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 Friday, February 8, 2019.

VOLUME XII - REBUTTAL TESTIMONY

ARMSTRONG \& OKEY, INC.
222 East Town Street, Second Floor
Columbus, Ohio 43215-5201
(614) 224-9481 - (800) 223-9481

2741

APPEARANCES:
American Electric Power Service Corporation
By Mr. Steven T. Nourse
and Ms. Christen M. Blend
1 Riverside Plaza, 29th Floor
Columbus, Ohio 43215
Porter Wright Morris \& Arthur, LLP
By Mr. Eric B. Gallon
and Mr. L. Bradfield Hughes
41 South High Street, 29th Floor
Columbus, Ohio 43215
Ice Miller, LLP
By Mr. Christopher L. Miller
250 West Street, Suite 700
Columbus, Ohio 43215
On behalf of Ohio Power Company.
Dave Yost, Ohio Attorney General
By Mr. John Jones, Assistant Section Chief and Mr. Thomas W. McNamee,
Principal Assistant Attorney General
Public Utilities Section
30 East Broad Street, 16th Floor
Columbus, Ohio 43215
On behalf of the Staff of the Public Utilities Commission of Ohio.

McNees Wallace \& Nurick, LLC
By Mr. Frank P. Darr
and Mr. Matthew R. Pritchard
Fifth Third Center, Suite 1700
21 East State Street
Columbus, Ohio 43215
On behalf of Industrial Energy Users-Ohio.

APPEARANCES: (Continued)
Ohio Partners for Affordable Energy
By Ms. Colleen L. Mooney
and Mr. Christopher J. Allwein
P.O. Box 12451

Columbus, Ohio 43215
On behalf of Ohio Partners for Affordable Energy.

Carpenter Lipps \& Leland LLP
By Ms. Kimberly W. Bojko
and Mr. Brian W. Dressel
280 North High Street, Suite 1300
Columbus, Ohio 43215
On behalf of Ohio Manufacturers' Association Energy Group.
Interstate Gas Supply
By Mr. Joseph Oliker
and Mr. Michael A. Nugent
6100 Emerald Parkway
Dublin, Ohio 43016
On behalf of IGS Energy and IGS Solar, LLC.

Bruce J. Weston, Ohio Consumers' Counsel
Office of the Ohio Consumers' Counsel
By Ms. Maureen R. Willis,
Senior Counsel,
Mr. William J. Michael,
and Mr. Christopher Healey,
Assistant Consumers' Counsel
65 East Street, 7th Floor
Columbus, Ohio 43215
On behalf of the Residential Utility Consumers of Ohio Power Company.
Carpenter Lipps \& Leland LLP
By Ms. Angela Paul Whitfield
and Mr. Stephen E. Dutton
280 North High Street, Suite 1300
Columbus, Ohio 43215
On behalf of The Kroger Company.

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

```
2743
```

```
APPEARANCES: (Continued)
```

    Ohio Environmental Council
    By Ms. Miranda Leppla,
    Mr. Trent A. Dougherty,
    and Mr. Christopher D. Tavenor
    1145 Chesapeake Avenue, Suite I
    Columbus, Ohio 43212
        On behalf of the Ohio Environmental
        Council.
    Kegler, Brown, Hill \& Ritter, LPA
    By Mr. Robert Dove
    Capitol Square, Suite 1800
    65 East State Street
    Columbus, Ohio 43215-4294
        On behalf of the Natural Resources
        Defense Council.
    Whitt Sturtevant, LLP
    By Mr. Mark A. Whitt
    and Ms. Rebekah J. Glover
    The KeyBank Building, Suite 1590
    88 East Broad Street
    Columbus, Ohio 43215
        On behalf of Direct Energy, LP and Retail
        Energy Supply Association.
    Benesch Friedlander Coplan \& Aronoff, LLP
    By Mr. John F. Stock
    and Mr. Orla E. Collier, III
    41 South High Street, Suite 2600
    Columbus, Ohio 43215
        On behalf of the Ohio Coal Association.
    Dickinson Wright, PLLC
    By Ms. Christine M.T. Pirik,
    Mr. Terrence O'Donnell,
    Mr. William V. Vorys,
    and Ms. Cristina N. Luse
    150 East Gay Street, Suite 2400
    Columbus, Ohio 43215
        On behalf of Mid-Atlantic Renewable
        Energy Coalition.
    Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

APPEARANCES: (Continued)
Boehm, Kurtz \& Lowry
By Mr. Michael L. Kurtz,
Ms. Jody Kyler Cohn,
and Mr. Kurt J. Boehm
36 East Seventh Street, Suite 1510
Cincinnati, Ohio 45202
On behalf of Ohio Energy Group.
Sierra Club
By Mr. Tony G. Mendoza
2101 Webster Street, 13th Floor
Oakland, California 94612
Richard Sahli Law Office, LLC
By Mr. Richard C. Sahli
981 Pinewood Lane
Columbus, Ohio 43230-3662
On behalf of the Sierra Club.


Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481


MS. BOJKO: Good morning, your Honors. For Ohio Manufacturers' Association Energy Group, Kimberly W. Bojko and Brian W. Dressel.

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

MR. COLLIER: Good morning. On behalf of
the Ohio Coal Association, Orla Collier and John Stock, Benesch Friedlander Coplan \& Aronoff.

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

MS. MOONEY: On behalf of Ohio Partners for Affordable Energy, Colleen Mooney.

MR. DOVE: On behalf of the Natural Resources Defense Council, Robert Dove.

MR. DARR: For IEU-Ohio, Frank Darr.
MS. GLOVER: On behalf of the Retail
Energy Supply Association and Direct Energy, Mark Whitt and Rebekah Glover.

EXAMINER SEE: Ms. Blend, your witness. MS. BLEND: Thank you, your Honor. The Company calls Kamran Ali.

THE WITNESS: Good morning, your Honors.
EXAMINER SEE: Good morning. Mr. Ali,
you are the same Mr. Ali that testified earlier in this proceeding?

THE WITNESS: Yes, yes, I am.
EXAMINER SEE: I remind you, you continue to be under oath. Have a seat and please cut on your microphone.

THE WITNESS: Thank you.
MS. BLEND: Your Honor, I would like to mark the rebuttal testimony of Kamran Ali on behalf of Ohio Power Company, filed February 1, 2019, as AEP Ohio Exhibit 26. We have previously provided a copy to the court reporter. Would the Bench like copies?

EXAMINER SEE: No. We're fine. Thank you.
(EXHIBIT MARKED FOR IDENTIFICATION.) EXAMINER SEE: Go ahead.

MS. BLEND: Thank you. - - -

## KAMRAN ALI

being previously duly sworn, as prescribed by law, was examined and testified as follows:

## DIRECT EXAMINATION

By Ms. Blend:
Q. Mr. Ali, do you have before you what's been marked AEP Ohio Exhibit 26?

2749
A. Yes, I do.
Q. Can you please identify that document.
A. It's my rebuttal testimony.
Q. And was this testimony filed -- prepared by you or under your direction?
A. Yes, it was.
Q. Do you have any changes or corrections to your rebuttal testimony at this time?
A. No, I don't.
Q. And if I asked you the questions contained in your rebuttal testimony today, would your answers be the same?
A. Yes, they would be.

MS. BLEND: Thank you.
Your Honor, at this time, the Company moves for admission of AEP Ohio Exhibit 26, subject to cross-examination.

EXAMINER SEE: Any questions for this witness, Mr. Darr? Mr. Darr.

MR. DARR: Oh, you want to start with me? Typically we start with the supporting parties.

EXAMINER SEE: Okay. We'll try Mr. Dove then. We'll move back to you, Mr. Darr.

MR. DOVE: No questions, your Honor.
EXAMINER SEE: Ms. Leppla?

MS. LEPPLA: No questions, your Honor. EXAMINER SEE: Ms. Mooney?

MS. MOONEY: No questions.
EXAMINER SEE: Now, Mr. Darr.
MR. DARR: Thank you, your Honor.
Your Honor, I think we have a problem. EXAMINER SEE: Let's go off the record for a minute.
(Discussion off the record.)
EXAMINER SEE: Let's go back on the
record.
Mr. Darr.
MR. DARR: Thank you, your Honor.

CROSS-EXAMINATION
By Mr. Darr:
Q. Sir, you filed your initial testimony in this case on September 19, 2018; is that correct?
A. Yes, that is correct.
Q. And that testimony was based on PROMOD runs that were performed in May of 2018, correct?
A. That is correct.
Q. One of those cases assumed the addition of two new solar facilities and one wind facility, correct?

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481
A. That is correct.
Q. Both solar facilities were assumed to connect to the AEP transmission system; is that correct?
A. That is correct.
Q. One of those facilities was modeled for an interconnection request known at PJM as AC1-085, correct?
A. Yes.
Q. And according to your testimony, there was a revised AC1-085 System Impact Study that was released on October 3, 2018, correct?
A. Yes.
Q. And since the release of that study, have you reviewed that study?
A. Yes, I have.

MR. DARR: I believe I'm at 15 or 16; is that right, your Honor?

EXAMINER SEE: IEU 14, Mr. Darr.
MR. DARR: Thank you. I would like to have this marked as IEU 14 then.
(EXHIBIT MARKED FOR IDENTIFICATION.)
Q. (By Mr. Darr) Do you have in front of you, Mr. Ali, what has been marked as IEU Exhibit 14?
A. Yes.
Q. I'm sorry, did you respond?
A. Yes, I do.
Q. And is this the impact study that you referred to in your testimony on page 4 that was released on October 3, 2018 ?
A. Yes.
Q. And this is the same impact study that was released to parties in response to discovery on October 24, 2018, correct?
A. That is correct.
Q. And if we turn to page 3 of IEU 14, it states that the interconnection point for this facility is anticipated to be the Stuart-Clinton 345 kV line, correct?
A. Yes.
Q. Now, are you aware of a generation interconnection facility report that was released by PJM in November 2018 for ACI -- excuse me -- AC1-085?
A. I can't recall that report.

MR. DARR: May I approach, your Honor? EXAMINER SEE: Yes.

MR. DARR: At least for purposes of refreshing recollection, I am just going to provide the witness a copy of this document and go from there to determine whether we need to have it marked.

2753
Q. I am handing you a document --

MS. BLEND: Mr. Darr, may $I$ have a copy?
MR. DARR: Certainly. I apologize.
Q. Please take a moment and see if that refreshes your recollection.
A. Yeah, I can't recall seeing the exact date. I can't recall if $I$ have seen this particular report but I don't see any material difference between this and the one that was issued in October.
Q. Okay. Is there a difference between an impact study and a facility study report?
A. Yes.
Q. What is the difference?
A. So it's the stages of progression upon interconnection studies or, in essence, every interconnection study in PJM transitions through three different stages, and the information provided by the developer, as well as the results of the analysis and the impacts to the system that are analyzed by the RTO and transmission owners, they develop into detailed stages throughout the transition of the study.

