mr. Mear's testimony in the West
10 Virginia case. It would be in Case 17-0894-E-PC.
11 And then I would like to mark as OMAEG Exhibit, 7 the
12 testimony of John Torpey in the same case, your
13 Honors.

14 MS. BLEND: Ms. Bojko, OMAEG Exhibit 6 is
15 the testimony that Mr. Torpey adopted in that West
16 Virginia case?

17 MS. BOJKO: That's my understanding, yes.

18 MS. BLEND: Okay.

19 MS. BOJKO: Is that not your
20 understanding?

21 MS. BLEND: I was just asking for
22 clarification on what your representation was.

23 MS. BOJKO: Your Honors, at this time, I
24 would also like to have marked as OMAEG Exhibit 8,
25 which is the supplemental rebuttal testimony of

1 Mr. John Torpey in West Virginia Case No.

2 17-0894-E-PC.

3 EXAMINER PARROT: The exhibits are so
4 marked.

5 (EXHIBITS MARKED FOR IDENTIFICATION.)

6 Q. (By Ms. Bojko) Mr. Torpey, do you have in
7 front of you what has been marked as OMAEG 6, 7, and
8 8?

9 A. Yes.

10 Q. Sir, Exhibit 6, which is the testimony of
11 Mr. Mears on behalf of APCo and Wheeling Power
12 Company. Do you have that?

13 A. Yes.

14 Q. This is, in fact, the testimony you
15 adopted in that case; is that correct?

16 A. It certainly looks like it.

17 Q. And, sir, you adopted Mr. Mears'
18 testimony because he left the Company; is that a fair
19 characterization?

20 A. Yep.

21 Q. Could you turn to page 5 of OMAEG Exhibit
22 6.

23 A. Okay.

24 Q. If you look on page 5, and you go to
25 lines 4 through 8-1/2, that's the formula that you

1 have used to -- it's the formula you have used to
2 calculate the avoided cost of energy for renewable
3 generation; is that correct?

4 MS. BLEND: Objection, your Honor. I
5 object generally to Ms. Bojko's questioning with
6 respect to these three pieces of testimony as being
7 seeking inadmissible hearsay.

8 MS. BOJKO: It's not hearsay if he's
9 adopted the testimony as his own. He is the witness.
10 He is a party opponent so it's not hearsay at all.

11 MS. BLEND: Mr. Torpey isn't a party to
12 this proceeding, AEP Ohio is, and this is testimony
13 on behalf of -- on behalf of APCo which is also not a
14 party to this proceeding, so it cannot technically be
15 a party opponent admission and, therefore, does not
16 qualify under that exception to the hearsay rule.

17 MS. BOJKO: That is not how -- I don't
18 believe that to be accurate statements but that is
19 not how the Commission has historically viewed an
20 employee working for a regulated utility company in
21 the State of Ohio. If the individual is here to
22 testify, it's not hearsay.

23 MS. BLEND: This testimony -- there has
24 been no record established that this testimony was
25 admitted in this form or any form in these

1 proceedings. This is not necessarily -- Ms. Bojko
2 hasn't established this was the testimony that was
3 admitted in those proceedings, therefore, it's not
4 testimony that was subject to cross-examination
5 concerning any of the statements that Ms. Bojko is
6 now seeking to read into the record with this
7 witness.

8 I could also raise a relevancy argument
9 about the differences in the regulatory and statutory
10 framework applicable to West Virginia relative to
11 Ohio, and a relevancy argument about the specific
12 projects that were at issue in this case, which
13 Mr. Torpey has already testified were going to be
14 owned by AEP's -- AEP's Ohio affiliate and were
15 subject to different ITC laws prior to tax reform.

16 So, for all of those reasons, I object to
17 this line of questioning.

18 MS. BOJKO: Your Honor, it's not
19 irrelevant. We are allowed to use past testimony of
20 witnesses to either impeach their credibility, to
21 explore inconsistent statements, to explore the use
22 of formulas and forecasts and other things. It's
23 kind of ironic that Ms. Blend says that this is
24 irrelevant and that there are a whole bunch of
25 underlying assumptions that are different because his

1 testimony is strikingly similar to that testimony --

2 MS. BLEND: I didn't make that
3 representation.

4 MS. BOJKO: -- filed in this case. So
5 with all the caveats, I laid quite a good foundation,
6 I believe, of all the similarities in the cases that
7 we have in the proposal before us, versus the West
8 Virginia and Virginia cases, many of the assumptions
9 were the same; and, thus, this is testimony that is
10 allowed to be used to test the credibility of the
11 witness and the formulas that he is using and the
12 analysis that he has used in other cases versus this
13 case.

14 MS. BLEND: Ms. Bojko hasn't responded to
15 my hearsay objection, your Honor. This is a
16 statement that was made outside of testifying at this
17 trial or hearing. There's been no record established
18 this testimony was admitted at any hearing or subject
19 to cross-examination.

20 MS. BOJKO: Your Honor --

21 MR. WHITT: Your Honor, I know Ms. --

22 EXAMINER PARROT: The objection is
23 overruled with respect to the pending question.

24 Go ahead, Mr. Torpey.

25 MS. BLEND: Thank you, your Honor.

1 THE WITNESS: I'm sorry. What's the
2 question?

3 MS. BOJKO: May I have it reread, please?
4 (Record read.)

5 MS. BOJKO: Strike that, your Honor.
6 I'll rephrase.

7 Q. (By Ms. Bojko) Mr. Torpey, the discussion
8 and formula on page 5 of the testimony that you
9 adopted in the West Virginia proceeding, regarding
10 the net cost of energy for the renewable projects, is
11 the same formula that you have used in the Ohio
12 proceeding as identified on page 5 -- I'm sorry,
13 page -- page 7 of your own testimony in this case.

14 A. There's a slight difference and that
15 difference is that in the Ben Mear's testimony,
16 you'll note, Exhibit 6, that the net cost of energy
17 in dollars per megawatt-hour equaled wind energy per
18 dollars per megawatt-hour minus what's in the
19 parenthetical. Whereas, in the current case, the
20 testimony is net cost of energy equals the REPA price
21 in dollars per megawatt-hour.

22 Q. Fair enough. You were only dealing with
23 wind in the West Virginia case and here you are
24 dealing with wind and solar generic renewable energy,
25 so you switched wind energy costs to REPA price,

1 correct?

2 A. Well, we were dealing with, in the West
3 Virginia case, we were dealing with both asset
4 purchase agreements and renewable energy purchase
5 agreements. So ATAs and PPAs if you will. And so,
6 again, to put -- and what this part of the testimony
7 explains is how we put those costs on, I will say a
8 level-playing field so we could evaluate which
9 projects we would go forward with following up on in
10 terms of, you know, entering into agreements with the
11 developers.

12 Q. Right. With the distinction of the name
13 associated with the dollar per megawatt-hour of the
14 renewable energy resource, the formula is the same;
15 is that correct?

16 A. Yes.

17 Q. And, in fact, the testimony regarding the
18 description of the equation for the net cost of
19 energy is also the same if not similar. I guess it's
20 not identical but similar.

21 A. It basically gets to the same answer,
22 yes.

23 Q. Thank you.

24 And like in the Ohio case, in your
25 analysis in the West Virginia case, you used

1 levelized costs; is that correct?

2 A. We did.

3 Q. And in the West Virginia case, similar to
4 Ohio, you did not consider a value associated with
5 renewable energy credits; is that correct? In the
6 original testimony of Mr. Mears that you adopted.

7 A. I believe we did not include renewable
8 energy credits. That is correct.

9 Q. And Exhibits 7 is your -- you have that
10 in front of you, OMAEG Exhibit 7?

11 A. Yes.

12 Q. That's your rebuttal testimony filed in
13 the same West Virginia case; is that correct?

14 A. It looks like the same case, yes.

15 Q. And on page 3 of that rebuttal testimony,
16 lines 7 through 9, to answer Ms. Blend's concern, it
17 states here that you actually adopted the testimony
18 from Benjamin Mears that we just discussed; is that
19 correct?

20 A. Yes.

21 Q. And does it also state that Mr. Mears
22 worked in your department prior to his departure from
23 the Company and that this testimony and exhibits were
24 prepared under your supervision?

25 A. It does state that, yes.

1 Q. And, sir, do you have in front of you
2 what's been marked as OMAEG Exhibit 8?

3 A. I do.

4 Q. And this is supplemental rebuttal
5 testimony that you filed in the same West Virginia
6 case; is that correct?

7 A. It is.

8 Q. And in both of these rebuttal testimonies
9 you address criticism by Staff as well as the Energy
10 Users Group in West Virginia; is that correct?

11 A. Yes.

12 Q. And would it fair to say, sir, that you
13 disagreed with the Staff of the West Virginia
14 Commission regarding the use of weather-normalized
15 prices?

16 A. That would be an incorrect
17 characterization. He used an average price for the
18 last -- if I recall this -- let me see here. He just
19 took the price in one year, I believe, and escalated
20 it over time, which is not a way to do a fundamental
21 forecast.

22 Q. So you disagreed with Staff's evaluation
23 in that case, correct?

24 A. I mean, I would have to reread his
25 testimony to see what I was disagreeing with here,

1 but from what I recall he took one year's worth of
2 data -- well, here it is. No basis for assuming the
3 weather normalized market price of energy in 2019 --
4 let's see. All right. So what it says -- let me try
5 to recall what was going on here.

6 It says "My concern with the Staff's
7 analyses....Mr. Short's supplemental direct testimony
8 is the same as I stated in my rebuttal, and that is
9 the analysis offers no basis for assuming the
10 weather-normalized market price of energy in 2019,
11 much less twenty-five years into the future, can be
12 extrapolated from actual, non-weather normalized
13 prices of 2016."

14 So, contrary to your question, we had
15 issue with him using non-weather normalized prices
16 and then extrapolating those out for 20 years.

17 Q. Right, because my question actually was
18 you were responding to criticisms of the Staff on
19 your use of weatherized-normalized forecasts,
20 weather-normalized forecasts.

21 A. He was offering up -- if I recall, he was
22 offering up a separate forecast of prices.

23 Q. Right, because he criticized yours; is
24 that correct?

25 A. Well, he criticized ours and then he

1 offered up what they thought prices would be, so we
2 criticized him.

3 Q. Right. And let's switch to the Virginia
4 case. In the West Virginia case -- or I'm sorry, in
5 the Virginia case you also adopted and sponsored
6 Mr. Mears' testimony in the Virginia case; is that
7 correct?

8 A. I did.

9 Q. Okay.

10 MS. BOJKO: And, your Honor, at this time
11 I would like to have marked as OMAEG Exhibit 9, the
12 testimony -- direct testimony of Benjamin Mears in
13 Virginia Case No. PUR-2017-00031.

14 EXAMINER PARROT: So marked.

15 (EXHIBIT MARKED FOR IDENTIFICATION.)

16 MS. BOJKO: And I would also like to have
17 marked as OMAEG 10, the rebuttal testimony of John F.
18 Torpey in the same Virginia Case No. PUR-2017-00031.

19 EXAMINER PARROT: So marked.

20 (EXHIBIT MARKED FOR IDENTIFICATION.)

21 Q. Mr. Torpey, do you have in front of you
22 what has been marked OMAEG Exhibit 9 which is the
23 direct testimony of Benjamin Mears, but as you will
24 see on the cover sheet it actually says you are the
25 responsible witness, so there should be no questions

1 with regard to whether you are the responsible
2 witness.

3 A. I see that, yes.

4 Q. And, sir, similar to the Virginia case,
5 given that the time frame was the exact same date the
6 applications were filed, would your answer be the
7 same that you -- you adopted Mr. Mears' testimony as
8 he has departed from the Company?

9 A. Correct.

10 Q. And similarly, Mr. Mears worked in your
11 department and you helped draft or supervise the
12 drafting of the testimony exhibits, even when
13 Mr. Mears drafted them?

14 A. I was involved in the drafting of the
15 testimony, yes.

16 Q. And then Mr. Torpey, do you have in front
17 of you what's been marked as OMAEG Exhibit 10 which
18 is the rebuttal testimony that you, yourself, filed
19 on behalf of APCo in the West Virginia -- in the
20 Virginia case?

21 A. Yes.

22 Q. And, sir, in the direct testimony of
23 Mr. Mears, he used the same formula that you adopted,
24 you used the same formula as was in the West Virginia
25 case; is that correct?

1 A. I believe it was a cut-and-paste, yes.

2 Q. And similar to the West Virginia case and
3 the Ohio case, the Virginia case used levelized
4 costs; is that correct?

5 A. It did.

6 Q. And in the Virginia case, same as in the
7 West Virginia case and in the Ohio proceeding here
8 before us, your analysis again didn't consider the
9 value of the renewable energy credit, correct?

10 A. We did not include the renewable energy
11 credits in the benefit calculation, correct.

12 Q. And you use the word "cut-and-paste." Is
13 it a fair characterization that the testimony in the
14 Virginia case is very similar to the testimony in the
15 West Virginia case?