So the first study that is issued is the feasibility study which is very conceptual in nature and doesn't look at a very detailed analysis.

The second study that is performed is an impact study. The impact study is more detailed when it comes to the load flow and short circuit and stability types of analysis. However, when it comes to the costs and the actual physical construction of the interconnection facilities, you know, and schedule of work and milestones, it's not as detailed.

And the last stage is the facility study stage which, of course, the electrical grid impacts do not change much in that unless something drastic has happened since the impact study has been conducted, but more detailed analytics are performed from a physical connection of the grid and to develop the, you know, develop the -- to develop the physical feasibility of the connections that are needed. So, in essence, that's the different studies.
Q. Okay. And is a facility study the last study prior to some confirmation that the PJM has completed its review?
A. Yes. It's the last study, but there could be several retools of the analysis in case there are changes. And then after the facilities study, really the last thing that is needed for interconnection to happen is the interconnection

## 2755

agreement that must be entered between the transmission owner, the RTO, as well as the developer. And the facilities study, the latest origin of that is part of that interconnection agreement.
Q. Have you seen a facilities study for the interconnection known as AC1-085? Other than what I've just shown you this morning?
A. Can you please repeat that question?
Q. Yes. Have you seen a facilities study other than the one that $I$ have shown you this morning? The one that $I$ just handed to you.
A. For this particular project?
Q. For AC1-085, yes.
A. I can't recall it, but that doesn't mean I haven't. I mean, there are close to 100,000 megawatt of generation that is in the PJM queue right now. A lot of that is connecting to AEP zone. So I regularly review facilities studies, impact studies, feasibility studies. I can't recall it, but that doesn't mean $I$ haven't seen it in the past.
Q. Understood. And for clarification purposes, you mentioned the facilities studies that might be related to the AEP zone. The facilities study that we are talking about here is specific to
the DP\&L zone, correct?
A. That is correct.
Q. Now, on January 16, 2019, you testified in this case, correct?
A. Yes, I did.
Q. And on that day, January 16, 2019, you identified three corrections to your testimony, correct?
A. Yes, I did.
Q. None of those corrections addressed the interconnection identified as AC1-085, correct?
A. That is correct.
Q. And none of those corrections addressed providing an update to the PROMOD analysis that you performed in May of 2018, correct?
A. That is correct.
Q. Mr. Ali, when did you individually, personally become aware that the Stuart line would be the proposed point of interconnection for what is now known as AC1-085 which is the connection to the Hecate Highland project?
A. I can't recall the exact date, but it was somewhere in, you know, October 2018 time frame.
Q. So at the time that you testified, you were aware -- let me start again.

2757
So at the time you testified on January 16, 2019, you had been aware, since sometime in October, that the AC1-085 interconnection would be on the Stuart-Clinton 345 kV line, correct?
A. Yes, most certainly.
Q. Now, your testimony at page 6, you indicate that AEP Ohio used the interconnection point for the -- for Hecate to run an additional PROMOD analysis, correct?
A. Say that again. Can you repeat that question, please?
Q. Certainly. You indicate in your testimony at page 6, I'm speaking now of your rebuttal testimony.
A. Okay.
Q. That AEP Ohio used the interconnection point for Hecate to run an additional PROMOD analysis; is that correct?
A. That is correct.
Q. And the PROMOD analysis which you ran -which AEP ran was for three different years, 2021, 2024 , and 2027, correct?
A. Yes.
Q. On what date did you begin this additional PROMOD analysis?
A. I don't recall the exact date but it was, I would say, maybe a week and a half ago, a week ago, a week and a half ago.
Q. Did it predate or postdate January 16, the day that you testified?
A. It is after I testified.
Q. And roughly speaking, was it one day? Two days? Three days? Can you estimate that for us?
A. Are you asking how many days after I testified?
Q. Yes, sir.
A. I would say maybe a week after I testified, week and a half. Again, you know, the reason for us to run that analysis was that some questions were asked, which were not asked of me when I was on the stand, concerning the change in the point of interconnection and, you know, the reason $I$ did not bring up this change in my original testimony was because this change was immaterial.

The analysis that I had performed back in May of 2018 was to demonstrate what happens if solar or other forms of renewables like wind are added to the AEP zone, how would that impact the LMPs. And you can do that analysis multiple ways. One way you can do that analysis is rely on a tool called PROMOD

2759
Strategist. And the PROMOD Strategist tool will tell you what are the ideal locations to locate solar and wind based on the strength of the transmission system and also the -- the fuel types and the performance of those fuel types in those areas.

So that's good information but that's not good enough because what the tool doesn't tell you is the availability of land, you know, the cost of that land, what type of environmental impacts might be there.

So another option is to rely on existing generation interconnection queue where the developers have done that work for you in not only determining, you know, where you have better strength of the system but also determining, you know, the performance of the -- of the input resources, along with, you know, how easy it is to physically build those facilities.

So the analysis I had performed in May was just a generic analysis to take these, you know, these solar plants and wind farm as a surrogate to see if these were, you know, if you connect 400-megawatt of solar to the AEP system, what happens to the LMP. So it really didn't matter, you know, for me if this moved to the DP\&L system because the
analysis was to see the impact on LMP which showed a reduction for the -- for the customers within our footprint.
Q. Mr. Ali, going back to the beginning of your answer to my last question, you indicated that you began the analysis roughly seven days after you testified; is that correct?
A. Roughly. I mean, I can't point to the exact date but, yeah, somewhere around there.
Q. So that -- given that you testified on the 16 th, then the $P R O M O D$ analysis began roughly on January 23, 2019, correct?
A. Yeah, somewhere around that.
Q. And the analysis was completed no later than January 31, 2019, correct?
A. Yeah. I would say that's -- that's probably accurate.

MR. DARR: I would like to have a document marked as IEU Exhibit 15.

EXAMINER SEE: So marked.
(EXHIBIT MARKED FOR IDENTIFICATION.)
Q. (By Mr. Darr) Do you have in front of you what's been marked as IEU Exhibit 15?
A. Yes, I do.
Q. Do you recognize the -- this listing as

## 2761

the files provided in discovery, supplemental
discovery with regard to your testimony?
A. Yes.
Q. And for purposes of the record, do you see the date of modification of the files in the far right-hand corner?
A. Yes, I do.
Q. And would you agree with me that the date of these files is January 31, 2019?

MR. COLLIER: Excuse me, your Honor. Is that being circulated?

MR. DARR: It should be coming your way.
A. Yes, I do see the date.
Q. Okay. Just so that the record is clear, because $I$ think we had a little bit of interruption there, is it correct that the date of the files provided in discovery was January 1, 2019 -January 31, 2019?
A. That's correct.
Q. And these are the files that were the result of the updated $\operatorname{PROMOD}$ run that began on -roughly on January 23, 2019; is that correct?
A. Yes, about -- about that time. Like I said, I can't tell you the exact days but, yes, it takes roughly a week, week and a half on a -- on a
good day for a PROMOD run to be completed.
Q. In fact, you testified, when you were here on the 16th, that this is -- that the PROMOD analysis is complex, correct?
A. Yes.
Q. And that it typically takes weeks to run the PROMOD analysis, correct?
A. That is correct.
Q. And would it take weeks to run a single PROMOD analysis, that is for a year, or would it take -- or what are we talking about?
A. Yes. So the PROMOD analysis again, it depends on how many changes you are making to the model. If you are building a model from scratch and you are updating the transmission projects that are approved recently by the RTO and updating the generation that is retired as well as the network upgrades that are required to connect new generation and baseline upgrades that are required to deal with the impacts of retirements of existing generation, that can take very long time, weeks to build that model, and then the run, itself, takes at least a week, week and a half to do that.

But in this particular case, we already had a case that we ran back in May 2018 and the

## 2763

purpose of this analysis that $I$ performed was to just show that if you were to just take that solar plant and move it from Hillsboro to the Stuart-Clinton line which is physically in very close proximity, even though it's a different transmission line, what happens to the LMP. So really we didn't make a lot of changes to the model. All we did was just move that interconnection point and that, in itself, was not that big of an effort.
Q. And so, you were able to complete three separate years of the PROMOD run within the period of roughly January 23 to January 31, 2019, correct?
A. That's correct. Those runs can be -- we can initiate them on different server machines so they can be in parallel. They don't have to run in sequence because they are three different years with three different scenarios. So we -- all we have to do is model the project file and import the project file into PROMOD. Once that is done, you just run those cases, and it takes about a week, week and a half, like I said, to have the results.
Q. Well, in this case, it was roughly eight days, correct?
A. Yes, probably.
Q. Now, could you turn to page 7 of your
testimony, and I am directing your attention to Figure 2.
A. I'm there.
Q. For 2021, your table lists average energy use of 133,952 gigawatt-hours, correct?
A. Yes.
Q. And 133,952 gigawatt-hours represents average energy use over the period of 2021; is that correct?
A. That is correct.
Q. And would that be from January 1, 2021 to December 31, 2021?
A. Yes.
Q. I would like to turn your attention back to IEU Exhibit 14, which is the Impact Study Report.
A. Okay. I'm there.
Q. And could you turn to page 5 of that report.
A. I'm looking at it.
Q. And about halfway down the page, there's a section that's identified as "Schedule," correct?
A. Yes.
Q. And at least with regard to the impact study that was released in November of 2018 , it indicates that the elapsed time to complete the

## 2765

direct and non-direct connection work with Dayton is approximately 24 months, correct?
A. Yes.
Q. Now, if could I ask you to turn to page 3 of the study.
A. I'm there.
Q. And under the section "General," if you look at the next-to-the-last sentence, the proposed in-service date for this project is December 31, 2021, correct?
A. Yeah.
Q. So if I understand it correctly, you modeled the interconnection of the Hecate facility for the full year of December of 2021 with a facility that's scheduled not to come online until December 31, 2021; is that correct?
A. Yes, that is correct. I want to also point out that it is to perform an apples-to-apples comparison on the -- for the PROMOD analysis to show that what happens if you change the point of interconnection, right? I mean, again, at the end of the day, what that analysis was trying to demonstrate is what happens if you were to add 400-megawatt of solar to AEP's system. And I understand that, you know, the analysis, even though it was generic in
nature, you know, there was -- in -- you know, in the testimony in the hearings there was a point brought up that that interconnection point has changed, even though it was immaterial in my technical opinion because we were not trying to show what happens if you connect this particular facility. We were trying to show what happens if you connect any solar facility to the AEP system.

So for me to have a comparable, you know, analysis performed, I assumed -- the only thing I assumed in this recent analysis was a change in point of interconnection to demonstrate to the stakeholders that really if the point of interconnection moves and it moves to an area like DP\&L which in close proximity to AEP, as a matter of fact, it's only one station away, it doesn't change the results any, as far as the benefits are concerned of adding solar to -- and the AEP zone benefiting from them.

MR. DARR: I understand the results of your study, sir. That's the end of my questions.

Thank you, your Honor.
EXAMINER SEE: Mr. Collier?
MR. COLLIER: Thank you, your Honor.

2767

## CROSS-EXAMINATION

By Mr. Collier:
Q. Good morning, Mr. Ali.
A. Good morning.
Q. I want to start with where you just ended and that is your purpose here was to determine the impact of 400 megawatts of solar if added to the AEP system, right?
A. That is correct.
Q. And in order to show what the impact would be of connection to the AEP system, correct?
A. Yes, connection to the AEP system, that is correct.
Q. All right. Now, at this point we know that the facility in question will connect to the Stuart-Clinton line, correct?
A. That is correct.
Q. The Stuart-Clinton line is part of the DP\&L transmission system, correct?
A. That is correct.
Q. All right. Are you generally familiar with the transmission system in Ohio?
A. Yes, I am.

MR. COLLIER: Your Honor, if I could have marked as OCA Exhibit 6, this document from the

Public Utilities Commission, map of the electric power system, and may I approach the witness?

EXAMINER SEE: You may approach.
The exhibit is so marked.
(EXHIBIT MARKED FOR IDENTIFICATION.)
Q. (By Mr. Collier) Do you have OCA Exhibit

6 before you now?
A. Yes, I do.
Q. Does this indicate the transmission systems in Ohio from the Public Utilities Commission?
A. Yes, it does.
Q. All right. Now, I would like to direct your attention to the southwest corner of the map in the Highland County.

MS. BLEND: Your Honor, one, I guess, further foundational point. There is no date on this document. Could counsel for OCA --

MR. COLLIER: I believe it's current. I don't think it's going to make any difference based on this witness's knowledge. He'll testify.
Q. (By Mr. Collier) All right. Mr. Ali, roughly and on a very high level, the Stuart-Clinton line originates where?

MS. BLEND: Mr. Collier, are you asking based on this map or Mr. Ali's knowledge?

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

2769
MR. COLLIER: Mr. Ali's knowledge and he can refer to the map if he chooses.
A. So it is -- it is in the -- in the southwest corner of the map.
Q. Okay. That's a good start.
A. In the map, I can point out this, this -a line up here.
Q. It's a line that runs through Highland County --
A. Yes.
Q. -- and Adams County and it's referenced as DP\&L?
A. Yes.
Q. All right. And the Ohio Power line, OPC, that's shown there also, isn't it?
A. Yes, it is the 138 kV line.
Q. In Highland County.
A. Yes.
Q. Now, the Stuart-Clinton line originates -- originates at Stuart-Clinton stations, does it not?
A. Yes. It goes between Stuart station and Clinton station.
Q. And where does the Stuart-Clinton line then terminate?
A. It does terminate at Stuart and Clinton stations. It does terminate at Stuart and Clinton substations.
Q. But the line, itself, runs from Stuart-Clinton and goes where?
A. Oh, it goes to multiple stations. I mean, this particular line, its termination is at Stuart and Clinton, but at Stuart station you got multiple 345 kV lines getting into Cincinnati. There are lines that are going into the AEP zone. At Clinton station you have lines getting into Cincinnati area as well. So, I mean, it's a network of transmission systems that emanates from both Stuart and Clinton substations.
Q. Okay. All right. And the Clinton substation is shown on this map, is it not?
A. Yes, it is.
Q. Okay. The AEP line, where does it originate and where does it terminate?
A. So you are talking about the Hillsboro substation?
Q. Yes.
A. The Hillsboro substation has four 138 kV lines. One of them is connected to DP\&L and the other lines will going into the AEP system.

2771
Q. All right. Now, did you do any load flow or power flow analysis for purposes of your testimony?
A. Not for the purposes of testimony. We relied on the PJM impact studies. PJM had issued an impact study for interconnection at Hillsboro. It has also issued an impact study that I reviewed for the interconnection at Stuart-Clinton. And the impact study is -- is a very detailed load flow analysis, short circuit analysis, stability analysis, all of that is part of that, so we don't have to run an additional analysis to verify that.
Q. All right. Did you determine whether there was any congestion on the Dayton Power \& Light system?
A. So congestion is very different from load flow. So I just want to make that very clear, okay? So the analysis that $P$ JM performs is a reliability analysis that looks at peak condition, worst case scenario that may or may not happen, and contingencies in that peak condition for a few hours and how do they impact the load flow of the system and what upgrade the generator must pay for to ensure reliability to the grid.

The congestion analysis is very
different. It's 8,760 hour, hour-by-hour analysis, to see how many hours the generator is able to participate in the market and what are the impacts of the participation to the overall market -- I should say costs, if you will.

So again, if a generator is able to participate for 8,730 hours out of 8,760 , it's still pretty good, and there may be some congestion but it's really minute in that particular case. So I want to make sure you understand these two assessments are very different. PJM doesn't perform congestion analysis for -- for new interconnections. They only perform reliability analysis.
Q. The question I asked you was did you perform a congestion analysis of the Dayton Power \& Light system?
A. Not the entire Dayton Power \& Light system but $I$ just performed the analysis for this particular solar plant which is indicated in the Dayton Power \& Light system.
Q. Did you find congestion on the Dayton Power \& Light system or didn't you?
A. For this particular analysis, I did not see any congestion in the Dayton Power \& Light system that was significant.

2773
Q. All right. Now, in your hypothetical, your generic, you needed to assume a location point for purposes of running the PROMOD model, right?
A. That is correct.
Q. Okay. And the point of connection is important in your analysis, is it not?
A. Not necessarily because what my original analysis was trying to demonstrate was, you know, what happens when you add renewables to the AEP zone. The point of interconnection was not important but it was important that I start with something that is more realistic. Now, the point of --
Q. I think you answered the question. That's fine.
A. So I just wanted to clarify something.
Q. You will have your chance.

EXAMINER SEE: And you will let the witness answer the question, Mr. Collier.
A. The point of interconnection would have been very important in an area where there was a lot of congestion. That would have made a big difference and, you know, we would have to run sensitivity analyses of different points of interconnections to say, okay, what happens if you are connected in southwest Ohio versus northwest Ohio versus southeast

Ohio if there was congestion in the AEP system; but since there is no congestion on the AEP system, in my opinion the importance of the point of interconnection is only around the physical feasibility of having the ability to connect it to the grid.
Q. Let's break this down a little bit. In terms -- you address in your testimony the additional modifications that are required based on the interconnection with Highland versus the interconnection with Stuart-Clinton, don't you?
A. Are you referring to the PJM study?
Q. No, I am referring to your testimony.
A. Can you repeat that question? Sorry.
Q. You address the difference in transmission costs and modifications using the Highland line as opposed to the Stuart-Clinton line.
A. No, I have not taken into consideration the interconnection costs. Like I said, my goal was to see what happens to LMPs. The interconnection costs and stuff like that is part of the overall picture which, of course, I am not responsible for determining, you know, if we were to go and procure, you know, wind or solar out there. My goal is to show the Company and the stakeholders what happens to

## 2775

the LMPs, how much they get reduced, but there is another piece of it which is does it make sense to pick A versus $B$ versus $C$ based on the overall cost, and that was not the purpose of my testimony or my analysis --
Q. I understand that perfectly and I agree that wasn't part of your analysis. You don't care where the transmission is because you don't bear the costs of the transmission modifications.

MS. BLEND: Objection, your Honor. This is outside the scope of Mr. Ali's testimony. It's also getting argumentative and pretty hostile.

MS. LEPPLA: I would also ask that be stricken unless there was an actual question. I am not sure there was.

EXAMINER SEE: Mr. Collier --
Q. (By Mr. Collier) I just want to break this down, Mr. Ali, okay? Some issues I'll take the next step; otherwise, $I$ just want the information, okay? So we understand your testimony, okay? All right. Under a typical REPA, it's the developer that arranges for the interconnection and is responsible for the transmission upgrades or modifications.

MS. BLEND: Objection. Outside the scope of Mr. Ali's rebuttal testimony.

MR. DARR: Your Honor, I will point to page 7.

MR. COLLIER: Yeah, I was just going to say, I thought it was at page 7 .

MR. DARR: I didn't want to jump on Mr. Collier's response but I think I found it before he did.

MR. COLLIER: Could the question now be reread, your Honor?

EXAMINER SEE: Just a moment.
The objection is overruled.
Could you read the question back, please, Karen.
(Record read.)
A. I cannot answer that question on whose responsibility it is under REPA because that's really outside my area of expertise.

What $I$ can answer is if you were to ask me are other transmission upgrades required if you were to connect this facility at Hillsboro or if you were to connect this facility let's say on the Stuart-Clinton line and the answer to that question is yes, you have to physically connect to the grid and that physical connection requires upgrades. It requires costs to build the facility so you can have

## 2777

that physical connection, and those are identified in most studies by PJM that were shared with me as an exhibit and was also part of the discovery response that I provided earlier.
Q. But your testimony is that these upgrade costs don't impact the LMP price directly.
A. Yes, that is correct.
Q. Okay. All right. Now, under a typical REPA, there is a point of interconnection, is there not?
A. Like I said, I'm not an expert when it comes to REPA. I'm thinking that may be somebody else, you know, in Phase II, who can answer about how REPAs are put together.
Q. All right. I am just trying to get to your assumption here. So you made no assumption as to the contractual point of delivery for purposes of your analysis.
A. That is correct. And as I mentioned earlier, it's a very generic analysis that I am trying to perform, right? I am not trying to show that here is the one you need to pick. What I am trying to show is what happens if you add 400-megawatt of solar to the AEP system.
Q. To the AEP system.
A. System LMP zone.
Q. That's what I'm getting at.
A. Yes, that is correct. And even when you model the wind outside of AEP zone, right, when you add generation anywhere, there is an impact to the -to the AEP zone as a result of it.