16 A. I believe they are very similar, yes.

17 MS. BOJKO: Your Honor, at this time, I
18 would like to have marked as OMAEG Exhibit 11, the
19 Order -- the Public Order by the Public Commission in
20 West Virginia, the Public Service Commission of West
21 Virginia, Case No. 170894-E-PC.

22 EXAMINER PARROT: So marked.

23 (EXHIBIT MARKED FOR IDENTIFICATION.)

24 Q. Mr. Torpey, do you have in front of you
25 what has been marked as OMAEG Exhibit 11 which is the

1 Public Service Commission of West Virginia's
2 Commission Order in the 17-0894-E-PC proceeding that
3 we were just discussing?

4 A. Yes.

5 Q. And isn't it true, on page 16, the West
6 Virginia Commission found that the companies have
7 sufficient capacity to serve its load?

8 MS. BLEND: Objection, your Honor.
9 Ms. Bojko has not established any foundation with
10 Mr. Torpey regarding this document, first.

11 Second, what the West Virginia
12 Commission -- I will just renew my objection to
13 relevance and the fact that what the West Virginia
14 Commission did or didn't find, based on the specific
15 facts, circumstances, laws, and regulations of that
16 jurisdiction, has no bearing on this case or
17 Mr. Torpey's testimony in this case.

18 MS. BOJKO: Your Honor, I think the
19 Commission's analysis of Mr. Torpey's IRP-type
20 analysis in the prior proceedings, the formula that
21 he used, the inputs, the assumptions that he used to
22 determine the net cost of energy is very relevant.

23 Mr. Torpey, himself, just told me what
24 the Commission said, and I disagreed with it, so now
25 I have a right to impeach him on the testimony and

1 the record that wasn't struck regarding what he did
2 or didn't believe the Public Utilities Commissions in
3 West Virginia and Virginia said or didn't say.

4 MS. BLEND: This is -- you know, this is
5 also hearsay because it's, again, a statement other
6 than one made by Mr. Torpey while testifying at this
7 hearing offered into evidence for the truth of the
8 matter asserted. So I will renew that objection as
9 well. If Ms. Bojko wants to make these arguments on
10 brief, that's one thing, but it's inappropriate to
11 put a document in front of a witness and start
12 reading, into the record, statements that another
13 Commission made.

14 EXAMINER PARROT: Ms. Blend, your
15 objection is overruled as to the hearsay and
16 relevance arguments, but I am going to ask you,
17 Ms. Bojko, before we dive right in, let's ask a
18 couple foundational questions.

19 MS. BOJKO: Sure, your Honor. Thank you.

20 Q. (By Ms. Bojko) Mr. Torpey, this is the
21 proceeding that you participated in as a witness that
22 we have been discussing over the last several
23 minutes, correct?

24 A. Yes.

25 Q. And you recognize this Commission Order

1 as the result of that proceeding that you
2 participated in as a witness for American Electric
3 Power Service Corporation?

4 A. Yes.

5 Q. And in this Order, on page 16, the
6 Commission found that the Companies have sufficient
7 capacity to serve its load, correct?

8 A. There are eight Findings of Fact. And
9 the first of that is -- 16? The first of those
10 findings are that the Companies have sufficient
11 capacity.

12 Q. And the West Virginia Commission also
13 found that there were ample energy supplies from the
14 PJM market available to meet customers' load,
15 correct?

16 A. Finding 4 says "PJM plans its supply
17 resources to meet its summer peak demand and energy
18 requirements and, therefore, has more than enough
19 generating capability in the winter to make up for
20 any shortfall between APCo's energy generation and
21 its customer energy needs."

22 Q. And the West Virginia Commission found
23 that there were ample wholesale purchase options from
24 the PJM energy market with regard to renewables,
25 correct?

1 A. Which finding is that?

2 Q. That is on page 16.

3 MS. BLEND: I believe it's Conclusion of
4 West Virginia law, No. 1.

5 A. Oh, law. That's what that says.

6 Q. It says there are wholesale purchase
7 options from the PJM energy market, the Companies do
8 not have a need to own or bilaterally contract for
9 additional energy to meet their load?

10 A. Right; we were going to own these
11 resources.

12 Q. And also on pages 15 and then I guess
13 we'll look at 17 which is a Conclusion of Law, isn't
14 it true that the Commission found that the Companies'
15 projected natural gas prices used in the forecasts
16 were aggressive, high, and not supported by current
17 or recent prices?

18 A. Where are you at on 15 or 17?

19 Q. It's on both places, sir. But you liked
20 the Conclusions of Law and Findings of Facts, so I
21 took you to page 17.

22 A. Okay.

23 Q. Findings 4 and 5, Conclusions of Law.

24 A. Right. Just so we're clear, this is a
25 different forecast than the one we are using in this

1 proceeding.

2 Q. Mr. Bletzacker explained the 2016, 2018
3 differential to me yesterday.

4 A. Okay.

5 Q. Correct? Is that what you are
6 referencing, sir?

7 A. Well, I am just saying the forecasts we
8 used in the APCo proceeding is different than the
9 forecast we are using now in this Ohio proceeding.

10 Q. Right. And that limited differential was
11 explained yesterday by Mr. Bletzacker? Or last week?
12 Did you answer my question, sir? The West Virginia
13 Commission found that the projected natural gas
14 prices used in the forecasts were aggressive, high,
15 and not supported by current or recent prices?

16 A. That's what Finding 4 says.

17 Q. And Finding 5?

18 A. Aggressive, yes.

19 Q. And ultimately the West Virginia
20 Commission denied the Application that you supported
21 in this case, correct?

22 A. Ultimately, they did.

23 Q. Let's turn to the Virginia case.

24 MS. BOJKO: Your Honor, at this time, I
25 would like to have marked as OMAEG Exhibit 12, the

1 Final Order issued by the Commonwealth of Virginia
2 State Corporation Commission on April 2, 2018, in
3 Case No. PUR-200017-00031.

4 EXAMINER PARROT: So marked.

5 (EXHIBIT MARKED FOR IDENTIFICATION.)

6 MS. BLEND: Your Honor, at this time,
7 I'll just renew my objection for purposes of
8 preserving the record. What another Commission did
9 in another jurisdiction, based on a different law, a
10 different record, at a different time, is not
11 relevant. And I also renew my hearsay objection.
12 Thank you.

13 EXAMINER PARROT: Noted for the record.

14 Thank you.

15 Q. (By Ms. Bojko) Mr. Torpey, do you have in
16 front of you what's been marked as OMAEG Exhibit 12
17 which was the Virginia State Corporation Commission's
18 finding -- Final Order, it's titled, in the case
19 where you filed testimony?

20 A. Yes.

21 Q. And this is, in fact, the case where you
22 filed -- you adopt Mr. Mears' testimony and then you
23 filed rebuttal testimony in the case?

24 A. Yes.

25 Q. And you're familiar with this Order, sir,

1 that was issued in the case that you participated in
2 on behalf of American Power -- American Electric
3 Power Service Corporation?

4 A. On behalf of APCo, yes.

5 Q. In this Order, the Virginia Commission
6 denied APCo's Application as well; is that correct?

7 A. Right. It was an Application to own two
8 wind facilities which is different than what we're
9 looking at in the current proceeding.

10 Q. And "need" was a defined, actually this
11 Commission separated and did a heading of the term
12 "need" on page 4 of its Order, correct?

13 A. They have a heading "Need," yes.

14 Q. And the Commission found that the
15 capacity and energy from the proposed facilities are
16 not needed to serve its Virginia customers, correct?

17 A. Correct.

18 Q. And the Virginia Public Utilities
19 Commission rejected APCo's argument that wind
20 facilities were needed to provide a lower-cost source
21 of energy compared to PJM wholesale prices, correct?

22 A. Yes. Although the benefit from these, I
23 don't think, was as great as what we are looking at
24 today.

25 Q. And the Order states that the record

1 called into question APCo's forecasted energy and
2 natural gas prices used to support its economic
3 analysis and the prices appeared to be inflated; is
4 that correct?

5 A. They had an issue with our old forecast,
6 yes.

7 Q. And that prior forecasts contained a
8 credit for carbon, is that correct, or a cost for
9 carbon?

10 A. It had a cost for carbon, yes.

11 Q. And isn't it true that Mr. Bletzacker's
12 new forecast, from 2016 to 2018, reduced the carbon
13 effect but still included it?

14 A. It's a different carbon cost, yes; I
15 believe it's lower.

16 Q. Right. And the Order here, in Virginia,
17 explains the Commission actually considered the
18 Production Tax Credits in their economic analysis but
19 still denied the proposal, correct?

20 A. Right. Because we would have owned the
21 facility, which means the ratepayers were on the hook
22 to -- to pay the cost of the facility to the Company,
23 regardless of the production out of that facility,
24 which is different than what we were looking at today
25 which was a REPA which is we -- the Company only pays

1 for energy produced from the wind project.

2 Q. And the customers are on the hook for 20
3 years as opposed to the life; is that your other
4 distinction?

5 A. No. My distinction is when you own the
6 facility, it goes into rate base and the customers
7 have to pay a return on the invested capital, plus
8 the depreciation on that rate base; so there is a
9 fixed charge essentially that they are paying every
10 year, regardless of the production from the wind
11 facility.

12 Q. Right. And isn't it true, customers also
13 get the benefit of that lower-cost power after 20
14 years if the asset is in rate base?

15 A. If it's still operating after 20 years,
16 they can, yes.

17 Q. And isn't it true that the Virginia
18 Commission found that APCo had not established that
19 the renewable facilities are needed as a hedge
20 against market volatility?

21 A. Are you pointing to a line on the
22 statement?

23 Q. It's on page 5. There are no line
24 numbers.

25 A. Right.

1 Q. It is the last paragraph on page 5.

2 A. Okay. "...find that APCo has not
3 established the Wind Facilities are needed at this
4 time as a hedge against market volatility."

5 Q. And ultimately the Commission determined
6 it was not reasonable or prudent to acquire renewable
7 facilities and recover costs from customers, correct?

8 A. Again, where are you reading from?

9 Q. That's on page 2.

10 A. On 2? Jumping around.

11 Q. In the Finding paragraph at the bottom of
12 page 2. "Thus, we find that it is neither reasonable
13 nor prudent for APCo to acquire the Wind Facilities
14 and then recover the costs from Virginia customers
15 based on the record before us."

16 A. I see that, yes.

17 Q. And let's turn to your testimony in Ohio.
18 This is your first time testifying in Ohio that you
19 have had the pleasure to be before us; is that
20 correct?

21 A. It's great. Yeah. Love it.

22 Q. You talked a little bit about, today and
23 throughout your testimony, you use the term "generic
24 renewable resources" and "generic" is meant to be a
25 representative project in Ohio; is that correct?

1 A. Yes.

2 Q. And when you were performing your
3 analysis though, you did use cost and production data
4 from RFPs that AEP Ohio received from bidders; is
5 that correct?

6 A. Not really the cost -- I mean, we knew
7 what the cost was and it informed us of the cost we
8 should use, but we used other data from other REPAs
9 from other proposals that we had received from EIA
10 data, so we had other data sources for the cost. The
11 performance numbers were from one of the -- we picked
12 one of the projects we thought would be a
13 representative project.

14 Q. So for the cost, you didn't even use the
15 actual cost data of a REPA that was given to you for
16 a specific project located in Ohio, in AEP's service
17 territory.

18 A. It informed us of the cost for a generic
19 resource. We didn't take the average of the REPAs or
20 one or the other.

21 Q. And you were here for Mr. Ali's
22 testimony, I believe, correct?

23 A. Yes.

24 Q. And Company witness Ali stated he
25 performed his analysis using cost and production data

1 from three specific projects where the RFPs were
2 given, correct?

3 A. He used -- I believe that's correct.

4 Q. Do you know how many RFP responses AEP
5 received?

6 A. I do not.

7 Q. And you weren't involved in the RFP
8 process; is that correct?

9 A. I was not involved.

10 Q. And you don't know what the requirements
11 of the RFP were, correct?

12 A. Not specifically, no.

13 Q. And you don't know what the RFP responses
14 look like exactly, do you?

15 A. I haven't even seen one today.

16 Q. And when you performed your modeling, you
17 used 650 megawatts, not the 900 megawatts; is that
18 correct?

19 A. We modeled or we used the 400 for solar
20 and then we use a representative 250 for wind, but
21 that's -- again, we talked about if there's another
22 project that's similar in characteristics to that 250
23 in the projects, we would consider doing those
24 projects as well.

25 Q. Fair. But your results were based on the

1 modeling that you performed for 650 megawatts,
2 correct?

3 A. They were.

4 Q. And you would agree that depending on the
5 type of resource that was ultimately selected and the
6 amount of each resource, your analysis could be
7 different.

8 A. If we selected different resources and
9 different amounts, the amount would be different,
10 yes.

11 Q. And in performing your analysis of the
12 generic 650 megawatts of renewable projects, you did
13 not have discussions with customers about their
14 desires, correct?