Now, it so happens that this particular facility changed the point of interconnection from a station at Hillsboro to another station 5 miles away, a new substation on Stuart-Clinton. So the impact is not, you know, different because it's so close not only physically but also electrically.
Q. But it's a different system. It's a different transmission line, right?
A. That is correct.
Q. That's part of the Dayton Power \& Light system.
A. That is correct, but there are no tolls the electrons have to pay when they go from the DP\&L zone into the AEP zone.
Q. That's the point $I$ am trying to get at. At the point of delivery, the buyer takes the output, correct?
A. Sure.
Q. All right. And then the buyer determines

2779
where and how to liquidate the output into the market.
A. Correct.
Q. Okay. In this generic analysis, the buyer is AEP Ohio, right?
A. Correct.
Q. And the buyer assumes the output at the point of delivery and decides how to liquidate it into the market.
A. Exactly. And that's exactly the analysis I performed.
Q. Okay. And at what point, physical point, does it get liquidated into the market?
A. It is liquidated across AEP zone.
Q. But it's going into the Dayton Power \& Light zone, that's what $I$ am trying to understand.
A. No, that's where the injection is happening. The power gets injected on to the grid in the DP\&L power zone and then it gets liquidated into the AEP west zone. And again, the reason the results have not changed materially by moving the point of interconnection is because the system is pretty similar, it's very close, so the results are pretty similar and the benefits are very similar.
Q. For purposes of your LMP analysis, did
you assume a particular interconnection point between the Dayton system and AEP?
A. Yes.
Q. What was that point?
A. It was a substation on the Stuart-Clinton 345 kV line for the purposes of the analysis that is part of my rebuttal testimony.
Q. And is that the Clinton substation?
A. No. It's actually, we had to put a new substation between Stuart and Clinton.
Q. You're assuming a new substation?
A. It's based on -- it's very close to actually the, you know, it's based on --

THE WITNESS: If I may, your Honor, can I refer him back to the exhibit?

EXAMINER SEE: Yes.
A. So if you go to the exhibit that is the Revised Generation Interconnection System Impact Study which was issued in October and then Revised in November. On Attachment 1 there is this one line configuration of the substation and it proposes a new AC1-085 substation on the Stuart-Clinton line and that's exactly what we assumed in our analysis.
Q. All right. Let's take it from there. This is a substation that doesn't actually exist.

2781
A. That is correct.
Q. All right. But it's at that substation that is the point of interconnection between the Dayton Power \& Light system and the AEP system.
A. No. That is the point of interconnection of the solar plant, the Highland solar plant, to the PJM system.
Q. Okay. And the question I asked you initially was what's the identified point of connection between the AEP -- the DP\&L system and the AEP system?
A. There are -- I mean, there are so many interconnection points, $I$ really can't give you an exact number, but there are many points of interconnection between the AEP and DP\&L.
Q. All right. So you didn't assume any particular interconnection.
A. I think there is some confusion here. So there is a point of interconnection that is for the solar plant. It has to physically connect somewhere to the grid, right? So if you think about a highway system. You are building a ramp to a new community or a new residential outlier and so assume that ramp is then physically connected to the interstate system. But once you are on that interstate system
or the highway, it's then connected statewide, countrywide, for that -- that transportation or vehicle to get anywhere and that's exactly what it is in this case. The ramp was connected to an AEP highway and now that ramp moved very close to a Dayton Power \& Light highway, but all these highways are eventually connected overall and there are multiple points of connections where the transition of ownership happens.
Q. We're talking about locational marginal pricing. You understand locational marginal pricing is based on the operating manual of PJM?
A. Yes, I do, very well.
Q. Okay. Now, the assumption with locational marginal pricing is an attempt to value the energy at a specific location the time that it's delivered, right?
A. That is correct.
Q. And the specific location is a specific location that's important with reference to the congestion before or congestion after?
A. So sorry, if I may, I think there is -- I would like to help out with that and clarify that a little bit. So think about it, the LMP, the locational marginal price is calculated at every

2783
single node at PJM. So there is an LMP that is calculated at this new substation. There is an LMP that is calculated at every single generation point of delivery within the AEP zone, every single point of consumption within the AEP zone.
Q. All right. Let me ask you a question right there. What about the Dayton Power \& Light system?

MS. BLEND: Your Honor, may Mr. Ali be able to finish his answer?

EXAMINER SEE: Were you finished?
THE WITNESS: No, your Honor.
EXAMINER SEE: Go ahead, please.
A. So, in essence, having that almost -- so think about this, right? So you have -- you have this new solar plant that was added to the grid. And that solar plant is now bidding in the market on the -- in the hour -- on an hourly basis and it's offering a price, and since it is a zero dollar per megawatt-hour price, there is something else within the entire market, provided there is no congestion, that will scale down which is the highest cost at this point, and then the LMPs are calculated and the LMPs are very similar across all the system as long as there is no congestion.

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

Now, there are some small differences when there is -- when there is losses that you have to take into consideration. But when there is no congestion, the LMPs are very similar. And I think this analysis shows that by moving the point of interconnection from AEP to DP\&L, the results don't change because there is no congestion at least between this point and between the AEP system. And, as a result, the LMPs across the AEP zone are similar.
Q. You told us, in your original testimony, that the generator receives the LMP price at its node and the buyer pays the LMP price at its node.
A. That is correct.
Q. Now, you've just talked about the nodes on the AEP system. Okay? I am asking you about the nodes on the Dayton Power \& Light system, okay?
A. Okay. I don't think I heard that but can you ask that question? What are you asking?
Q. I am asking you if the nodes impacted for purposes of the LMP pricing are nodes that, at least in part, occur on the Dayton Power \& Light system.
A. I did not specifically look at the LMP changes in the Dayton Power \& Light zone. It was immaterial at least for the analysis $I$ was performing

## 2785

because I'm trying to figure out what happens to the AEP zone LMPs when we add solar to the network.
Q. But is -- is the output liquidated before it reaches the -- before it's considered in the AEP zone?
A. Sir, I think that's where the confusion is, right? I understand contractual liquidation that you are referring to, and $I$ think where $I$ am going with it is what happens in the actual model, right?

So, in essence, in the actual model you have a profile of generation running across PJM, right? Let's assume there is 10,000 megawatts of generation that's needed to meet the demand and losses and it's running across PJM and the last unit in that is defining what is the market clearing price, and all of a sudden we add -- add a solar plant, and the solar plant is added in an area where there is no congestion, then the solar plant is going to change the LMP because the last unit that is needed now may not be needed because it's more expensive and we have a more cost-effective resource. As a result of that, the LMP changes, and as long as there is no congestion, the whole region is going to see the same LMP prices.
Q. The -- we'll get to the contract and the
assumptions that you make under a typical REPA in a moment, okay? But I want to nail down the issue on LMP pricing as defined in the PJM manual. Your point being on congestion where the lowest-priced energy -electricity can reach all locations, prices are the same across the PJM grid, right?
A. That is correct.
Q. All right. Congestion generally raises the LMP in the receiving area of the congestion and lowers the LMP in the sending area, correct?
A. Exactly correct.
Q. All right. The receiving area in this hypothetical is the Dayton Power \& Light system.
A. Sir, if you remove the word "congestion," then I would agree with you because I think what you are saying is that there is somewhere congestion between the AEP and Dayton Power \& Light zone. So if you remove congestion, that's exactly what I am getting at. Since there is no congestion, the LMP prices are uniform. That's exactly what you said a minute ago.
Q. All right. And there are three components as you testified before. There is an energy price component, congestion price, and a loss component.

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

2787
A. That's correct.
Q. Your analysis indicates no congestion anywhere, any time, any place.
A. From -- from this particular connection point to the AEP west -- to the AEP zone, no congestion.
Q. All right. The locational marginal prices are calculated by a PJM computer system and posted on the web every 5 minutes, right?
A. That is correct. Real-time congestion --real-time LMPs.
Q. And those locational marginal prices are calculated based on the pricing nodes that are employed or impacted by the electricity.
A. That is correct.
Q. Okay. Now, there are different nodes on the Dayton Power \& Light system than there are on the AEP system, right?
A. That is correct.
Q. Okay. Now, the REPA contract -- a typical REPA arrangement will address not only the point of delivery but the contractual entitlement point to the output, right?

MS. BLEND: Objection, outside the scope of Mr. Ali's rebuttal testimony. I also think this
question, if it hasn't been asked and answered, it has already been established today Mr. Ali is not -this is outside Mr. Ali's area of expertise, REPA terms is outside of his area of expertise.

MR. COLLIER: And I phrased the question in terms of generically how do you address it. Let me rephrase the question.

EXAMINER SEE: Okay.
Q. (By Mr. Collier) For purposes of your limited analysis, did you make any assumption as to what contracting party would bear or receive the locational marginal pricing?
A. No. My generic analysis was looking at the impact of LMPs, changes on the entire AEP zone.
Q. Okay. For every transaction that determines locational marginal price, there is a point where the generator gets the money, the buyer pays the money, right?
A. That is correct.
Q. Now, in your hybrid analysis, did you assume AEP could be the generator after receipt of the output?

MS. BLEND: Objection. Vague. What does Mr. Collier mean by "hybrid analysis"?

MR. COLLIER: In your generic analysis.

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

2789

MS. BLEND: Objection. Outside the scope of Mr. Ali's rebuttal testimony.

MR. COLLIER: I am trying to focus on his calculation of the locational marginal pricing.

EXAMINER SEE: Well, try the question again, Mr. Collier.
Q. (By Mr. Collier) I'll try again. Did you make any assumption, for purposes of your analyses, whether AEP Ohio would actually receive LMP price credits?
A. So, your Honor, I appreciate it. I personally feel that there is definitely confusion on the understanding of the LMP. When you say AEP, you know, would receive LMPs. Well, AEP doesn't receive LMPs. At the end of the day, the LMPs are set. They are a function of generation participating and their fuel cost and their $O \& M$ costs and their fixed cost and their heat rates, they are a function of the demand in a given hour, they are a function of losses in a given hour. So the LMPs are set by the model to ensure that the most-cost-effective generation is dispatched while meeting the constraints of the transmission grid and making sure the losses are being paid for.

So there is no model where we are going
and setting those LMPs and saying, hey, this is what we are looking for. It's the model setting the LMPs and calculating the LMPs for us based on the constraints, based on the actual physical ability of generation to perform. And so that's where I'm a little worried that $I$ think the concept of LMP may be a little misunderstood.
Q. I'm starting with your testimony that generators are paid at their node.
A. Definitely.
Q. Buyers pay at their node.
A. That's correct.
Q. There are dollars that actually exchange hands in the settlement process.
A. Yes, sir, you are exactly right, but what I am getting at, sir, is the LMP is calculated based on those constraints, and then those generators get paid at their node, whatever the LMP gets set, and the buyers are paying the LMP at their node, whatever it gets set; so there is no prenegotiated agreement, if you will, in the model or transaction in the model that this is what the LMPs need to be. It's calculated as a function of the characteristics of the portfolio of generation and transmission.
Q. And you made no assumption in your

## 2791

analysis as to whether AEP Ohio would ever receive LMP price credits?

MS. BLEND: Objection, outside the scope
of Mr. Ali's rebuttal testimony, and I think asked and answered.

MR. COLLIER: I think his testimony will be that he didn't review the REPA and that's why I am asking the questions.

MS. BLEND: It's outside the scope of Mr. Ali's testimony in this case, including and especially his rebuttal testimony.

MS. BOJKO: Your Honor, that's not a proper objection and it's not outside the scope even if it was a proper objection. He's talking about LMP prices and assumptions that he made. We have objected, over and over again, to talking about the specific projects because we weren't allowed to talk about them and have testimony in about specific projects. There were underlying assumptions that relate to the specific projects. Yes, those specific projects have REPAs associated with them, but we are trying to figure out his assumptions, and it is not beyond the scope of what he did or did not consider when doing his analysis.