15 A. I did not, no.

16 Q. And you did not perform or study any
17 customer survey results in drafting the IRP, correct?

18 A. I knew there was a survey that was out
19 there that Navigant was performing, but I didn't have
20 any involvement with that.

21 Q. And page 8 of the -- let's turn to page 8
22 of the IRP. Which is JFT-1, page 8. Are you there,
23 sir?

24 A. Yes.

25 Q. Halfway down that first paragraph you

1 talk about the Company's future generation mix. Do
2 you see that? It's like four lines up from the
3 bottom of the first paragraph.

4 A. From the bottom -- or the first
5 paragraph, I'm sorry. Yes.

6 Q. The reference to the "Company's future
7 generation mix" is a reference to purchase power
8 agreements, not generating assets, correct?

9 A. Well, currently, the only generation that
10 the Company owns is through purchase power
11 agreements, so unless they have been allowed to
12 acquire a project, yes, I would agree with that.

13 Q. And in performing your analysis of the
14 generic 650 megawatts of renewable projects, you did
15 not conduct an analysis of the amount of solar that
16 will be developed by the competitive market during
17 the period covered by the IRP, correct?

18 A. I did not.

19 Q. In performing your analysis of this
20 generic 650 megawatts of renewable projects, you did
21 not conduct an analysis of the amount of wind that
22 will be developed by the competitive market during
23 the period covered by the IRP, correct?

24 A. I did not.

25 Q. Given that these were generic facilities,

1 you did not assume any specific construction start
2 date; is that correct?

3 A. The only thing we assumed is that they
4 would start in time to get either the PTC or the ITC
5 benefit and, therefore, achieve the price that we
6 modeled.

7 Q. And that's because you needed to assume a
8 projected in-service date of 2021 for purposes of the
9 end net present value calculation, correct?

10 A. Well, for the tax credit that would then
11 flow through the cost which would flow through to the
12 present value calculation, yes.

13 Q. Excuse me. So your reference on page 21,
14 your tables, you have a 2021 date. That 2021 date is
15 an assumption that the facilities would be in service
16 in 2021; is that correct?

17 A. Yes. I think we assumed December 31,
18 2020, but they are in service the full year of 2021.

19 Q. Thank you.

20 In performing your analysis of the
21 generic 650 megawatts of renewable projects, you did
22 not consider the location of those resources aside
23 from the fact they would be located in Ohio, correct?

24 A. I mean, we looked at -- for the
25 information we had, performance information we had on

1 the solar resources, it was southern Ohio, from the
2 projects we were receiving, so we used a performance
3 shape, a load shape, if you will, from a southern
4 Ohio solar facility, and we used a wind shape from a
5 wind facility that was north of Columbus.

6 Q. So, for your analysis, you used solar in
7 the southern part of the state, but you used wind in
8 the northern part of the state.

9 A. Because it's flatter in the north and you
10 could put the wind projects in easier.

11 Q. So is that a yes?

12 A. Yes.

13 Q. You did not account for renewable
14 resources in AEP's territory specifically, correct?

15 A. I am not sure I know what you are asking.

16 Q. Well, you just assumed southern and
17 northern for the reasons you just stated, you didn't
18 account for or make an assumption that they would be,
19 in fact, located in AEP's service territory for your
20 generic analysis purposes.

21 A. Right. I don't know that I made an
22 assumption one way or the other.

23 Q. Do you recall me participating in your
24 deposition a week or two ago, whenever that was?

25 A. It was my favorite part of the day.

1 Q. Thank you.

2 If you could turn to page 111 of your
3 deposition. I am going to start at line 5.

4 A. Line 5, yes.

5 Q. I explained that that's what I was trying
6 to understand, and then I asked you: "So your
7 generic analysis or your analysis about generic
8 renewable resources did take into consideration the
9 location?"

10 "Answer: Only that it's Ohio.

11 "Question: Okay. So it did not take
12 into consideration whether it was located in AEP
13 service territory, correct?

14 "Answer: It did not."

15 Did I read that correctly?

16 A. Yeah. I think that's what I just said,
17 but . . .

18 Q. Isn't it true that witness Ali did, in
19 fact, run the PROMOD simulation based upon three
20 specific renewable projects at specific locations for
21 three years?

22 A. I believe he had to pick a location to
23 run the simulation so, yes.

24 Q. Well, he didn't just pick a location, did
25 he? He actually analyzed three specific projects

1 that had a location, correct?

2 A. Oh, yeah, he had to have a location; so
3 he had projects that were available at those
4 locations that he used.

5 Q. Turn to page 5 of your testimony, sir,
6 lines 5 through 9. Isn't it true that four -- isn't
7 it true that the 400 megawatts of solar referenced in
8 the RFPs that were received by AEP Ohio and utilized
9 in your analysis, is the same 400 megawatts of solar
10 that AEP is proposing in the second phase of this
11 hearing through the proposed REPAs, Highland and
12 Willowbrook?

13 A. Well, there's no -- we assumed that the
14 load shape that we used would apply to all
15 400 megawatts. So there is no one project that
16 exists that's a 400-megawatt project today. So we
17 did use the -- I mean, we had 400 megawatts of
18 responses to our RFP that we were going to consider
19 for this -- for the next phase of the filing which
20 were those two projects for the next phase. But in
21 terms of an actual project -- actual project data, we
22 picked the load shape from one of those and applied
23 it to the full 400 megawatts.

24 Q. Just to be clear, the two projects,
25 Highland and Willowbrook, total 400 megawatts,

1 correct?

2 A. They did, yes.

3 Q. Mr. Torpey, just for the record, I don't
4 think anybody has asked you this, but you cite to
5 Administrative Code and requirements in your
6 testimony, and you are not a lawyer offering a legal
7 opinion here today, are you?

8 A. I am certainly not.

9 Q. Thankfully, huh?

10 It's your position that the economic
11 benefits, you discuss in your testimony, justify AEP
12 Ohio's requirement to show need, correct?

13 A. I think it's one component.

14 Q. And if we turn to page 5 of your
15 testimony that Mr. Olier referenced, starting on
16 line 10, here you testify that AEP performed four
17 separate analyses, correct?

18 A. Yes.

19 Q. And all of these analyses related to the
20 purported economic benefits of AEP's proposal, right?

21 A. They did.

22 Q. And you would agree that through these
23 projects, AEP -- strike that. You answered that.

24 And it's your understanding that the
25 energy supply from the renewable facilities would not

1 directly serve load; is that correct?

2 A. Just like any other generators in PJM,
3 the energy does not directly serve load. It's sold
4 into PJM.

5 Q. On page 10, line 7 of your testimony, you
6 discuss a reduction in the cost of energy at the AEP
7 load hub from the addition of renewables in the PJM
8 market, correct?

9 A. I do.

10 Q. And you call that the PJM benefit or PJM
11 impact; is that correct?

12 A. Yes.

13 Q. And if you turn now to page 6 of your
14 testimony, there is a chart, and here is where you
15 put the result of that PJM impact or reduction in
16 energy costs; is that correct?

17 A. Correct.

18 Q. And you would with agree me that the PJM
19 impact or reduction in energy costs would be
20 recognized by anyone buying energy from the AEP load
21 zone regardless of who develops the renewable
22 projects, correct?

23 A. I think we covered that earlier but yes.
24 Not with you, but yes.

25 Q. And when you discuss the benefits to AEP

1 Ohio or the AEP Ohio impact that's also in your
2 summary table, those benefits would flow to anyone
3 who enters into the REPA that you modeled, correct?

4 A. Well, again, those are -- if somebody
5 enters into the REPA that we modeled, they would see
6 the same impacts that we're showing here.

7 Q. And your impact analysis takes into
8 account a solar benefit and a wind benefit and lists
9 those separately in the table, correct?

10 A. It does.

11 Q. And if a commercial customer entered into
12 the REPA that you modeled, they would receive those
13 solar and/or wind benefits that you describe in your
14 table, correct?

15 A. If they could enter into a 400-megawatt
16 or 250-megawatt REPA, then they would receive those
17 benefits, yes, and there is nothing to stop them from
18 doing that.

19 Q. I am going to flip now to JFT-1. I am
20 sorry for flipping back and forth, but I am trying to
21 not cover what other people have covered.

22 A. It's keeping me awake.

23 Q. If we turn to JFT- 1, page 8, here at the
24 top paragraph at the last sentence, you talk about
25 investment in the renewable generation. You discuss

1 investment in renewable generation being key drivers
2 to economic growth in Ohio; do you see that?

3 A. I do.

4 Q. And you would agree that the benefits
5 that you identify would be present regardless of who
6 actually develops the renewable resources, correct?

7 A. Well, assuming somebody could develop
8 renewable resources of this size, then it wouldn't
9 matter who they were.

10 Q. And you would agree that in this filing,
11 AEP does not guarantee that customers will actually
12 receive the purported benefit, the net economics
13 benefit that you describe in your testimony, correct?

14 A. This is just a generic analysis, so there
15 is no guarantee of any -- any benefits.

16 Q. Nor is AEP guaranteeing any benefit,
17 correct?

18 A. I don't think you would guarantee
19 benefits in the need filing, but that's for the
20 policy witnesses to decide.

21 MS. BOJKO: If I may have one minute,
22 your Honor?

23 That's all I have. Thank you,
24 Mr. Torpey.

25 THE WITNESS: Thank you.

1 EXAMINER PARROT: Ms. Whitfield.

2 MS. WHITFIELD: Yes.

3 - - -

4 CROSS-EXAMINATION

5 By Ms. Whitfield:

6 Q. Good afternoon or evening almost. If you
7 could turn to pages 11 and 12 of your testimony.
8 This is where you discuss, towards the bottom of
9 page 11 and continue on to 12, the prob -- I am going
10 to -- probabilistic simulation -- I trip over that
11 word every time -- that you performed, correct?

12 A. It is, yes.

13 Q. And you performed this simulation, in
14 part, to evaluate the likelihood that AEP Ohio
15 customers would benefit from generic renewable energy
16 projects, correct?

17 A. Correct.

18 Q. And you state that the Company's
19 probabilistic simulation takes into account the
20 variability of PJM market prices?

21 A. Yes.

22 Q. And your testimony indicates that PJM
23 historical data yields a standard deviation of 25
24 percent relative to the average energy price; isn't
25 that true?

1 A. Over the past 10 years, that's what it's
2 been, yes.

3 Q. And then you created a normal
4 distribution of the annual avoided market energy
5 prices using that 25-percent standard deviation --

6 A. I did.

7 Q. I'm sorry.

8 A. Yes. I'm sorry.

9 Q. And then you use that in your Monte Carlo
10 analysis to perform this probabilistic simulation?

11 A. Yes.

12 Q. So the avoided market energy price in
13 each iteration of the simulation varies from the
14 annual average avoided market energy price, based on
15 that standard deviation, correct?

16 A. That's used to calculate where the price,
17 in any given year, would fall. We generate a random
18 number and that random number then would -- is used
19 to derive where, on the normal distribution curve,
20 the price should be. And when we say a 25-percent
21 standard deviation, what that means is 66 percent of
22 the time the value that we end up with will fall
23 between plus or minus 25 percent of the mean value.
24 So 34 percent of the time it would be either greater
25 or less, you know, it would be beyond that 25

1 percent.

2 Q. Okay. I think your explanation just
3 answered my next question but just to clarify, so the
4 annual average avoided market energy price is the
5 average or the approximate midpoint of the normal
6 distribution.

7 A. It is, yes.

8 Q. And if I'm understanding your testimony
9 correctly, the avoided costs in each iteration of the
10 simulation varies from the average based on that
11 normal distribution; is that correct?

12 A. Yes. It can vary each year.

13 Q. But the average, itself, does not vary
14 from AEP's forecast, correct?

15 A. The average -- the average cost each year
16 is the -- is the forecasted cost.

17 Q. Okay. And that doesn't vary every year.

18 A. No. That's the -- that's considered the
19 mean for that year.

20 Q. And your annual average avoided market
21 energy price is based on the base band of the
22 Company's 2018 Fundamentals Forecast, correct?

23 A. It is.

24 Q. You did not base it on the low band or
25 the status quo scenarios, did you?

1 A. I did not.

2 Q. If you performed the same probabilistic
3 simulation, but you based your annual average avoided
4 market price on the low-band scenario, would you
5 still expect the results to show that solar projects
6 will result in a net benefit of 100 percent of the
7 time?

8 A. I think it will probably be closer to
9 about 95ish or so, but I think in the 90s. I haven't
10 done it, but if I -- if you look at the difference in
11 the -- and I just know this, and I don't know if I
12 should be talking about this because it's the next
13 case, but I know what the difference in the market
14 price is for the low band versus the base band on a
15 levelized basis so over the life of REPA, and it's
16 about 5-1/2 dollars so let's say 6 dollars.

17 So if you looked at my figure in the IRP
18 on page 25, if you looked at figure -- Figure 4 and
19 you moved the zero line on the right, which you
20 really can't see right now, over to where \$6 is, and
21 is between 5 and 7, you would see that there --
22 there's a few instances and, you know, it's a small
23 number, there's a thousand -- these sum up to a
24 thousand, the number of iterations here, so there's,
25 you know, 10 -- let's say 15, 7, 3, there's probably

1 about 20 iterations out of the thousand that would be
2 not beneficial to customers. So, you know, the high
3 to mid 90s percent of the time it would be better for
4 the customers, I would say.

5 Q. But it would -- you can agree it would be
6 lower than the 100 percent that you are claiming
7 under the base band, correct?

8 A. It would be about 95 percent of the time;
9 it's pretty good.

10 Q. And the same for the wind projects, would
11 you expect that net benefit to customers, under the
12 low-band scenario --

13 A. Yes.

14 Q. -- to be lower?

15 A. Yeah. I'm sorry. And I didn't look
16 at -- because the wind numbers are, for the most
17 part, off-peak numbers and unfortunately I didn't --
18 I don't recall what the difference was from the
19 off-peak value from the base to the low. It might be
20 something less than -- because the solar is based on
21 peak energy so you are going to get a little bit of a
22 different number, but you would probably have a few
23 less values.

24 But, again, that's -- the way we are
25 doing this, there is two ways to do what I will call

1 a "sensitivity analysis" when you are looking at
2 these types of projects. You can do a deterministic
3 analysis which is where we look at the high band, the
4 low band, the base band and the status quo. Or you
5 can do what I did here which is stochastic analysis,
6 where you take an expected value going forward and
7 you do these variations. So you don't necessarily do
8 the variations around each one of your deterministic
9 outcomes.

10 Q. And I am going to follow-up, I believe
11 Mr. Kurtz asked you some questions, much earlier
12 today, about your analysis, and your testimony was
13 that it does not include any consideration of debt
14 equivalency cost, correct?

15 A. From my understanding, in this case there
16 is no mention of debt equivalency costs.

17 Q. So the answer to that is --

18 A. No.

19 Q. -- no?

20 A. Correct.

21 Q. So to be clear, your costs -- your
22 calculation of net cost of energy does not consider
23 any debt equivalency costs.

24 A. It does not.

25 Q. And instead, you've just based it on the

1 price paid to the owner of the renewable generation
2 facility in dollars per MWh, for each MWh energy
3 upload, correct?

4 A. That's correct.

5 Q. And are you aware that AEP is proposing
6 to include a debt equivalency cost component for
7 recovery under the RGR?

8 MS. BLEND: Objection, your Honor.
9 Outside the scope of this hearing.

10 MS. WHITFIELD: Well, your Honor, I think
11 he -- they questioned him about the debt equivalency
12 cost. He opened the door and his testimony was to
13 the extent AEP is seeking to recover it, then we
14 would have to factor it in. And I am asking him,
15 since he said to the extent, are you aware that they
16 are, in fact, seeking to recover it.

17 MS. BLEND: And, your Honor, he is a
18 witness who filed testimony for the second phase
19 hearing and he can be asked this question at that
20 hearing.

21 EXAMINER PARROT: The objection is
22 sustained. If you maybe want to go about it a
23 different way, Ms. Whitfield, we'll go from there.

24 MS. WHITFIELD: Just give me one minute,
25 please.

1 I'm sorry, your Honor, what did you say?
2 You sustained it but then what did you say?

3 EXAMINER PARROT: I think with respect to
4 the question that's pending, yes, the objection is
5 sustained, but I was offering you the opportunity if
6 you wanted to perhaps try to rephrase.

7 Q. (By Ms. Whitfield) Well, Mr. Torpey,
8 would you agree that the utility, AEP Ohio, would
9 enter into continued PPAs if there was an added
10 incentive?

11 MS. BLEND: Objection, your Honor.
12 Outside the scope of Mr. Torpey's testimony and
13 irrelevant.

14 MR. WHITFIELD: Well, your Honor, yeah,
15 this is -- he put the -- put the formula together
16 about what the net cost of energy is. I am
17 questioning him about an integrated resource planning
18 presentation that he did, a "View from the Front
19 Lines," that he did in September of 2018, and that's
20 what he said.

21 MS. BLEND: I believe Ms. Whitfield's
22 question was not specific to that presentation which
23 is also not before Mr. Torpey right now, but he's
24 testified repeatedly that his analysis for this phase
25 of this case does not factor into -- doesn't account

1 for any costs other than those he has expressly
2 identified in the analysis.

3 MS. WHITFIELD: Well, your Honor, he's --
4 he's talking about the economic benefits to customers
5 and he's also calculating a cost. I am allowed to
6 challenge the basis of how he has calculated that
7 cost and how it offsets the economic benefits. We
8 cannot have a one-sided presentation of the benefits
9 without looking at the costs.

10 MS. BLEND: The Company is not making any
11 debt equivalency proposal or other proposal regarding
12 any costs outside those included in Mr. Torpey's
13 filed analysis that's the subject of this hearing in
14 this phase of this proceeding. And it would be
15 prejudicial to the Company to allow Ms. Whitfield to
16 question Mr. Torpey about proposals that are not part
17 of the record in this phase of the proceeding.

18 MR. DARR: Your Honor, if I may address
19 this objection? The Company, over repeated
20 objections on the part of many of the intervenors
21 which are not particularly happy with this proposal,
22 has been allowed to advance a case based on the
23 economic benefit as a showing of a component of the
24 requirement to demonstrate need.

25 And now the Company is objecting that

1434

1 when you test the model, that that somehow is outside
2 the scope of this hearing. You know, I have to renew
3 my concern that we're basically looking at, as was
4 just suggested, a one-sided equation without looking
5 at the other side of the equation, costs and
6 benefits. Having raised this issue as part of their
7 case-in-chief, that they are going to justify the
8 need for this facility based on economics, we should
9 be prepared to and should be allowed to explore what
10 the economics of this proposal is.

11 MS. BLEND: And just for the record, the
12 Company is not trying to prevent that.
13 Ms. Whitfield's original question related to whether
14 Mr. Torpey was aware of the debt equivalency cost
15 proposal that the Company has proposed in the second
16 phase of the proceeding, and I objected to that, and
17 then she asked that -- whether AEP, as a utility,
18 would enter into continued PPAs if there was an added
19 incentive, and that, too, is outside the scope of his
20 break-even analysis and other analyses provided
21 regarding the generic projects. I don't -- I don't
22 understand the prejudice that Mr. Darr is alleging
23 exists.

24 EXAMINER PARROT: Ms. Whitfield, I am
25 going to ask you to rephrase your question.

1 Q. (By Ms. Whitfield) Mr. Torpey, wouldn't
2 you agree with me that it would be a tough sell to
3 have a utility enter into a PPA without an added
4 incentive?

5 A. I think it depends on the utility. As
6 utilities add more and more purchase power
7 agreements, then there would be more I'll say of an
8 incentive to -- because those costs just flow
9 through, and the Company sees no necessarily benefit
10 from that. It could -- but there are costs from --
11 and I am not an expert in this, but I know there is
12 cost from a financing standpoint in terms of what --
13 how rating agencies do company debt that, at some
14 point, a company would want some sort of
15 compensation. But, again, that's not necessarily my
16 area of expertise.

17 MS. WHITFIELD: Thank you. That's all I
18 have for Mr. Torpey.

19 EXAMINER PARROT: Mr. Collier?

20 MR. COLLIER: Yes, your Honor. We might
21 be a while if you want to take a break now or?

22 THE WITNESS: What does he mean by "a
23 while"?

24 EXAMINER PARROT: Let's go off the
25 record.

1 (Discussion off the record.)

2 (Recess taken.)

3 EXAMINER PARROT: Let's go back on the
4 record.

5 Mr. Collier.

6 MR. COLLIER: Thank you, your Honor.

7 - - -

8 CROSS-EXAMINATION

9 By Mr. Collier:

10 Q. Mr. Torpey, I would like to start with
11 the Long-Term Forecast Report.

12 A. Sure.

13 Q. Specifically, Form FE-D1 that you were
14 questioned about earlier.

15 A. Yes.

16 Q. And this form shows Ohio -- AEP Ohio
17 energy delivery forecast for various years, does it
18 not?

19 A. It does.

20 Q. All right. If we look at, just for
21 comparison's sake, year 2021. You have a net energy
22 for load of 46,240,280 megawatts.

23 A. I see that.

24 Q. All right. And that figure is composed
25 of "Total End User Consumption" plus "Losses and

1 Unaccounted For"; is that correct?

2 A. Yes.

3 Q. All right. And the total energy -- or
4 total end user consumption of 43,144,591 is a
5 combination of Columns 1, 2, 3, and 4, plus 5a minus
6 5b, right?

7 A. That's correct.

8 Q. 5a being "Other"?

9 A. Right.

10 Q. And "Other" includes street lighting,
11 highway lighting, public authorities, and
12 interdepartmental sales?

13 A. Right.

14 Q. And 5b, energy efficiency and demand
15 response.

16 A. Correct.

17 Q. All right. Now, if we go to form FE-D2,
18 we have, again year 2021, we have the same figure for
19 net energy for load, 46,240,280, correct?

20 A. Correct.

21 Q. The total end user consumption, however,
22 is -- is the same number, correct?

23 A. Yes.

24 Q. What's the difference between Form D1 and
25 D2?

1 A. If you notice on D2, there is no column
2 that says "Energy Efficiency and Demand Response."

3 Q. Okay.

4 A. And that's because those values are, I
5 don't want it use the word "allocated," but put back
6 into the residential, commercial, and industrial
7 columns where they emanate from.

8 Q. All right. Now, I would like to turn
9 your attention, in the same exhibit, to Form FE-R1
10 under the resource forms.

11 A. Okay.

12 Q. There you have a monthly -- monthly
13 forecast of the utility's service area peak load and
14 resources dedicated to meet peak load, right?

15 A. Yes.

16 Q. So they are AEP Ohio-specific numbers,
17 are they not?

18 A. They are, yes.

19 Q. And in terms of the sources, you have
20 purchases, renewable, available capacity, it lists
21 all the sources of the generation, right?

22 A. It does.

23 Q. But you have no figure for renewable.

24 A. It would all be under purchases. I am
25 sorry. Let me take that back. No. We have no

1 figure for renewables, correct.

2 Q. Renewable, in the case of AEP, would be
3 the REPAs it's entered into for wind and solar; is
4 that correct?

5 A. Well, no. Well, for this form, no,
6 because those resources don't serve the AEP Ohio
7 load.

8 Q. Exactly my point. Those renewable
9 resources don't serve peak load.

10 A. That's right.

11 Q. Okay. And, in fact, you so state on
12 FE-R4. "Resources listed on Form R-3 are not
13 currently designated to meet Ohio Peak Load."

14 A. Right.

15 Q. I would like to turn your attention now
16 to the integrated resource analysis which is the
17 exhibit to your testimony. Are you with me?

18 A. Did you have a specific page?

19 Q. Well, okay. You have the document in
20 front of you?

21 A. Yes.

22 Q. Now, first line of questioning I would
23 like to ask you about is your section dealing with
24 advances in renewable energy.

25 A. 3.1.2?

1 Q. Yes, sir.

2 A. Okay.

3 Q. All right. You say on the next page,
4 page 10, "Renewable generation resources are
5 recognized more for their energy...value than
6 capacity...value because of their intermittent
7 nature."

8 A. That's correct.

9 Q. And what do you mean by that?

10 A. Because -- well, they're renewable, so
11 they are based on either when the sun is shining or
12 the wind is blowing and, as a result, they do provide
13 quite a bit of energy value but you can't count on
14 their full nameplate of capacity being available at
15 any given point in time.

16 Q. Okay. And that's why you employ a
17 capacity factor in your analysis.

18 A. Well, that's why we reduced the capacity,
19 the nameplate capacity for purposes of coming up with
20 a capacity credit.

21 Q. All right. Moving on to page 11.
22 "Historical U.S. REPA Prices." Page 11.

23 A. Oh, it's on page 12. Okay. I'm sorry.
24 There is a figure on page 12 that says the same
25 title, yes.

1 Q. All right. Let's go to page 11 of 47,
2 Section 3.1.7. You state here: "Wind is a variable
3 source of power with capacity factors ranging from
4 30 percent (in the eastern portion of the U.S.) to
5 over 50 percent (largely in more westerly portions of
6 the U.S., including the Plains states)." Do you see
7 that?

8 A. Correct.

9 Q. Location is important for solar -- for
10 wind resources.

11 A. It is.

12 Q. Okay. And location is also important for
13 solar resources.

14 A. It is.

15 Q. You state "The U.S. Department of
16 Energy's 2016 Wind Technologies Market Report stated
17 that the average wind Renewable Energy Purchase
18 Agreement (REPA) for the 'Great Lakes' region of the
19 nation had steadily trended down, with a 2015 average
20 price executed around \$40 per megawatt-hour." Do you
21 see that?