EXAMINER SEE: And the objection is
sustained on the basis that the question has been asked and answered.

MR. COLLIER: All right. Thank you, your Honor.
Q. (By Mr. Collier) The fact of the matter, Mr. Ali, is changing the assumption of the location does impact marginal -- locational marginal prices.
A. I think I've mentioned this before. It does definitely impact LMPs if there is congestion or you are taking it so far away that the losses are changing drastically; so now you are changing the congestion components and loss component of LMP. In this particular case, as my analysis demonstrates very clearly, the LMP changes were immaterial. They actually didn't change significantly because the point of interconnection just moves slightly and there is no congestion whatsoever in the AEP zone and between Stuart-Clinton and AEP zone.
Q. Mr. Ali, I'm comparing your Figure 2 at page 6 and 7 to what you came up with after you reran the model, your Figure 1 on page 6, your Figure 2 on page 7. Will you turn your attention to that.
A. Figure 1 and 2?
Q. Yes.
A. Yes, I am there.

2793
Q. Figure 1 is your original calculation for the years 2021, '24, and '27, right? And you are the one that calculated the LMP savings in dollars per megawatt-hour, right?
A. That is correct.
Q. And the average energy use is the gigawatt-hours in the AEP Ohio load zone, right?
A. That is correct.
Q. And the LMP savings is a function of the -- which you calculate the unit savings to be, multiplied by the energy use, right?
A. That is correct.
Q. Okay. When you reran PROMOD, the results are displayed in Figure 2, are they not?
A. That is correct.
Q. You get different results, don't you?
A. Slightly different, yes.
Q. You get a difference of . 050 in 2021 to .053.
A. That is correct.
Q. That works its way down to the LMP savings and that number changes although the usage stays the same?
A. Slight change, yes.
Q. Slight being whatever it is
mathematically. But 2024, your original analysis indicated savings of . 043 dollars per megawatt-hour and that changed to . 053 .
A. That is correct.
Q. And in 2027, it changed from . 062 to .068 .
A. That is correct.
Q. And the only reason for that change would be the change in location assumed.
A. That is not completely correct because if you read my testimony on -- give me one second. I'll find exact lines. If you read page 6, line 6, actually let's start with line 5, "The only changes made to the analysis involved the change in the point of interconnection for the Highland Solar Farm facility and megawatt output."

So the question was raised during the testimony in the last few weeks that there is congestion in DP\&L zone, so as a result of this point of interconnection moving, the analysis, the benefits that AEP has calculated are probably not material.

So I went back and I moved the point of interconnection from the AEP system to DP\&L system, and I -- as I was moving the point of interconnection, I also took into consideration that

2795
this solar plant is a 400-megawatt plant as proposed in PJM. My analysis that $I$ had done originally was for 300-megawatt of output. So I wanted to make sure that we look at 400-megawatt because additional megawatt could be argued that can add more congestion because now your output has increased.

And so the slight differences where you see more benefits is really making that point very clear that, yes, the more you are going to add, the more benefits you are going to see, but I made 400 megawatts because $I$ wanted to make sure there is no congestion at 400 because you may not see it at 300, and if you go to 400 you may see the congestion. So I modeled 400-megawatt and that's the reason you are seeing slightly higher benefits. That's not as a result of the point of interconnection change. That's as a result of us, you know, increasing the output as stated in the facility study agreement.
Q. Okay. So the reason for the difference in the numbers between Figure 1 and Figure 2 is the change in location plus the change in the assumption on the megawatt.
A. Yes.
Q. That's the capacity.
A. As energy.

## Q. Energy?

A. Yes. LMP analysis is performed for energy and the capacity is taken into consideration, as a matter of fact, as a result of the profile of the solar plant that is in the model because it's an 8,760-hour analysis.
Q. Okay. So what did you assume the capacity factor to be in this change in megawatt?
A. Exactly the same that we had at the Hillsboro substation.
Q. Same output in energy.
A. Same capacity factor.
Q. Same capacity factor, different output.
A. Different output because you have 100 more megawatts now.
Q. Did you assume any change in loss, the third component of the LMP analysis?
A. The model does that automatically for you based on where you move the point of interconnection and, again, I didn't see a big difference there because the point of interconnection really literally moved 5 miles away and that's it.

MR. COLLIER: All right. Now, I am going to ask a series of questions, your Honor, and I am not asking for specific data points that may be

2797
confidential. I am asking about methodology in the runs. I don't care if we go into a confidential portion at least initially. I don't think it will involve the disclosure of any confidential data. But I do want to ask about the methodology.

EXAMINER SEE: Okay.
MR. COLLIER: Either I pose the question and if there's a concern we can go to confidential, if there is not a concern, we can stay on the record.

MS. BLEND: Your Honor, I would just instruct Mr. Ali to indicate if he is going to need to provide confidential information in an answer to one of Mr. Collier's questions, and we can try to go from there if that works for the Bench.

EXAMINER SEE: It does.
Q. (By Mr. Collier) All right. I will be very careful. You be very careful, okay? In your original workpapers in your original analysis, you showed runs that had a column for AEP and a column for PJM. Do you recall that?
A. Yes, I do.
Q. And the AEP column would indicate energy cost?
A. Can you show that because there was a lot of columns in that report.

MR. COLLIER: If I may approach?
EXAMINER SEE: Yes.
MS. BLEND: Mr. Collier, do you have a copy of that document?

MR. COLLIER: I don't. I just have this one. I think this will refresh his recollection.

MS. BLEND: Your Honor, may I approach as well?

EXAMINER SEE: Yes.
Q. (By Mr. Collier) And my question is very general, sir. It's just in this analysis what is in the AEP column generally?
A. I believe it is the -- I mean, subject to confirmation because $I$ don't have the whole document in front of me, I think it's just a snapshot of the January months that you shared with me, I believe it's the LMP prices.
Q. And for PJM, what would that column generally be?
A. Same.
Q. Locational marginal prices.
A. Yes.
Q. Okay. When you did your reanalysis, you produced workpapers again, didn't you?
A. Yes.

2799
Q. All right. In the first analysis, there's a differential between the AEP column and the PJM column in terms of the figures shown, isn't there?
A. There are LMPs for 8,760 hours. I don't know if $I$ can say that without having that report in front of me for all the 8,760 hours. I think the data you shared with me was for only a few hours in January.
Q. Right. Is there also a differential between those two columns in your supplemental workpapers?
A. Yes, there definitely are hours when AEP LMP prices do not match PJM LMP prices because in PJM there is congestion. I mean, if you go to Virginia, Maryland, Pennsylvania, there is significant congestion. So LMP prices east of AEP are significantly higher than within the AEP zone because of that congestion.
Q. All right. The LMP prices can be determined either on the day-ahead market or at real-time.
A. And all are forecasted like we did.
Q. And did you make any particular assumption as to whether the pricing would be at
day-ahead market or real-time?
A. So the PROMOD model is a prospective day-ahead market, so it starts to assimilate a day-ahead market.
Q. A day-ahead.
A. Yes. But I must add it's a perfect day-ahead market. Nothing goes wrong on the grid that day.

MR. COLLIER: That's all the questions I have. Thank you.

EXAMINER SEE: Ms. Whitfield?
MS. WHITFIELD: No questions, your Honor.
EXAMINER SEE: Ms. Bojko?
MS. BOJKO: Yes, thank you, your Honor. _ - -CROSS-EXAMINATION

By Ms. Bojko:
Q. Okay. Good morning, Mr. Ali.
A. Good morning.
Q. Some follow-up questions to what you've been discussing this morning. So as I understand your testimony on page 6, line 6 and 7, you made two changes to the analysis that you ran and included in your original testimony and those would be, one, you changed the location of the point of interconnection

## 2801

for the Highland solar facility, correct?
A. That is correct.
Q. And, two, you changed the output of the facility to 400 from 300 which was in your original analysis.
A. That is correct.
Q. And do you discuss the change from 300 to 400 for the output of the solar facility anywhere else in your rebuttal testimony besides what's on 6 and 7?
A. No, I don't.
Q. And when you say that Figure 1 is comparable to Figure 2, that's not exactly accurate, correct? Because now we're using different megawatt output, correct?
A. I think it actually is what -- I was trying to assume directionally what happens, right? And in that sense these are comparable. The difference -- the change is immaterial. You can take this 300 to 400 to 500, extrapolating it to 900 if you want to, that is exactly the basis of the generic analysis, that originally we studied it for 650 , but, based on us finding no congestion, we extrapolated it.

As I mentioned earlier, the only reason I
decided to run 400 was because I wanted to make sure that no one comes back and says hey, by the way, the plant total output is 400 , maybe there is no congestion at 300 but there may be congestion at 400 megawatt.
Q. But when I am looking at Figure 1 and 2, there are two underlying assumptions, so they are different assumptions, they are not comparable with regard -- just yes or no, are there different assumptions in Figure 1 and Figure 2?
A. As mentioned on line 6 on page 6, yes, there are two changes that I made to the case.
Q. Okay. And did you run your original PROMOD analysis with the difference in interconnection point but still at the 300 megawatts?
A. Yes, I did.
Q. But that's not in your testimony, correct?
A. No, it's not.
Q. And you refer to October 3 in your testimony, October -- let's get the complete date correct. October 3, 2018, as the date when something changed through the PJM Interconnection queue position for the interconnection point; is that correct?

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481
A. I talk about the study being published by PJM on October 3. I don't talk about a change that happened on October 3.
Q. Okay. Well, that's -- fair point then. Throughout your testimony and in the questions you keep using the word "change." Okay, page 7, you say, line 2 -- 1 and 2 , as a result -- you say "Figure 2 shows the results of the updated LMP analysis performed as a result of the interconnection change."
A. Which I made. The change that I made from moving it from Hillsboro to the Stuart-Clinton line.
Q. Okay. Just to be clear, because of this sentence $I$ just read, Figure 2 also includes the change in the output, megawatt output.
A. That is correct.
Q. Which is not listed here.
A. Actually it is listed on page 6, line 6.
Q. Page 7, lines 1 and 2, when you are describing Figure 2, I was trying to understand.
A. Sure.
Q. Okay. And so when you refer to -- let me find the reference for you. Okay. Strike that.

Let's go to -- you talked with -- to Mr. Darr about some dates. You talked about the

October 3, 2018, study, or the October 8. Let's go to the October 2018, IEU Exhibit 14. In this impact study report, done by PJM, the Hecate facility is listed to be a 400-megawatt facility, correct?
A. Yes, it is.
Q. And similarly, in the November 2018
facility study report that you discussed with
Mr. Darr, the Hecate facility was scheduled to be a 400 or proposed to be a 400-megawatt facility, correct?
A. That is correct.
Q. And isn't it true, sir, that on

September 13, 2018, PJM listed the Hecate interconnection point as the Dayton Power \& Light project, correct? As a Dayton Power \& Light project?
A. Can you please repeat that?
Q. Sure. Isn't it true on September 13, 2018, PJM listed the Hecate interconnection -interconnection as a DP\&L project?

MS. BLEND: Are you asking -- objection. Just vague. Are you asking about these documents or Mr. Ali's personal knowledge?

MS. BOJKO: I am asking Mr. Ali based on his knowledge.
A. I really can't answer that. What I can

## 2805

tell you is $I$ personally became aware of it in October of 2018 sometime.
Q. So you were not aware of the new service queue update in 2018, performed by PJM, that listed the Hecate interconnection point as a DP\&L project?
A. In 2018, yes, I was in October of 2018. I think you are asking about September, PJM issuing something? I can't recall that. I personally got aware of it in October of 2018.
Q. Okay. So then were you also not aware of a PJM staff White Paper in December 2017 that listed the project as being in the Dayton Power \& Light service territory?

MS. BLEND: Objection, your Honor, foundation. Ms. Bojko is just testifying to I guess alleged facts that aren't in the record regarding the White Paper in December 2017. She has not established any foundation.

MS. BOJKO: Your Honor, I am asking him if he is aware. That is actually a foundational question.

EXAMINER SEE: The witness can respond to the question.
A. Yeah, your Honor, the only time I can recall personally being aware of it is in October of

2018 about this change. I can't dispute that there isn't a White Paper out there but I am just not aware of it.
Q. You said about this change, and then earlier today you told me the change was your change, and I was using the word "change" to mean a change in the interconnection point and you corrected me. So when do you believe this change of the interconnection point occurred?
A. Very fair question. So what I am talking about is the change in the point of interconnection from AEP zone to the DP\&L zone, I personally became aware of it somewhere in October of 2018.
Q. Okay. You became aware of it in October of 2018, but you are not testifying that is when the change occurred, that there was some official change on that date; is that correct?
A. That is correct. I am not testifying to that.
Q. And in your rebuttal testimony you discuss that you performed -- your LMP analysis that you performed, considered specific projects and their locations, correct?
A. That is correct.
Q. And you stated that using specific

## 2807

locations for specific projects in the LMP analysis would obtain more accurate results; is that correct?
A. More accurate and realistic results. If I may add because like I said earlier, the assumption of just dropping, you know, wind or solar anywhere, even though from an electrical perspective, you know, it may tell you, you know, the results are -- LMP results are a certain way but, you know, reality-wise those plants may not be buildable; so that's why using specific projects ensures that the projects that are studied and the impacts that are studied, at least from a physical feasibility perspective, those locations are viable.
Q. And it's true that the new LMP analysis that you ran for purposes of your rebuttal testimony, that actual analysis could have been run with the new interconnection point and with the updated megawitt -- megawatt output since you became aware of the interconnection point determination of Dayton Power \& Light in October; is that correct?
A. Yeah. Most certainly I could have ran that analysis, but, as I mentioned earlier, the purpose of my analysis was generic. So when I found out about this change, and in my mind it's immaterial because I'm trying to see the impact of adding solar
and wind to an AEP zone which has no congestion and what does that do and how you can extrapolate those reserves further, so the point of interconnection was immaterial because I'm not trying to tell that here is the plant we must go and pick. I am just trying to show generically what happens with the AEP zone LMPs when you add 400-megawatt of LMP.

This issue was raised after I testified, so I felt it necessary to make sure that the record reflects that even though my analysis is generic in nature and it should be used as such, that moving the point, you know, 5 miles away on the same system, really shouldn't change the analysis materially.
Q. And had the interconnection point been known prior to October 2018, again, there was nothing prohibiting or preventing you from running the LMP analysis with the -- a different interconnection point, correct?

MS. BLEND: Objection, asked and
answered.
MS. BOJKO: This is a different question, your Honor. I asked about October, since October. This is prior to October, different question.

MS. BLEND: I will withdraw my objection. Thanks for the clarification.
A. So in essence if this --
Q. I am asking if it was physically possible to run the LMP analysis at a time before October 2018 with all of the information that you used last week when you ran the analysis.
A. Had I known about this before October which, like I said, I didn't know about it, yeah, we could have run the analysis. Had I known about this in May of 2018 when $I$ ran the analysis, I probably would have picked a different solar plant in AEP zone and ran that analysis because it's part of the interconnection change.

So, again, $I$ want to make sure that, you know, we understand that the purpose of my analysis was very generic to figure out the LMP changes when you model solar and wind, and I used these locations because they are physically there. They, are in the queue, and change of these locations doesn't really materially change my analysis as to how AEP zone will benefit if solar and wind is added to AEP.
Q. And, again, that -- you are saying it wouldn't matter if it's located in AEP's zone, correct? It would matter if it's in FirstEnergy's zone.
A. Yes, most certainly it would, and that's
why I went back and redone the analysis to show that -- to see what happens if I move it to Dayton Power \& Light and, in this particular case, it shows that if you move it to Stuart-Clinton, it doesn't change anything. Now, if you were to move it --
Q. Wait. You say it doesn't change anything.

MS. BLEND: Your Honor, may Mr. Ali be permitted to finish his answer?

MS. BOJKO: Sorry.
EXAMINER SEE: Yes, you may.
THE WITNESS: Thank you, your Honor.
So it didn't change anything by moving it to Stuart-Clinton as far as the results are concerned. And I understand that you are trying to stretch the word "change" and I know it means many different things as used, so I will be very clear with that.

When I am talking about change, so changing the point of interconnection from the Hillsboro substation to Stuart-Clinton line which sits 5 miles away from Hillsboro does not materially change the LMPs in AEP zone.

Now, if we were to take that point of interconnection and move it to somewhere in

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

## 2811

Pennsylvania, yeah, maybe it would change the results of my analysis.
Q. I wasn't talking about the word "change" as you described. You keep saying this is your quote: It doesn't change anything. That's not accurate. You may think it doesn't materially change or significantly change, but Figure 1 and Figure 2 are different. There were changes, correct? That's a yes or no. There were changes, correct?

EXAMINER SEE: Just a moment.
A. I don't think -- I'm sorry, your Honor.

EXAMINER SEE: Go ahead.
MS. BOJKO: Your Honor, I'm asking -- he keeps saying --

EXAMINER SEE: Just a minute, Ms. Bojko. Let him answer the question.

MS. BOJKO: I will withdraw the question and reask a different question.

EXAMINER SEE: Then start again.
Q. (By Ms. Bojko) You use the words "it doesn't change anything." Figure 1 and Figure 2 are different. There were changes, correct?
A. Not really. In essence not really, in essence because -- because there is a change in the point of interconnection and megawatt that results in
some other change. And what I am talking about, the change in the point of interconnection and the megawatt output does not change the LMP, okay? So I think I may be using the word "change" loosely and I will be very careful to explain that for the record. The change in the point of interconnection and megawatt output does not materially change the impact on LMPs in the AEP zone.

MS. BOJKO: Thank you, your Honor. I have no further questions. We'll let his testimony speak for itself.

EXAMINER SEE: Mr. Oliker.
MR. OLIKER: Thank you, your Honor. CROSS-EXAMINATION

By Mr. Oliker:
Q. Good morning, Mr. Ali.
A. Good morning.
Q. Just a few questions for you on your analysis. Am I correct, when you were speaking to Mr. Darr earlier, you indicated the PROMOD analysis contains several assumptions?
A. Yeah. Within the model, there are many assumptions.
Q. Okay. And it can take even several weeks

## 2813

to populate all the assumptions, correct?
MS. BLEND: Objection. Asked and
answered with Mr. Darr.
MR. OLIKER: It's foundational, your
Honor, in order for the record to make any sense.
EXAMINER SEE: Go ahead. You can answer the question, Mr. Ali.
A. Yeah, it could take several weeks, if you are fundamentally overhauling the model, it can definitely, but if you are not overhauling the model and just running the analysis, it can take up to a week to do that.
Q. Okay. And I think as we talked about, if you change one of the assumptions, you can end up with different results.
A. Just like any analysis, that is correct.
Q. And but one of the assumptions that you have in the PROMOD model was a projection of power prices in each year and each hour, in fact?
A. That is correct.
Q. And you got that information from Karl Bletzacker in your first and second analysis?
A. No. The prices in the PROMOD model are based on PJM developed assumptions.
Q. And did those assumptions change between
your first and second model run?
A. No.
Q. Do you know, does the PROMOD model have an estimate of natural gas prices?
A. Yes, it does.
Q. Who develops those assumptions?
A. They are developed by PJM. I believe it's based on Henry Hub forecast.
Q. And if you were to reduce the Henry Hub forecast in the PROMOD model, would you agree you get different results?

MS. BLEND: Objection, your Honor. This is outside the scope of Mr. Ali's rebuttal testimony. These are questions that Mr . Oliker could have but did not ask Mr. Ali during his direct testimony. As Mr. Ali has just testified, the assumptions that he utilized, including the natural gas price assumptions, didn't change between his first and second model run. Mr. Oliker should not be permitted the opportunity to take a second bite of the apple, so to speak, with regard to issues that could have been covered during the direct phase of the Company's case.

MR. OLIKER: Your Honor, that was good testimony from the counsel but the witness hasn't

2815
actually said that yet. He said he used the same power prices from PJM. He hasn't talked about natural gas prices. But since he is submitting new projection of the LMP price suppression, I think we should be allowed to ask him about what are the assumptions that are in there. What happens that may change the results?

MS. BLEND: The question was not a question about whether the Henry Hub price forecasts change between the first and second run. I would agree that would be a fair question to ask. The question was whether -- if you were to reduce the Henry Hub forecast in the PROMOD model, would he -would Mr. Ali agree you get different results, and that is a question that could have been asked during the direct phase of the Company's case and is outside the scope of Mr. Ali's rebuttal testimony.

EXAMINER SEE: And I agree and the objection is sustained.
Q. (By Mr. Oliker) Okay. Now, Mr. Ali, we've been talking about some of the assumptions you assumed in this PROMOD model run. One of those assumptions, I think you indicated earlier, was the amount of retirements and new construction of generation resources; is that correct?

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481
A. Yeah. Like I mentioned earlier, the analysis that $I$ ran is using the same models, exactly the same models that I used for the analysis performed in May of 2018; and the only change that $I$ made to the model was the point of interconnection change from Hillsboro to Stuart-Clinton, and the megawatt output increased from 300 to 400-megawatt.
Q. Your testimony specifically discusses the retirement of the Stuart and Killen facilities, correct?
A. Yes, it does.
Q. And just a few years ago -- first, would you agree that one of AEP Ohio's affiliates was an owner or is an owner of the Stuart facility?
A. I can't confirm that.
Q. Do you not know?
A. No, I don't. It's generation plants. I am a transmission subject matter expert.
Q. Okay. Focusing on the Stuart and Killen facilities in your testimony, would you agree that the owners of those facilities made a determination that the future cash flows associated with those facilities will not recover their -- their ongoing costs and provide a rate of return?