22 A. Yes.

23 Q. All right. First of all, what is the
24 Great Lakes region? Is there a way to define that?

25 A. There is. I don't know that I could

1 name -- it's basically the states that about the Great
2 Lakes. I don't believe New York is included. I
3 think it starts maybe with -- with Wisconsin, I don't
4 know if Minnesota -- Minnesota might be in there,
5 Wisconsin, Illinois, Indiana, Michigan, and Ohio.

6 Q. Ohio is included in that.

7 A. Yes.

8 Q. All right. Now, this trend,
9 40-megawatt -- \$40 per megawatt-hour, that's average
10 price of a REPA?

11 A. That's what was reported in this report,
12 yes.

13 Q. That's both capacity and energy?

14 A. Well, it's what you would pay the REPA,
15 however you want to use their output, but that's
16 you're paying for the energy. Generally the REPA is
17 an energy REPA; usually you pay per megawatt of
18 output.

19 Q. A REPA has a contract price.

20 A. Yes.

21 Q. Correct? And parties may purchase output
22 and capacity or variations of that, right?

23 A. Generally with wind REPAs you are just
24 buying -- the ones that I am familiar with, we're
25 just paying a price for the energy that we're taking

1 off the REPA. If we want to use that capacity in
2 certain of our jurisdictions, certain of our
3 companies to meet a capacity requirement, we would
4 determine what the value of that capacity is for
5 the -- for what we are contracting for from that
6 REPA.

7 Q. We will get into this again when we get
8 into your tables, did you make any assumption about
9 the REPA contract price and how it's broken down?

10 A. No.

11 Q. Either for actual REPA, generic REPA, or
12 avoided REPA? Let me withdraw that question.

13 You make no assumption whether -- as to
14 the generic REPAs as to the breakdown?

15 A. There is no -- in the number we are using
16 for wind, which I think is \$40 a megawatt-hour or so,
17 there's no assumption there that a percent of that is
18 for capacity, a percent is for energy.

19 Q. Right. And you are stating here that the
20 trend is down from 2015 average price, correct?

21 A. The trend has been down, yes.

22 Q. And is that -- that trend, were you able
23 to extrapolate that out, 5, 10, 20 years?

24 A. Well, what we are seeing is -- I mean,
25 these are -- you know, these are 2017 dollars. So

1 the trend could still continue to go down on a -- or
2 stay -- go down on a real basis. On a nominal basis,
3 it could stay flat. And, again, it all depends on
4 the specific location that you put the project in.
5 But we are seeing costs in the 40 -- high 30s, low 40
6 range, from other REPAs we've seen.

7 Q. All right. And then your Figure 1, on
8 the next page, is a graphical display of that
9 downward trend, right?

10 A. Correct.

11 Q. Could you say the same thing about solar
12 resources?

13 A. Yes. And we have -- Figure 2 shows the
14 trend in solar.

15 Q. Okay. But you don't have an absolute
16 dollar figure for the 2015 average price of solar
17 like you to do for wind.

18 A. We don't, no.

19 Q. So the graph is the best information we
20 have on the trend; is that not correct?

21 A. I would say that's what we have
22 available, yes.

23 Q. All right. If I understand your Figure 2
24 correctly, it looks like solar costs are going down
25 from 2010 projected out to 2030; is that what this

1 shows?

2 A. Right. They took a steep decline through
3 20 -- I'll say even through 2018 and then a more
4 moderate decline from '18 on out to '30.

5 Q. And that -- first of all, the cost to
6 install is nominal dollars per watt?

7 A. Per watt AC, yes.

8 Q. Nominal dollars per watt. "AC" being
9 alternating current?

10 A. Right. As opposed to DC. Oftentimes
11 you'll see prices quoted as DC and they will be lower
12 than what we are seeing here. But you need to
13 convert that to AC and there is a -- there is an
14 increase in price when you compare AC to DC costs per
15 watt.

16 Q. And your source for this figure is
17 Bloomberg New Energy Finance H2 2017 U.S. Renewable
18 Energy Market Outlook.

19 A. Correct.

20 Q. And you'll see the trend applies not only
21 to large-scale installation but also commercial
22 rooftop and residential rooftop installation.

23 A. Yes.

24 Q. All right. I would like to turn your
25 attention now to Section 4, page 14 of your report.

1 A. Yes.

2 Q. Here you explain that following corporate
3 separation in 2013, AEP Ohio purchased energy and
4 capacity from the PJM system.

5 A. Correct.

6 Q. And PJM, as the Company's RTO, is
7 responsible for maintaining the electric system
8 reliability, safety, and economic dispatch of its
9 members, correct?

10 A. Correct.

11 Q. All right. And then you go on and you
12 talk about contractual entitlements to generation and
13 you list those sources being Fowler Ridge, Timber
14 Ridge, and Wyandot.

15 A. Right.

16 Q. Timber Road, does AEP or any of its
17 affiliates have any ownership interest in Timber
18 Road?

19 A. Not that I am aware of.

20 Q. How about Fowler Ridge?

21 A. No.

22 Q. Who is the owner of Fowler Ridge?

23 A. I don't recall. We have a lot of
24 projects. I just don't recall.

25 Q. Do you know if AEP has any ownership?

1 A. If you have information that says that, I
2 would not be surprised.

3 Q. Same question with Timber Road, do you
4 know?

5 A. I don't recall. But I think it's
6 publicly available.

7 Q. All right. And if we look at your
8 committed resources of the capacity, we say PPA
9 capacity is 646 megawatts, 67.6 percent of which is
10 coal and 32.4 percent is wind and solar.

11 A. Correct.

12 Q. In Section 6, then you talk about
13 projected system reliability, system adequacy, and
14 future fuel supply adequacy. Do you see that?

15 A. Yes.

16 Q. And there you state that "Given PJM's
17 role and the Company's procurement of capacity
18 through the PJM's Base Residual Auction, rather than
19 supplying its own capacity..., the Company does not
20 maintain projections regarding system reliability or
21 system adequacy."

22 A. Correct.

23 Q. And it doesn't procure fuel supplies
24 either.

25 A. The Company is not buying fuel, right.

1 Q. Demonstration of cost effective -- strike
2 that.

3 Next question. When you did your
4 integrated resource plan, did you review the pending
5 and approved solar projects in Ohio?

6 A. For who?

7 Q. For any source. Did you take that into
8 account?

9 A. I did not specifically look at pending or
10 approved projects.

11 Q. Same question for wind. Did you look at
12 the availability of pending or approved wind projects
13 in Ohio?

14 A. I did not, no.

15 Q. Your demonstration of cost effectiveness,
16 this is the metric: Net cost of energy, equals REPA
17 price, minus avoided cost of energy, plus avoided
18 cost of capacity, divided by annual generation,
19 correct?

20 A. Yes.

21 Q. Annual generation being what?

22 A. The generation from the renewable energy
23 project.

24 Q. Just the renewable energy project.

25 A. Yes.

1 Q. And avoided -- well, strike that.

2 We'll deal with avoided cost of energy
3 and avoided cost of capacity in your tables.

4 A. Sure.

5 Q. This is the metric you employed.

6 A. Correct.

7 Q. The factors that go into this analysis
8 are listed on page 17.

9 A. They are.

10 Q. Factors could be REPA price; dollars per
11 megawatt-hour?

12 A. Yes.

13 Q. It could be capacity factor; assumed
14 utilization rate?

15 A. Yes.

16 Q. It would be the PJM energy price in
17 dollars per megawatt-hour?

18 A. Correct.

19 Q. Which is an hourly forecast.

20 A. Right.

21 Q. Capacity, megawatt, which is an
22 assumption as to the firm capacity that resource
23 represents?

24 A. Yes.

25 Q. And then the PJM capacity value, dollars

1 per megawatt-day, which is a forecast of PJM capacity
2 values.

3 A. Correct.

4 Q. Now, with regard to those variables,
5 changing the input, changes the results.

6 A. You change the number in the table, it
7 will change the results, yes.

8 Q. Now, the PJM energy price, does PJM
9 forecast energy price into the future?

10 A. I don't know that they do.

11 Q. All right. Does PJM forecast capacity
12 value into the future?

13 A. When you say "capacity," do you want --
14 do you mean capacity factor or capacity value?

15 Q. Capacity value dollars per megawatt --

16 A. Megawatt day. There is a three-year look
17 ahead. There is -- you can bid into the RPM market
18 three years in advance, so there is some signal out
19 three years.

20 Q. Now, to be clear, since PJM does not
21 forecast out further than three years, you relied on
22 the Company's 2018 Base Fundamentals Forecast.

23 A. Correct.

24 Q. And you use that to project out 20 years
25 into the future.

1 A. 20 years from the start date of the REPA.

2 Q. Did you use the Base Fundamentals
3 Forecast solely for the PJM capacity value proxy?

4 A. Yes.

5 Q. Okay. Now, I would like to draw your
6 attention to Table 4. In Table 4, you're analyzing
7 the PJM impact applied to AEP Ohio load, correct?

8 A. Yes.

9 Q. This basically relates to the PJM impact
10 of locational marginal pricing.

11 A. Correct.

12 Q. Now, I want to work our way through these
13 columns. Basically, you are comparing base load LMPs
14 without renewables to a combined renewable load LMPs.

15 A. Yes.

16 Q. All right. And to start, you use a
17 present value factor, correct?

18 A. That's the first column after year, yes.

19 Q. Right. And we'll talk about that in a
20 moment. Load cost dollars -- dollars in millions,
21 right?

22 A. Yes.

23 Q. And where did you get that figure for
24 each of those years?

25 A. So for each year we looked at the AEP

1 Ohio load on an hourly basis and applied that against
2 the forecast of PJM prices and this would have been
3 from provided -- information provided by witness Ali,
4 so it's the PJM analysis that they do for pricing,
5 and we applied that AEP Ohio load to the forecasted
6 prices and basically that's the sum of the load times
7 the hourly price for 8,760 hours.

8 Q. Is that load cost based on locational
9 marginal pricing estimates?

10 A. Yes.

11 Q. And it's -- that -- you got that for
12 three years from Mr. Ali.

13 A. That's correct.

14 Q. And this graph, this particular graph is
15 highlighted for the years 21, '24, and '27; do you
16 see that?

17 A. Which are the years I got from Mr. Ali,
18 yes.

19 Q. Those are the years you got from Mr. Ali?

20 A. Correct.

21 Q. Everything else, every other figure is
22 something you calculated, is it not?

23 A. Correct.

24 Q. And not only calculated but forecasted.

25 A. We -- yes.

1 Q. Mr. Ali -- well, hold that thought.
2 Let's go on to OPCo load in gigawatt-hours. Do you
3 see that?

4 A. Yes.

5 Q. What's that?

6 A. That's the total load for AEP Ohio.

7 Q. And if we look at the figure for 2021,
8 46,249 gigawatt-hours.

9 A. Yes.

10 Q. What's the source of that?

11 A. We got that from our Load Forecasting
12 Department.

13 Q. Form D1?

14 A. I think there's a minor difference but
15 let me just check here. So Form DE-1, in 2021, has
16 46,240 gigawatt-hours. This is 46,249
17 gigawatt-hours. So there is a 9-gigawatt-hour
18 difference which is, in the big scheme of things, not
19 relevant, but that's based on I believe the load that
20 we used in this forecast was -- included a -- a
21 wholesale -- I think it's an Ohio Edison load that's
22 hooked up to distribution wires that's not included
23 in Table D1. So that's basically the difference.

24 Q. All right.

25 A. It's essentially, if you look at Column 8

1 on Form D1 for each year, it will be the same number
2 off by 9.

3 Q. That is off by 9, but representative of
4 the net energy for load in Form FE-D1.

5 A. That's correct.

6 Q. That's Column 8.

7 A. Correct.

8 Q. That includes losses and unaccounted for.

9 A. Right. It would be what the generators
10 are putting into the LMP.

11 Q. All right. Now, going to the next
12 column, load energy, is that cost dollars?

13 A. Oh. Load energy cost, dollars per
14 megawatt-hour?

15 Q. Yes.

16 A. Yes.

17 Q. All right. And what's the source of that
18 information?

19 A. Again, that's simply the load cost
20 divided by the gigawatt-hours. So \$1,642,000,000
21 divided by 46,249 gigawatt-hours.

22 Q. That's, again, total Ohio Power load.

23 A. The total Ohio Power load, yes.

24 Q. That's not the AEP eastern generation.

25 A. No, it's not.

1 Q. That's 10 states.

2 A. It's bigger, yes.

3 Q. All right. But the numbers you got from
4 Mr. Ali for those three years you've highlighted,
5 were AEP eastern zone figures.

6 A. And as he stated, because there's no
7 congestion, those numbers apply to all the LMPs in
8 the AEP eastern zone.

9 Q. Is there congestion on the other 10
10 systems? Do you know?

11 A. The other 10 systems?

12 Q. AEP Ohio, Kentucky, West Virginia,
13 whatever.

14 A. Those make up the AEP zone.

15 Q. I know they make up the AEP zone.

16 A. So there's no congestion.

17 Q. No congestion on the entire AEP eastern
18 zone.

19 A. That's what Mr. Ali said.

20 Q. All right. But Mr. Ali gave you a
21 figure, for 2021, of .050 dollars per megawatt-hour?

22 A. Well, he gave us the prices for each
23 hour, with the renewables and without the renewables.

24 Q. He shows in a figure in his testimony,
25 you may be familiar with it, a figure of .050 in

1 2021.

2 A. Yes.

3 Q. Do you know what that is?

4 A. Yes. When he applies the difference
5 between his cost with the renewables to the costs
6 without the renewables with the entire AEP East zone,
7 which I think he had 133,000 gigawatt-hours roughly,
8 that worked out because that load -- that zone or the
9 AEP zone load shape is going to be slightly different
10 than just the AEP Ohio load shape. So, again, when
11 you look at the weighted average cost of the 8,760
12 hours, based on that 133,000 gigawatt-hours, that
13 works out to a difference of 5 or 5.5 cents.

14 Q. Which happens to be the change, load
15 energy cost, in your last column.

16 A. It's pretty close, yes.

17 Q. All right. He gave you a figure of .043
18 dollars per megawatt-hour for 2024.

19 A. Right.

20 Q. Your figure is .02.

21 A. And again, because his -- we're looking
22 at the specific AEP Ohio load shape for that year
23 compared to the load shape for the whole AEP zone.
24 So really what we are looking at is the difference in
25 pricing. I mean, the pricing is going to be the

1 same, so the pricing for with renewables and the
2 pricing without renewables are the same in both
3 calculations, my calculation and Mr. Ali's
4 calculation, just that I'm applying his cost per
5 megawatt-hour to the AEP Ohio load shape. He's
6 applying it to the AEP zone load shape which is about
7 three times as large as the AEP Ohio load shape.

8 Q. Why would you assume they would be the
9 same?

10 A. Because there's no congestion.

11 Q. And we'll come back to that.

12 Moving -- moving back to the columns
13 again. You combine, then, the load energy cost, in
14 dollars per megawatt-hour, to a scenario that
15 includes renewable load LMPs, right?

16 A. Yes.

17 Q. You use the same present value factor?

18 A. I did.

19 Q. You use a different load cost?

20 A. Well, the different load cost is because
21 now the prices that Mr. Ali had for that year for
22 each of those three years included 650 megawatts of
23 renewable projects. So 650 megawatts of zero cost
24 energy were added to those LMPs.

25 Q. And what's the source of the load cost in

1 millions of dollars?

2 A. It's the sum of the 8,760 hours in that
3 year cost per -- cost per hour times -- energy cost
4 per hour times the AEP Ohio load at that hour. So
5 it's a weighted average -- that's the sum of each of
6 the 8,760 hour's load cost.

7 Q. In this case, assuming renewable load
8 LMPs.

9 A. With the renewables, right.

10 Q. All right. Is there a renewable load
11 LMP, a specific dollar figure?

12 A. Well, when we look at his analysis, he
13 has a dollar figure for each hour that has -- it's a
14 dollar figure with renewables and then he has a
15 dollar figure for each hour without the renewables.

16 Q. Okay. Moving on. The OPco load is the
17 same figures you used in the base load comparison.

18 A. Right.

19 Q. And then the load energy cost is a
20 calculation, again, based on your load and load
21 costs.

22 A. It is.

23 Q. You compare, then, the load energy cost
24 without renewables to the load energy cost with
25 renewables and you get a change in load energy cost.

1 A. Right.

2 Q. All right. Now, you only got three
3 years' data from Mr. Ali, right?

4 A. Correct.

5 Q. And you show the load energy cost
6 declining between 2021 and 2024, three -- four years?

7 A. It does decline, yes.

8 Q. Do you have any explanation for that?

9 A. It's just the make up of the resources
10 that are in the AEP zone for those specific years.

11 Q. All right. And then you extrapolate the
12 2024 number to get to the 2027 number, right?

13 A. Right. We look at the difference between
14 the -- and you can do it either way, but let's say in
15 the first grouping you have \$40.74 in 2024, on the
16 load energy cost dollars per megawatt-hour without
17 renewables, and that goes up in 2027 to \$46.41. So
18 we just extrapolated between those two numbers and it
19 adds about \$2 a year.

20 Q. Did you assume any -- make any assumption
21 about escalation costs?

22 A. For those specific years, we did not.
23 Now, beyond that, beyond 2027, that's where we
24 assumed that there would be escalation beyond 2027.

25 Q. All right. And then if we look at the

1460

1 figures beyond 2027, you go up to .08 in 2028, right?

2 A. Right.

3 Q. And then for the next four -- three years
4 you have the same figure, .09.

5 A. Right. We assumed -- and again, all we
6 are looking at is the relative difference between the
7 market prices in each year. So if you add
8 650 megawatts of renewable energy into the AEP load
9 zone, basically over time you are going to see energy
10 prices increase to some degree but it's not going to
11 have that big an impact in terms of the relative
12 change over time to the total price.

13 Q. Do you assume any congestion cost in any
14 of the projected years?

15 A. There is no congestion cost in here.

16 Q. At all.

17 A. At all.

18 Q. All right. You get a figure then, on a
19 levelized basis, of .07 dollars per megawatt-hour,
20 correct?

21 A. Correct.

22 Q. And you multiply that levelized figure
23 against what?

24 A. The levelized OPCo load.

25 Q. Which is?

1 A. The 47,065.

2 Q. 47 --

3 A. At the bottom it says "Levelized."

4 Q. Okay. Got it. All right. And that gets
5 you to \$31 million on a net present value basis,
6 right?

7 A. Correct.

8 Q. Now, locational marginal costs are based
9 on an hourly transaction. They are hourly, are they
10 not?

11 A. They are hourly, yes.

12 Q. And they depend on the particular node or
13 nodes.

14 A. Well, right.

15 Q. So the location of the hypothetical
16 facility is important in your determination of
17 locational marginal cost.

18 A. Generally as long as there is -- you
19 know, we are assuming they are all going into the AEP
20 zone or nodes close to the AEP zone.

21 Q. Okay. So the assumption you are making
22 for this comparison is all of the output goes into
23 the AEP load zone.

24 A. Correct.

25 Q. You made -- what if the output went into

1 the Dayton Power & Light?

2 A. It's right next door. It's pretty close.

3 Q. Pretty close but different system.

4 A. It's a different load -- the load -- the
5 LMP points might be different, but from a
6 geographical standpoint, in an interconnectedness
7 standpoint, they are relatively close.

8 Q. Dayton Power & Light is part of a
9 entirely different transmission system, is it not?

10 A. Well, we are all part of PJM, I mean.

11 Q. I mean load system.

12 A. They have -- I mean, they have their load
13 that they serve but, again, a lot of this is all
14 regional so, you know, if you are relatively close,
15 it's just a matter of how it's all interconnected.

16 Q. Mr. Ali said that he -- he used the
17 Highland facility and the Willowbrook facility as
18 representative of the locational marginal cost.

19 A. He did.

20 Q. And that's consistent with the way you
21 applied it too, right?

22 A. Right.

23 Q. And then for the wind, he used
24 (REDACTED) .

25 A. That's what he said, yes.

1 MS. BLEND: Objection, your Honor.

2 MR. COLLIER: Okay. All right.

3 MS. BLEND: We addressed this with
4 Mr. Ali last week, on and off the record, and the
5 references to that developer have been deemed, by the
6 Attorney Examiners, to be confidential and removed
7 from the record. So I would request that to the
8 extent Mr. Collier is going to get into information
9 that should be addressed in confidential session,
10 including the identity of that developer, that he
11 please wait to do so until the end of
12 cross-examination as is the typical practice in these
13 hearings.

14 MR. COLLIER: I am not going any further
15 with that at all.

16 Q. (By Mr. Collier) Now, isn't it a fact
17 that the Highland facility connects to the Dayton
18 Power & Light system in a 138-kV line?

19 A. I haven't analyzed the interconnection.
20 I believe it does connect Dayton Power & Light, but I
21 am not -- I have not been involved.

22 Q. I misspoke. Interconnects at the
23 Stuart-Clinton 345-kV line.

24 A. Oh, that's even better. If you say so.
25 I mean, I have not analyzed where it interconnects.

1 MR. COLLIER: Your Honor, I would request
2 you take administrative notice of the filing of
3 Highland, Hecate Energy, before the Ohio Power Siting
4 Board, addressing the interconnection points of that
5 particular facility.

6 MS. BLEND: Your Honor, I object to this
7 line of questioning and to the request of
8 administrative notice. This is another issue we have
9 addressed at least two or three times now in this
10 hearing. Where these facilities interconnect,
11 where -- where projects that are the subject of Phase
12 II interconnects is not relevant to the need issue
13 that is before the Commission in this phase of the
14 proceeding.

15 Mr. Collier has attempted to go down this
16 road, like I said, two or three different times.
17 It's not relevant. Mr. Torpey's analysis is a
18 generic analysis as he's repeatedly testified. And
19 specific questions about specific interconnection
20 issues would be appropriate for witness Ali who is
21 our transmission planning witness in any event. They
22 are certainly not relevant to Mr. Torpey's testimony
23 or appropriate to address with him.

24 MR. COLLIER: This is relevant to the
25 deployment of the assumption of location for purposes

1 of calculating forecasted load energy costs which the
2 witness has already indicated is dependent upon the
3 actual location, so.

4 MS. BLEND: And Mr. Torpey has repeatedly
5 testified that Mr. Ali calculated the LMPs and that
6 Mr. Torpey's analysis was merely to take the
7 information provided by Mr. Ali, who is the expert on
8 these issues, and to interpolate and extrapolate it
9 to get the prices in Mr. Torpey's analysis.

10 MR. COLLIER: The evidence indicates
11 Mr. Ali only analyzed three years which we've
12 discussed and the basis for the figures that appear
13 in the record. Everything else is a projection based
14 on this witness's calculation. And he's already said
15 it connects to a different system but it may be a
16 different characterization. I don't mean to
17 characterize his testimony, but we already have that
18 in the record. All I want is the full Commission to
19 take administrative notice of the filing that's made
20 by Highland Energy in the Power Siting Board docket
21 which also happens to be the PUCO's docket.

22 EXAMINER PARROT: Let's table that
23 request until the end when we get to our exhibits,
24 Mr. Collier.

25 MR. COLLIER: Can I mark the exhibit at

1 this time so we can either get it admitted or make a
2 proffer?

3 EXAMINER PARROT: Go ahead and mark it.
4 My understanding was you were requesting
5 administrative notice so maybe --

6 MR. COLLIER: I can mark it for
7 identification.

8 EXAMINER PARROT: Okay. Go ahead.

9 MR. COLLIER: I will just mark it as OCA
10 Exhibit 1. And, your Honor, at this point, I have
11 several copies but not enough for all the parties,
12 and I will, depending on your ruling, be happy to
13 provide copies by e-mail.

14 (EXHIBIT MARKED FOR IDENTIFICATION.)

15 MS. BLEND: I'm sorry, your Honor. Did
16 you issue a ruling on my objection to this line of
17 questioning on the grounds of scope and relevancy?

18 EXAMINER PARROT: I am going to see where
19 we go.

20 MS. BLEND: Thank you, your Honor.

21 EXAMINER PARROT: We need two copies.

22 MR. COLLIER: Two? Okay.

23 Q. (By Mr. Collier) If you look at that
24 document, Mr. Torpey, I believe it's at page 3 or 4,
25 you'll see the interconnection of the Stuart-Clinton

1 345-kilowatt line in Dayton Power & Light?

2 MS. BLEND: Objection. Now Mr. Collier
3 is testifying. He has not established any foundation
4 with respect to this document with this witness, and
5 I renew my objection to the relevancy of this entire
6 line of questioning and to my objection as to scope.

7 MR. COLLIER: I just asked him if the
8 reference to the connection point applies in that
9 document.

10 MS. BLEND: And, again, he has
11 established no foundation for this document with this
12 witness.

13 MR. COLLIER: Foundation is his
14 calculation of localized marginal pricing cost not
15 only for the years Mr. Ali gave him but for every
16 other year in the analysis.

17 EXAMINER PARROT: Let's go ahead and ask
18 some foundational questions and see where we go from
19 that.

20 Q. (By Mr. Collier) We've already
21 established, Mr. Torpey, location is important for
22 determining the particular node at which locational
23 marginal pricing will be determined.

24 A. Mr. Ali used locations in his
25 calculation, but he used a PJM model which

1 determined, based on the location of those projects,
2 gave an answer that was apropos to the AEP zone.