MS. BLEND: Objection, your Honor. This

2817
is outside the scope of Mr. Ali's rebuttal testimony. As his testimony on page 8 makes clear, the scope of his testimony regarding the Stuart and Killen generation unit deactivations relates to the previously identified network upgrades that are no longer required due to the change in the interconnection point. Mr. Ali has testified he is not a generation subject matter expert and he doesn't know who owns the Stuart and Killen facilities, so I also object on the grounds of speculation.

MR. OLIKER: Your Honor, if the witness doesn't know the answer to any of my questions, he can always say "I don't know." But as I understand the purpose of this rebuttal phase, after the Company screwed up its initial case, is we are trying to create a complete record. So I think I should be allowed to ask questions about his own testimony and the retirements he's identified in his testimony. I'm not trying to ask him to speculate. I am simply talking about some of the assumptions he's assumed and he specifically identified these generation facilities as the Stuart and Killen as mattering. MS. BLEND: And -MR. OLIKER: And he's also provided -and I would like to finish -- and he's also providing
an LMP suppression analysis which may be relevant to what a generation facility might have considered when it was deciding to retire. So if we are going to create a complete record, let's do that, instead of selectively picking certain portions of the case we would like to go into for the Commission's review.

MS. BLEND: And if I could just briefly respond, your Honor. As Mr. Ali's testimony makes very clear on page 8 , he's referencing here what the PJM facility study report or interconnection queue position No. AC1-085 indicates. He is summarizing that to provide some additional context regarding how the -- part of the congestion issue. He has not provided any testimony regarding the Stuart and Killen generating units themselves beyond that very narrow $Q$ and $A$. And questions about the state of mind of the owners of Stuart and Killen are both outside the scope of his testimony and are improperly seeking speculation.

EXAMINER SEE: The objection is
sustained.
MS. BOJKO: Your Honor, may I hear the question reread just so $I$ can understand your ruling?
(Record read.)
MS. BOJKO: Thank you.

2819
Q. (By Mr. Oliker) Now, I think your counsel said this and I want to confirm it, am I correct you don't know whether or not the assumptions regarding generation retirements that you used in your analysis are accurate because you are not an expert on generation retirements and new construction of generation?
A. The models that I use are industry-standard models that are built by PJM regional transmission organization which is responsible to ensure our reliable grid operation across the 13 states and Washington, D.C., along with the responsibility of ensuring that the markets are able to operate in a nondiscriminatory and open matter. So those assumptions are made by the PJM regional transmission organization and they are as good as you would get, you know, right now, when it comes to running energy analysis.

MR. OLIKER: Your Honor, I would move to strike his answer. He never responded to my question. He simply said who built the model, and he said he thinks they are reliable. He didn't say anything about my question, whether he is an expert on the assumptions that he relied upon. Therefore, I would ask that it be stricken and that he be directed
to answer my question.
MS. BLEND: Your Honor, Mr. Ali's answer was responsive to Mr. Oliker's question, and that Mr. Oliker doesn't like the answer is not a basis for striking it. Mr. Oliker asked an argumentative question that mischaracterized my prior objection and Mr. Ali's prior testimony, and Mr. Ali responded to that to explain what the inputs were to an -- and on what the assumptions regarding generation retirements that he used were based.

EXAMINER SEE: And the witness's answer will stand.
Q. (By Mr. Oliker) So I can understand your response, which was not a yes or no, can you provide me a yes or no to the previous question of whether you are an expert on generation retirements in PJM and new construction of generation?
A. No, I am not a generation expert.
Q. And by that you mean you cannot predict when generation will retire or be constructed in PJM?
A. That is correct.
Q. And, therefore, you don't know whether an owner of a generation asset may rely upon NYMEX prices for making decisions on retirements?

MS. BLEND: Objection, outside the scope

## 2821

of Mr. Ali's rebuttal testimony. We are getting back into the natural gas price and forecasting, Mr. Bletzacker's forecasting analysis-related topic that we touched upon earlier. And consistent with your Honor's previous ruling, I would ask that Mr. Oliker be asked to limit his -- limit his questioning to the issues raised in Mr. Ali's rebuttal testimony.

MR. OLIKER: Your Honor, we have a prior answer where he indicated that Mr. Bletzacker has a forecast of natural gas, and then he said I delegated to PJM to come up with assumptions and now regarding natural gas and power prices. And I asked him the simple question that he can't tell me whether somebody else who's not PJM and who's not Mr. Bletzacker might have relied on something else in making their decisions.

MS. BLEND: And again, your Honor,
Mr. Oliker could have asked these questions to
Mr. Ali had he chosen to do so in connection with the Company's direct case. This is outside the scope of Mr. Ali's rebuttal testimony.

MS. BOJKO: Your Honor, may I respond?
EXAMINER SEE: Whoa, whoa.
MR. OLIKER: I was trying to follow up on
his answer, your Honor.
EXAMINER SEE: The objection is
sustained.
Q. (By Mr. Oliker) Mr. Ali, between filing your direct testimony and your rebuttal testimony, did you sit through the hearing at all?
A. No, I did not, but I did review the transcripts on a daily basis.
Q. And turning to Figure 1, average energy use, does that reflect the load requirements of the AEP service territory?
A. Yes, it does.
Q. And, once again, if we were to change this assumption, which you did not change, between Figure 1 and Figure 2 to reduce it for, for example, a large amount of distributed solar growth, would you agree your assumptions would change?

MS. BLEND: Objection. Outside the scope of Mr. Ali's rebuttal testimony. The assumption Mr. Ali used regarding the average energy use in gigawatt-hours didn't change from Figure 1 to Figure 2, from his original analysis to his updated analysis. This is outside the scope of the very narrow rebuttal testimony that he's filed in this case.

MR. OLIKER: Your Honor, the fact that he didn't change it is the entire point. If he's going to selectively change certain elements to try to paper over the cracks in the initial case, we should be allowed to ask questions about what happens if we change other things.

MS. BOJKO: Your Honor, may I also add under the Ohio Rules of Evidence, Rule 611(B), cross-examination generally extends to any relevant matter including credibility. So if there is a question of what he used or didn't use or what assumptions were made, that goes to that point and the credibility of the model that was run and the analysis that was made is fair game and is not beyond the scope of rebuttal.

MS. BLEND: There's -- if I could just respond briefly, there's no -- been no foundation laid or any record developed that there's been an increase in distributed solar between May 2018 and January 2019. And with respect to the evidentiary rule that Ms. Bojko just referenced, it's a long-standing Commission practice that the scope of cross-examination regarding rebuttal testimony filed before this Commission is limited to the subject and the scope of the rebuttal testimony filed and that
issues that were a part of the direct testimony or that could have been asked during cross-examination in a company's direct case are not appropriate for rebuttal cross.

MR. OLIKER: Your Honor, if I may respond briefly, there is substantial evidence in the record regarding the impacts of distributed solar through several IGS witnesses, even projections regarding the cost of distributed solar in AEP's own testimony with Witness Torpey. That is an issue in this case and is potentially a replacement for the proposals that AEP has provided as being more cost effective and beneficial for customers.

So -- and cross-examination in Ohio and in Commission cases has been available to all matters related to credibility, as Ms. Bojko correctly identified. And this goes to whether or not they should have considered other assumptions when they updated their model.

MS. BLEND: And because the model -- the assumption didn't change, the credibility attack should have been made, to the extent that there is a credibility attack to be made, during the Company's direct case filed on this issue. We disagree there is one to be made, but if it were to be made at all,

2825
it should have been made, and nothing has changed with respect to IGS's position since January 16. Mr. Oliker could have asked these questions two weeks ago.

EXAMINER SEE: Just a minute.
The objection is sustained.
Q. (By Mr. Oliker) Mr. Ali, am I correct
that you've made no attempt in your rebuttal testimony to model the impact of any potential uplift costs associated with these projected solar and wind resources?
A. As I mentioned earlier, I didn't make any changes to the case except the point of interconnection and megawatt output at the point of interconnection from a previous analysis completed in May of 2018.
Q. And your testimony does not address that subject in any way, does it?
A. No, it does not.

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

Thank you, Mr. Ali.
EXAMINER SEE: Mr. Whitt?
MS. BOJKO: Your Honor, may we go off the record for one moment?

EXAMINER SEE: Let's go off the record. (Discussion off the record.)

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

Any cross-examination for this witness, Mr. Whitt?

MR. WHITT: Very briefly, your Honor.

## CROSS-EXAMINATION

By Mr. Whitt:
Q. Sir, I understand your area of expertise is transmission, but are you generally aware of the fact of AEP Ohio's certified territory for the distribution customers it serves?
A. No, no, sir, I'm not.
Q. Are you familiar with the concept of certified territories for electric utilities?
A. Yes, I am.
Q. With respect to the Highland facility
that had been addressed in some previous questioning, do you know in whose certified territory that facility will be located?
A. Sir, I don't.

MR. WHITT: Thank you. That's all I have.

EXAMINER SEE: Mr. Michael?
MR. MICHAEL: No questions, your Honor. EXAMINER SEE: Mr. Kurtz?

MR. KURTZ: No questions.
EXAMINER SEE: Mr. McNamee?
MR. McNAMEE: No questions. Thank you. EXAMINER SEE: Ms. Blend, any redirect? MS. BLEND: May we have just a couple more minutes, your Honor, to discuss?

EXAMINER SEE: Yes.
MS. BLEND: Thank you.
(Discussion off the record.)
EXAMINER SEE: Any redirect, Ms. Blend?
MS. BLEND: Yes, thank you, your Honor. Just a couple of questions.

## REDIRECT EXAMINATION

By Ms. Blend:
Q. Mr. Ali, do you recall discussing with Ms. Bojko, a little while ago, that you ran your original PROMOD analysis and looked at changing the interconnection point to the Stuart-Clinton 345 kV transmission line but keeping the 300 megawatts originally modeled the same?
A. Yes, I do recall that.
Q. What were the results of that analysis?
A. The results of that analysis were very close to the results of the analysis that I had presented in my direct testimony with the point of interconnection being at Hillsboro instead of Stuart-Clinton, and the reason for those results to be so close is because electrically these points of interconnection are very close to each other and there is no congestion in between this part of the DP\&L zone and AEP transmission.
Q. Were there any material changes between your original analysis and the analysis looking at a different interconnection point but still 300 megawatts?
A. No material changes whatsoever.

MS. BLEND: Thank you. I have no further questions.