3 Q. I understand that, Mr. Torpey.

4 A. Okay.

5 Q. He was specific to the particular
6 location. He made some assumption on location.

7 A. Yes.

8 Q. Okay. And I am asking you a simple
9 question and that is Highland represents, in its
10 filing application, that the interconnection will
11 be --

12 MS. BLEND: Objection, your Honor, same
13 objection. There has been no foundation with respect
14 to this filing.

15 EXAMINER PARROT: By "foundation" --
16 Mr. Collier, by "foundational questions," I meant
17 before we dive into the substance of the document,
18 let's ask him whether he has seen it, for example.

19 MR. COLLIER: It's one fact.

20 Q. (By Mr. Collier) Well, Mr. Torpey, you
21 have no idea of the point of interconnection of the
22 Highland Solar project to the AEP system, do you?

23 A. I didn't consider that. I got -- I got
24 information for my analysis from Mr. Ali.

25 Q. Okay. You didn't go back to the

1 application of Highland as to what representations
2 are being made by Highland as to the point of
3 interconnection.

4 A. I did not.

5 Q. Okay. But you're assuming the
6 interconnection will be to the AEP system for
7 purposes of your calculation.

8 A. I'm assuming that the cost difference
9 between, in the AEP zone, with the renewables and
10 without the renewables, were something that Mr. Ali
11 performed, knowing the location of the projects.

12 Q. For the whole AEP eastern zone.

13 A. However he did it.

14 Q. Not for the Dayton Power & Light zone.

15 A. I don't recall what his testimony was,
16 but I thought he had the locations of the projects
17 when he did this.

18 Q. You can't dispute that the representation
19 by Highland was it will connect to the Dayton Power &
20 Light system.

21 MS. BLEND: Objection, your Honor.
22 Again, Mr. Torpey doesn't know what representations
23 Highland has made. Mr. Collier has tried three or
24 four times to get this fact in with this witness, and
25 it's not appropriate.

1 MR. COLLIER: I've laid the foundation.

2 MS. BLEND: He has laid no foundation.

3 Mr. Torpey --

4 MR. COLLIER: That's your argument.

5 EXAMINER PARROT: All right. Let's stop
6 talking over each other.

7 MR. COLLIER: The foundation I laid was
8 the entire discussion about how he got to the
9 figures, what he relied on, what he relied on from
10 Mr. Ali, what Mr. Ali's assumption were on location,
11 the relevance of location to determine locational
12 marginal costs, the fact that it is supposed to
13 relate to the entire AEP zone, assuming that it is
14 interconnected, when, in fact, it's not
15 interconnected.

16 MS. BLEND: Mr. Torpey just testified, in
17 response to a question Mr. Collier asked 5 minutes
18 ago, less than 5 minutes ago, that he had no idea of
19 the planned interconnection of the Highland Solar
20 project.

21 EXAMINER PARROT: And the objection to
22 the pending question is sustained.

23 MR. COLLIER: Then I will make a proffer
24 on that point, your Honor, at some point, if you are
25 not going to admit the document and you are going --

1 EXAMINER PARROT: Getting ahead of that.
2 Getting ahead of ourselves on that.

3 MR. COLLIER: Okay.

4 Q. (By Mr. Collier) In any event, picking
5 up, if we look at the resultant change in the last
6 column for other years beginning in 2032, we'll see
7 variations of .10 to .11 to .12, right?

8 A. Yes.

9 Q. Okay. You state, in the intro to this
10 table, page 20, "The result of this analysis as shown
11 in Table 4 is a reduction of the cost of energy at
12 the AEP load hub of .07 dollars per megawatt-hour on
13 a levelized basis."

14 A. Yes. And I was using that term somewhat
15 interchangeably with "AEP load zone."

16 Q. I was going to ask you, how do you define
17 "load hub"?

18 A. Probably "load zone" would have been a
19 better choice of words.

20 Q. And you say "In general, this savings
21 would apply to any entity in PJM purchasing energy at
22 this load hub."

23 A. Yes.

24 Q. Specific load hub.

25 A. It's the -- in the AEP zone.

1 Q. Right. The locational marginal cost that
2 Mr. Ali described are costs that are paid by the
3 buyer to the generator at a particular node.

4 A. It's the cost that PJM pays the
5 generator, and then it's the -- also the cost that
6 the buyer pays to buy the energy from that load zone,
7 yes.

8 Q. All right. Now, with regard to your
9 Table 4, who do you assume the generator to be?

10 A. That would be any entity serving that AEP
11 zone.

12 Q. It's the generic solar facility.

13 A. Well, the entire load zone is served by
14 multiple generators.

15 Q. All right.

16 A. What we did in the second case here was
17 add 650 megawatts of renewable projects.

18 Q. All right. And then the buyer, paying
19 the locational marginal costs, would be whom in your
20 hypothetical?

21 A. Any entity that buys energy from the AEP
22 load zone.

23 Q. Could be AEP Ohio.

24 A. It could be -- well, we're saying AEP
25 Ohio would buy 46,000 kilowatt-hours a year, but it

1 could be other entities too. I think Mr. Ali had
2 133,000 gigawatt-hours of energy that he was
3 assuming. So it could have been Appalachian Power
4 Company, Kentucky Power Company, other companies as
5 well.

6 Q. Or it could be AEP Ohio purchasing the
7 output from the specific renewable contract.

8 A. I'm not sure I get your --

9 Q. It could be AEP Ohio purchasing the
10 output, capacity and energy, under the particular
11 REPA contract.

12 A. I'm trying to get a connection to what
13 you are saying and what I just said before.

14 Q. I think you said it -- you said AEP could
15 be the purchaser.

16 A. AEP is purchasing in the load zone. AEP
17 Ohio is purchasing from the AEP zone. Those -- also,
18 at the same time, these generic projects are selling
19 their energy into -- into PJM at that zone, all
20 right? So through AEP Ohio. So AEP Ohio is buying
21 the energy from the generic projects, selling it to
22 PJM, and then receiving a PJM revenue.

23 Q. Do you make any assumption as to whether
24 the change load energy cost is built into the
25 hypothetical REPA arrangement?

1 A. Are you saying the change in my -- say
2 the fourth column here, OPCo load dollar per
3 megawatt, the change in this last column, this 5
4 cents or 7 cents?

5 Q. Yeah. I am not talking about the number.
6 I am talking about the purported savings. Do you
7 know whether the hypothetical REPA includes any of
8 the locational marginal prices?

9 A. The REPA is just a contract price.

10 Q. All right. So you are making no
11 assumption one way or the other.

12 A. No.

13 Q. All right. Let's go to Table 5, Generic
14 Solar REPA Benefits. Now, here you are discussing
15 the PJM -- or the AEP Ohio impact.

16 A. Correct.

17 Q. All right. Now, again, we have various
18 years from 2021 to 2040, right?

19 A. Right.

20 Q. Present value factor.

21 A. Right.

22 Q. And in your "Column Definitions," present
23 value to 2021 at 8.5 percent discount rate?

24 A. Right.

25 Q. Why did you use an 8.5 percent discount

1 rate?

2 A. It's the weighted cost of capital for AEP
3 Ohio.

4 Q. And where did you get that figure?

5 A. Our finance department provides weighted
6 cost of capital figures for all of our operating
7 companies.

8 Q. That's debt and equity?

9 A. Yes.

10 Q. Did you make any assumptions about any
11 changes in the weighted cost of capital in any
12 projected year?

13 A. I did not.

14 Q. You just assumed it was the same as 2021.

15 A. It is just an indicative number going
16 forward, yes.

17 Q. All right. Capacity nameplate, you've
18 been asked about that. You are just assuming a
19 constant 400 megawatts?

20 A. That's the capacity of the project, yes.

21 Q. And the projects you've described you
22 were looking at, Highland and Willowbrook, are not
23 400-megawatt facilities.

24 A. They are not.

25 Q. Not even in combination, are they?

1 A. In combination they are.

2 Q. They're 150 megawatt and 300 megawatt?

3 Do you know?

4 A. My understanding is it's 100 and 300.

5 Q. Your assumption is 100 and 300.

6 A. I assumed 100 and 300 to get 400.

7 Q. And you didn't check the filing that
8 Highland even made at the Power Siting Board as to
9 what it represented -- stated capacity nameplate
10 would be.

11 A. I don't get involved with Ohio Siting
12 Board filings.

13 Q. 400-megawatt single facility is a lot
14 different in terms of its performance than a 100- or
15 150-megawatt facility, is it not?

16 A. It may or may not be.

17 Q. Okay. Good answer. It may or may not
18 be; you don't know.

19 A. We are just making an assumption that a
20 generic 400-megawatt facility would have those
21 performance characteristics.

22 Q. All right. Next column, solar energy.
23 Strike that.

24 The source for the "Capacity (Nameplate)"
25 column definition is total nameplate capacity of the

1 REPA, right?

2 A. Yes.

3 Q. All right. Solar energy in
4 gigawatt-hours, what's the source of that
5 information?

6 MS. BLEND: Objection, asked and answered
7 several times already today in response to cross by
8 other counsel.

9 Q. Well, let me jump ahead. Column
10 definition is total estimated energy output of the
11 REPA; is that correct?

12 A. Correct.

13 Q. That's a 400-megawatt facility, not a
14 combination of 100 and 300 or any other combination?

15 A. We assumed a 400-megawatt generic
16 facility.

17 Q. Okay. Capacity factor, the source of
18 that information?

19 A. You divide the output by the nameplate
20 rating, times 8,760, you get the capacity factor.

21 Q. In your column definition, that's
22 estimated annual capacity factor based on estimated
23 energy, nameplate capacity and hours per year.

24 A. Right. That's what I said.

25 Q. All right. Going on to solar energy

1 cost, \$45 per megawatt-hour; what's the source of
2 that information?

3 A. That was our assumption for what a
4 generic REPA would cost, in Ohio, starting in 2021.

5 Q. Okay. That's a big assumption, isn't it?
6 That depends on a lot of other variables.

7 A. It's a -- when you say "a big
8 assumption," I mean, it's an assumption based on our
9 knowledge of the industry, our knowledge of what
10 projects cost, our knowledge of what we've seen in
11 other competitive bids.

12 Q. A flat \$45 a megawatt-hour for every year
13 for the next 20 years.

14 A. Is that a question?

15 Q. Yes.

16 A. What was the question?

17 Q. Is that your assumption?

18 A. That's our assumption, yes.

19 Q. What REPAs did you actually look at? Can
20 you name the facility?

21 A. Well, we looked at a few things. We
22 looked at EIA information. We looked at other
23 proposals that our Commercial Operation Group
24 receives over the course of the year. We looked at
25 installed costs, and I won't say we did a back

1 calculation, but it's an order-of-magnitude look at
2 what that might come out to. And we did have the
3 responses to the RFPs but this is not the cost of
4 those RFPs, but we were able to use those to I'll say
5 get a ballpark to see if our assumption here was --
6 was, you know, in the range of reasonableness.

7 Q. Yeah. Do you have any estimate of what
8 EIA forecasts for the REPA costs over the -- in the
9 year 2040?

10 A. Oh, no. This is a fixed-price contract,
11 right. No, they have costs -- EIA publishes
12 levelized costs for solar projects at different
13 regions.

14 Q. I understand they publish levelized
15 costs. Do they actually publish REPA contract rates?

16 A. They publish LCOE, levelized cost of
17 electricity, which if you are going to have a
18 levelized cost, you are going to have a flat cost,
19 that would be equivalent to the levelized cost. You
20 could have an escalating cost, you could start low
21 and go high and the levelized cost might be the same
22 as \$45.

23 Q. You assume no escalation factor for this
24 hypothetical REPA in any year, did you?

25 A. We did not. We just assumed the flat

1 price.

2 Q. The installed costs. The installed costs
3 would be the developer's construction costs, plan
4 acquisition costs, capital costs; is that right?

5 A. Yeah.

6 Q. And capitalized costs.

7 A. The financing costs, is that what you
8 mean?

9 Q. Well, yes.

10 A. All right.

11 Q. It's going to be -- an actual REPA is
12 going to depend on financing costs.

13 A. It would.

14 Q. What did you assume here in terms of
15 financing costs for this \$45 a megawatt-hour?

16 A. We just assumed that someone who was
17 going to bid into a RFP in this region, or in Ohio,
18 given the performance characteristics we're aware of,
19 and given the relative cost that we've seen from
20 other information that we've accumulated, that a
21 \$45 -- a flat \$45 figure is a reasonable figure for a
22 REPA.

23 Q. Did you see any REPA, from any of your
24 sources, that were less than \$45?

25 A. Yes.

1 Q. Solar total cost. The column definition
2 is projected annual total costs, Column D times F,
3 divided by a thousand.

4 A. Yes.

5 Q. Okay. Now, you compare the solar total
6 cost for a hypothetical REPA, fixed for 20 years, to
7 avoided energy costs and energy capacity costs; is
8 that correct?

9 A. I did that, yes.

10 Q. All right. And the avoided energy costs,
11 we have solar energy priced at market, and the column
12 definition indicates that's the weighted average of
13 the hourly market price of energy dispatched by
14 hourly incremental REPA purchase.

15 A. That's correct.

16 Q. What's -- what is the source of that
17 information?

18 A. The fundamental forecast developed by
19 Company witness Bletzacker was the basis for the
20 fundamental -- was the basis for the hourly prices,
21 and then we had a load shape for our generic REPA, so
22 you multiply the load at any given hour, times the
23 price at that hour, sum those up, and divide by 8,760
24 and -- I'm sorry, sum that up and divide by the
25 gigawatt-hours produced, and you get a -- you get a

1 solar energy price at market.

2 Q. All right. And there has already been
3 testimony concerning the jump between 2027 and 2028
4 of \$11 a megawatt-hour. That's based on the
5 assumption of the carbon burden.

6 A. Carbon is a big part of that and just
7 normal escalation in gas and other energy prices too.

8 Q. Were you able to isolate the impact of
9 the carbon burden in the year 2028?

10 A. No, not really.

11 Q. All right.

12 A. Because it's -- no, you can't.

13 Q. But that burden, in terms of cost,
14 carries through for every one of the remaining years
15 of your projection.

16 A. It does, yes.

17 Q. The avoided cost of energy, what's the
18 source of that information?

19 MS. BLEND: Objection. Asked and
20 answered again. This entire line of questioning has
21 been covered already multiple times by counsel for
22 other parties.

23 Q. Column I -- we'll just deal with your
24 definition. Is the change in revenue requirement due
25 to solar energy impact on market sales and purchases,

1 column D, times Column H, divided by a thousand?

2 MS. BLEND: Same objection.

3 A. Yes.

4 Q. And the -- how did you weight the average
5 of the hourly market prices?

6 A. I think we just covered that in H. We
7 looked at the output for each hour from the assumed
8 solar project and multiplied that by the energy price
9 for that hour.

10 Q. Okay. I'm sorry. I am talking about the
11 avoided cost of energy. Is that solar energy? Wind
12 energy? Solar and wind? Something else?

13 A. That's the avoided market price; avoided
14 PJM energy price.

15 Q. So that could include coal, natural gas?

16 A. It's whatever goes into the PJM energy
17 price.

18 Q. Okay. And that's based on
19 Mr. Bletzacker's forecast which is not a PJM
20 forecast.

21 A. It's based on Mr. Bletzacker's
22 Fundamentals Forecast.

23 Q. All right. And the next column then is
24 avoided capacity. We talked about energy, and now we
25 are talking about capacity, right?

1 A. Yes.

2 Q. Column J is based on the 2018
3 Fundamentals Forecast. That's Mr. Bletzacker.

4 A. Correct.

5 Q. And is that capacity for solar, for wind,
6 or for coal, natural gas, or anything else?

7 A. It's the PJM clearing price for capacity.

8 Q. PJM clearing price. Are you making any
9 assumption about whether solar will actually clear
10 the PJM capacity?

11 A. Well, again, this is all a proxy for the
12 value of capacity, so we're assuming that 19 percent
13 of the nameplate capacity would receive value equal
14 to the dollar per megawatt-day clearing price in the
15 RPM auction.

16 Q. All right. The solar capacity credit,
17 then, is a constant of 76. Is that dollars per
18 megawatt-hour?

19 A. That's megawatts. That's 19 percent of
20 400.

21 Q. That's the megawatt.

22 A. Yes.

23 Q. And how -- and you assume a capacity in
24 every year of the 20 years, don't you?

25 A. I assumed 19 percent of the nameplate

1 capacity would be available to receive some sort of
2 monetary compensation over the 20-year period.

3 Q. And you are not changing that number at
4 all, taking any particular circumstances in any
5 particular year?

6 A. Generally it would go up over time as we
7 got more familiarity with the resource, but for -- to
8 be conservative, we just kept it flat.

9 Q. And is that based on 2021 analysis?

10 A. Based on --

11 Q. Well, \$76 starts with 2021, it doesn't
12 change.

13 A. That's 76 megawatts.

14 Q. 76 megawatts, I'm sorry.

15 A. That's 19 percent of the 400. Then we
16 just kept it flat for the entire period.

17 Q. Solar capacity credit value, the column
18 definition is Column J, times Column K, times 365,
19 times 1 million.

20 A. Yes.

21 Q. All right. Then you get a total change
22 in net revenue requirement, do you not?

23 A. I do.

24 Q. And that total change is defined as the
25 total change in net revenue requirement is the sum of

1 Columns G, I, and L, right?

2 A. G, I, and L, yes.

3 Q. How do you define "revenue requirement"?

4 A. Well, our assumption is that AEP Ohio
5 would pay the REPA price for the energy produced,
6 then sell that energy into PJM energy market and get
7 a credit or get revenue from PJM and also be able to
8 monetize a portion of the capacity value of that
9 solar project. And the difference in all those
10 costs, the costs of the REPA, less the value received
11 from PJM, less whatever benefit -- cost benefit they
12 get from the capacity credit, would equal a number
13 that would somehow flow back to customers. So
14 somehow it would be either a credit or a debit to
15 revenue from customers.

16 Q. Did you make any assumption as to what
17 the REPA contract price would be?

18 A. \$45.

19 Q. Did you make any assumption in the year
20 2021 as to what would be sold into the market,
21 monetized?

22 A. For the re -- yeah, 813.9 gigawatt-hours.

23 Q. And that's a figure -- that revenue
24 requirement figure is a figure that changes every
25 year.

1 A. It does.

2 Q. And so does net cost of energy.

3 A. Right.

4 Q. All right. Now, I would like to turn
5 your attention to the next table, Table 6, for
6 generic wind. I'm sorry. Before we get to that
7 point, you have solar energy, priced at market,
8 escalating from 2021 to 2024, right?

9 A. Yes. That's the avoided cost from the
10 PJM market; so the assumption is that PJM energy
11 prices will escalate over time.

12 Q. Again, you referred to it as "solar," but
13 it's really PJM energy price.

14 A. Well, it's -- the amount of energy is the
15 813.9 gigawatt-hours priced at market.

16 Q. All right. Your Table 6 follows the same
17 basic metrics, does it not?

18 A. It is exactly -- get the right table
19 here. Exactly the same other than replacing the word
20 "solar" with "wind" and changing some of the values.

21 Q. Why is there a different wind energy
22 priced at market for every year than there was for
23 solar?

24 A. Solar -- again, this is based on when the
25 facility is generating. It's the market price at the

1 time this facility is generating. So solar
2 facilities generate during the day, which is
3 generally on-peak hours, which have higher prices
4 than wind which generates more at night, a little
5 more around the clock, but probably more at night and
6 more during off-peak hours. So the prices you see
7 for wind are probably closer to off-peak prices, and
8 the prices you see for solar in that Column H are
9 more on -- closer to on-peak prices.

10 Q. All right. And the REPA cost at \$40,
11 wind energy cost, is something you assumed.

12 A. We assumed \$40, yes.

13 Q. And what's -- strike that.

14 The basis of your assumption, source of
15 your information, includes the RFPs?

16 A. We had the RFPs, but we also had --
17 again, we referenced the \$40 price earlier for the
18 Great Lakes' wind, we have EIA data, so we used -- we
19 looked at all that in total, came up with a price
20 assumption. The RFP really just was used to see if
21 we were in the ballpark.

22 Q. Notwithstanding your reference in the
23 integrated resource plan based on the Great Lakes
24 analysis, you are assuming that the REPA wind energy
25 cost is going to stay the same, not -- not decline.

1 A. Right. It's a flat price.

2 Q. It won't decline.

3 A. It won't go up; it won't go down.

4 Q. The Column F, wind energy cost, is the
5 projected annual cost, inclusive of return and
6 Investment Tax Credit?

7 A. I think I mentioned this earlier that
8 this spreadsheet model we use, we use for both REPAs
9 and for company-owned assets, so to the extent that
10 it was a company-owned asset, it would have included
11 return, and the Company's benefit of the ITC in this
12 case, that's all embedded in the REPA price.

13 Q. The Investment Tax Credit is embedded in
14 the REPA price.

15 A. Well, for wind it would be a Production
16 Tax Credit.

17 Q. Well, it would be Investment Tax Credit
18 as well, wouldn't it?

19 A. I think wind they apply the Production
20 Tax Credit.

21 Q. But when we go to solar, that's only
22 Investment Tax.

23 A. That's only Investment Tax Credit,
24 correct.

25 Q. Table 7, your Net Cost of Energy, Generic

1 Solar. Are you with me?

2 A. I'm here. Page 23.

3 Q. Again, a present value factor which is
4 based on an 8.5 percent discount rate.

5 A. Correct.

6 Q. Same parameters as to the weighted cost
7 of capital, no assumption of any difference in any
8 year?

9 A. Nope.

10 Q. The capacity nameplate, is that assumed
11 40-megawatt per one unit?

12 A. 400, yes.

13 Q. The solar energy cost is constant at
14 56.82 per megawatt-hour for every year projection?

15 A. It was a break-even calculation, so we
16 calculated what the levelized or constant break-even
17 price would be to get a net present value of zero.

18 Q. Okay. So you are assuming the
19 break-even.

20 A. We calculated it, yes.

21 Q. From that you get total cost and you are
22 comparing the REPA cost versus avoided energy cost.

23 A. Right.

24 Q. And, again, "solar energy priced at
25 market" is the displaced PJM energy.

1 A. I'm sorry. Yes, it would be the energy
2 produced while -- for a specific hour, times the PJM
3 price for that hour.

4 Q. And the displaced or avoided capacity
5 costs would be PJM capacity costs.

6 A. The PJM capacity cost is what we use.

7 Q. Again, which PJM doesn't estimate out 20
8 years.

9 A. They only go out three years.

10 Q. Based solely on Mr. Bletzacker's --

11 A. Mr. Bletzacker gave me the numbers, yes.

12 Q. It happens to escalate from 50.8 dollars
13 per megawatt-day to 350.6 dollars per megawatt-day in
14 2040.

15 A. Out by 2040, it's 350, yes.

16 Q. And the carbon burden, again, is
17 influenced in the year 2027?

18 A. If you would see that in Column H.

19 Q. Okay. But again, the carbon tax burden
20 is assumed to apply for every year after that?

21 A. It applies for every year after that,
22 yes.

23 Q. Okay. You have an assumed REPA cost of
24 \$45 for solar, \$40 for wind.

25 A. Yes.

1 Q. Wind is cheaper than solar.

2 A. Generally, yes.

3 Q. You have a break-even of 56.82 versus
4 48.40 for wind.

5 A. Yes.

6 Q. Break-even is cheaper for wind.

7 A. Because wind generates off peak and solar
8 generates on peak.

9 MR. COLLIER: All right. If I could have
10 a moment, your Honor.

11 Q. In your assumed or hypothetical REPA cost
12 per solar, did you assume any premium for labor
13 commitments in terms of where the labor would be
14 located?

15 A. No. We just assumed the price.

16 Q. Did you assume any capacity assessment or
17 credit?

18 A. Could you define what you mean by that,
19 please?

20 MR. COLLIER: Let me withdraw the
21 question. I think that's all I have.

22 I do move again for the Commission to
23 take administrative notice of the filing of Highland
24 Energy in the Power Siting Board.

25 EXAMINER PARROT: And as I indicated, we

1 will take that issue up with the rest of the marked
2 exhibits.

3 MR. COLLIER: Okay.

4 EXAMINER PARROT: Mr. Darr?

5 MR. DARR: No questions, your Honor.

6 EXAMINER PARROT: Mr. McNamee?

7 MR. McNAMEE: Oh, God, no.

8 EXAMINER PARROT: Let's go off the record
9 for a moment.

10 (Discussion off the record.)

11 EXAMINER PARROT: Let's go back on the
12 record.

13 It's my understanding that there will be
14 some redirect for this witness, correct, Ms. Blend?

15 MS. BLEND: That's correct, your Honor.
16 Thank you.

17 EXAMINER PARROT: With that, let's
18 adjourn for the evening. We will pick up with the
19 remainder of Mr. Torpey's testimony tomorrow at 9:00
20 a.m.

21 MS. BLEND: Thank you.

22 EXAMINER PARROT: Thank you, Mr. Torpey.

23 THE WITNESS: Thank you.

24 (Thereupon, at 6:45 p.m., the hearing was
25 adjourned.)

1 CERTIFICATE

2 I do hereby certify that the foregoing is a
3 true and correct transcript of the proceedings taken
4 by me in this matter on Tuesday, January 22, 2019,
5 and carefully compared with my original stenographic
6 notes.

7
8

Karen Sue Gibson, Registered
Merit Reporter.

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Carolyn M. Burke, Registered
11 Professional Reporter.

12 (KSG-6680)

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Summary: Transcript in the matter of the Long-Term Forecast Report of the Ohio Power Company hearing held on 01/22/19 - Volume V electronically filed by Mr. Ken Spencer on behalf of Armstrong & Okey, Inc. and Gibson, Karen Sue Mrs.