MS. BOJKO: I'm sorry. Could I hear his response? I just didn't hear him.

EXAMINER SEE: Okay.
(Record read.)
EXAMINER SEE: Any questions, Mr. Dove?
MR. DOVE: No, your Honor. Thank you.
EXAMINER SEE: Ms. Leppla?
MS. LEPPLA: No, your Honor. Thank you.

EXAMINER SEE: Ms. Mooney?
MS. MOONEY: No, your Honor. Thank you. EXAMINER SEE: Mr. Darr?

-     -         - 

RECROSS-EXAMINATION
By Mr. Darr:
Q. Mr. Ali, it's fair to say that the changes that you see in pricing are nonlinear, and let me be more specific. By adding a connection point, you wouldn't see a linear change simply because the change in distance is different; is that correct?
A. That is fair to say that by adding or changing the connection point, at least in the analysis I did, I didn't see a linear change there.
Q. And, similarly, if you add 400 megawatts -- add 100 megawatts to the original analysis of 300 , that is taking it from 3 to 4, the changes that we see between Figure 1 and Figure 2 are not linear either, are they?
A. It's kind of hard to say without doing that because they may be linear in such time that you're -- the renewables are replacing the same sort of fuel across the PJM zone, but then if you, you know, started replacing other types of fuel, you
know, that linear change could become nonlinear, so it's difficult to speculate on that.
Q. Well, just take a couple of examples. If I compare Figure 1 to Figure 2 for the year 2021, it's roughly a 6-percent change in the LMP savings amount going to -- from 5 cents to 5.3 cents. Do you see that?
A. Yes, I do.
Q. And if $I$ go to 2024, we see a change in the LMP savings of roughly a penny, correct?
A. Yes.
Q. Which in this instance would be about a 25-percent change, correct?
A. That is correct.
Q. So at least, year over year, adding 100 megawatts is not -- does not produce a linear change either up, or at least up with regard to the price, correct?
A. Yeah. Based on this limited analysis, that would be correct. But I think it's important to know that these are -- there are different things that are happening to the grid in these years and there are different types of generation that is retired or coming in, so it's not really fair to compare year over year.

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

2831
It is a good data point for extrapolation and interpolation of the benefits, but from a comparison, you know, it's not quite fair, but in that year if you are to compare 2021 and changes within the year, that would be a better point of comparison for -- to look at a particular change.
Q. But simply addressing 100 megawatts would not produce the same linear change from year to year to year, correct? Other factors would affect how the prices change.
A. I think it's fair.

MR. DARR: That's all I have. Thank you.
EXAMINER SEE: Ms. Whitfield?
MS. WHITFIELD: No questions.
EXAMINER SEE: I'm sorry, Mr. Collier?
MR. COLLIER: No questions, your Honor.
EXAMINER SEE: Ms. Bojko?
MS. BOJKO: No questions, your Honor.
EXAMINER SEE: Mr. Oliker?
MR. OLIKER: No, thank you, your Honor. EXAMINER SEE: Mr. Whitt?

MR. WHITT: No, your Honor.
EXAMINER SEE: Mr. Michael?
MR. MICHAEL: No questions, your Honor.
EXAMINER SEE: Mr. Kurtz?

MR. KURTZ: No questions, your Honor. EXAMINER SEE: Mr. McNamee?

MR. McNAMEE: No questions. Thank you.
EXAMINER SEE: Thank you, Mr. Ali.
THE WITNESS: Thank you, your Honors.
EXAMINER SEE: Ms. Blend?
MS. BLEND: Thank you, your Honor. At
this time, the Company renews its request for the admission of AEP Ohio Exhibit 26.

MR. DARR: Renew my objection, your
Honor, with regard to the propriety of this testimony. It wasn't rebuttal when it was offered last week; it's not rebuttal today either. It's being offered for the purpose of making sure that the record is complete. The grounds for reopening the record have not been established since the fault for this clearly is on the -- can be laid at the feet of AEP and not the parties and the other parties.

So I renew my objection to admission of the testimony based on the same objections that $I$ made last week.

MS. WHITFIELD: Kroger joins in on that objection.

MS. BOJKO: And OMAEG as well, your Honor, for the same reasons that $I$ enumerated last

2833
week as well.
MR. COLLIER: OCA joins.
MR. OLIKER: Interstate Gas Supply, Inc., and IGS Solar, LLC, also join.

MR. MICHAEL: As does OCC.
MS. BLEND: Your Honor? This is counsel
for the Company. We would rely upon the arguments we made last Friday on these issues, your Honor, unless you would like to hear additional.

EXAMINER SEE: No, thanks. The objections are noted, and AEP Exhibit 26 is admitted into the record.
(EXHIBIT ADMITTED INTO EVIDENCE.)
EXAMINER SEE: Mr. Darr?
MR. DARR: I move IEU 14 and 15, your Honor.

EXAMINER SEE: Are there any objections to the admission of IEU 14 and 15?

MS. BLEND: No, your Honor.
EXAMINER SEE: IEU Exhibits 14 and 15 are admitted into the record.
(EXHIBITS ADMITTED INTO EVIDENCE.)
EXAMINER SEE: Mr. Collier?
MR. COLLIER: Yes. I move OCA Exhibit 6.
EXAMINER SEE: Are there any objections
to the admission of OCA Exhibit 6?
MS. BLEND: No, your Honor.
EXAMINER SEE: OCA Exhibit 6 is admitted into the record.
(EXHIBIT ADMITTED INTO EVIDENCE.)
EXAMINER SEE: Let's go off the record for a minute.
(Discussion off the record.)
EXAMINER SEE: Let's go back on the record.

There has been some discussion between the parties present and they have agreed to a briefing schedule for simultaneously-filed initial briefs are due March 6. Reply briefs are due March 27. They will be electronically served on each other including the Bench.

And if there's nothing further --
MR. NOURSE: Your Honor, I wanted to make a statement on the record, if $I$ could.

EXAMINER SEE: Go ahead, Mr. Nourse.
MR. NOURSE: I would like to thank the Bench and the parties for all their work on this hearing. I wanted to make two requests. One is that the Commission proceed to schedule the Phase II process, the schedule, set out the schedule. I think

2835
that's -- I think that's reasonable given the way this proceeding has been bifurcated and in order to keep -- keep the schedule moving.

And, secondly, I wanted to ask that if it's helpful to the Commission, you know, I guess it would be subsequent to the briefing process, I would ask that oral argument be scheduled so the parties can discuss these important issues with the Commission and answer questions the Commissioners may have. Thank you.

MR. OLIKER: Your Honor, if we may respond to that request? It would be wholly inappropriate to put the cart before the horse and assume there is going to be a Phase II at all and to have all the parties around this table burn thousands, if not hundreds of thousands of dollars in resources preparing for a hearing that may not occur.

And we'll defer to the Bench on whether there is a need for oral argument at all but regarding the scheduling itself, this is not the time to start that process.

MS. LEPPLA: Your Honor, if I may weigh in on behalf of OEC, we would request it scheduled as well. It's a busy docket, and if we don't get it scheduled in advance, with this many parties to a
case like this, it can get kicked out very far, so we would request also that it be scheduled.

MR. DOVE: NRDC would join in the request, especially given the regulatory timeframes listed in the record.

EXAMINER SEE: Ms. Willis.
MS. WILLIS: Yes, thank you, your Honor. We would oppose that request. I don't think it's appropriate. I agree with counsel for IGS and if -it would seem that that would actually put undue pressure as well on the Commission to put out a quick decision when this is a decision that is very important and should be given all due deliberation rather than trying to hem the Commission in setting up a schedule and requiring a Commission order be issued by that schedule.

So I think that's inappropriate. We would -- we would have no objection to the oral argument part of the motion and comment.

MS. BOJKO: Your Honor, OMAEG opposes. The whole point of bifurcation was to decide the first issue before determining whether there was a need for the second phase. While -- just for everybody to appreciate once you set that schedule, then we have to engage expert witnesses, and we have

2837
to expend the resources that Mr . Oliker was talking about. We have to go through the discovery process, deposition, things of that nature, that may or may not occur.

I appreciate the need to put something on the calendar, but it's really at the detriment of the other parties that have to engage in that kind of activity to prepare for a hearing to meet the deadlines that you set forth.

MR. WHITT: If I may add, your Honor, the additional complications that the Commission may wish to advise the parties of certain issues ought to be addressed in Phase II through a Phase I order, and it would just seem to make more sense to hear the Commission decision on Phase I so the parties can address whatever the Commission believes needs to be addressed in Phase II appropriately.

And I think as this proceeding has
demonstrated, the division between Phase I and Phase II, or the line hasn't always been clear, and I think we need some clarity of the Phase I order first.
MR. NOURSE: And, your Honor, if I could, just maybe a couple of points, picking up on what Mr. Whitt was saying. I mean, you know, I believe -my understanding of the October Entry when you set up
the figures -- the two phases actually talked about need being determined in both phases.

And so I think, you know, again, the Commission certainly has the discretion to set up procedural schedules in its cases in a way that, you know, it thinks it's helpful and makes sense.

I do think, you know, as we've already indicated, the record -- evidence indicates that the -- the economics and tax impacts change over time for the proposals. And so, you know, certainly we need to be efficient and quick here and that's -that's what $I$ was bringing up when $I$ suggested the parallel process. And it wouldn't have to be that the schedule is, you know, before -- you know, there would be a hearing on Phase II before the Commission decides the need, but $I$ do think, you know, worst-case scenario if you set up a schedule and then the need determination is negative, that can always be canceled, so I think it is hard to get -- if we wait and do it sequentially, it could get drawn out and be untimely in the end.

So while some parties might like that, the Company wanted to point that out and maybe that request because we're intending to try to get a -keep this moving as quickly as possible. Thank you.

2839
EXAMINER SEE: Okay. With that, the hearing -- evidentiary hearing is adjourned. (Thereupon, at 11:26 a.m., the hearing was concluded.)

## CERTIFICATE

I do hereby certify that the foregoing is a true and correct transcript of the proceedings taken by me in this matter on Friday, February 8, 2019, and carefully compared with my original stenographic notes.

Karen Sue Gibson, Registered Merit Reporter.

Carolyn M. Burke, Registered Professional Reporter.
(KSG-6692)
$\qquad$

Armstrong \& Okey, Inc., Columbus, Ohio (614) 224-9481

This foregoing document was electronically filed with the Public Utilities

## Commission of Ohio Docketing Information System on

## 2/11/2019 9:00:00 AM

in

## Case No(s). 18-0501-EL-FOR, 18-1392-EL-RDR, 18-1393-EL-ATA

Summary: Transcript in the matter of the Long-Term Forecast Report of the Ohio Power Company hearing held on 02/08/19 - Volume XII electronically filed by Mr. Ken Spencer on behalf of Armstrong \& Okey, Inc. and Gibson, Karen Sue Mrs.

