

EXHIBIT NO. _____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

| | | |
|--|---|-------------------------|
| In the Matter of the Long-Term |) | |
| Forecast Report of Ohio Power |) | Case No. 18-501-EL-FOR |
| Company and Related Matters. |) | |
| | | |
| In the Matter of the Application Seeking |) | |
| Approval of Ohio Power Company's |) | |
| Proposal to Enter Into Renewable Energy |) | Case No. 18-1392-EL-RDR |
| Purchase Agreements for Inclusion in the |) | |
| Renewable Generation Rider. |) | |
| | | |
| In the Matter of the Application of Ohio |) | Case No. 18-1393-EL-ATA |
| Power Company to Amend its Tariffs. |) | |

REBUTTAL TESTIMONY OF
KAMRAN ALI
ON BEHALF OF
OHIO POWER COMPANY

Filed: February 1, 2019

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KAMRAN ALI

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1 **PERSONAL DATA**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Kamran Ali, and my business address is 8500 Smiths Mill Road, New
4 Albany, Ohio 43054.

5 **Q. ARE YOU THE SAME KAMRAN ALI WHO PREVIOUSLY FILED**
6 **TESTIMONY IN THIS PROCEEDING?**

7 A. Yes. My direct testimony was filed on September 19, 2018, and admitted into evidence
8 as AEP Ohio Exhibit 5.

9 **PURPOSE OF TESTIMONY**

10 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS**
11 **PROCEEDING?**

12 A. The purpose of my rebuttal testimony is to respond to arguments raised by intervenors
13 during the hearing regarding the generic locational marginal pricing (LMP) analysis
14 included in my direct testimony. Since AEP Transmission performed that generic
15 analysis in May 2018, the planned point of interconnection for the Highland Solar Farm
16 project has changed from the AEP zone to the Dayton Power & Light (DP&L) zone.
17 Intervenors have argued that the generic LMP analysis is flawed because it did not model
18 the specific characteristics of the proposed Highland Solar Farm project that now exist.
19 In response to those arguments, AEP Transmission has updated the LMP analysis to

1 model the interconnection point and output of the Highland Solar Farm project, as set
2 forth in the Revised Generation Interconnection System Impact Study Report For PJM
3 Generation Interconnection Request Queue Position AC1-085 issued in October 2018.

4 Specifically, my rebuttal testimony 1) provides additional background
5 information related to the original generic analysis that the Company performed to
6 determine the impact new renewable generation projects would have on LMPs across the
7 AEP zone; 2) discusses the change in the point of interconnection for the proposed
8 Highland Solar Farm project; and 3) demonstrates that the change in the location of the
9 point of interconnection has no impact on the LMP analysis results presented in my direct
10 testimony and utilized in Company witness John F. Torpey's testimony and integrated
11 resource plan.

12 **LOCATIONAL MARGINAL PRICING ANALYSIS – ADDITIONAL BACKGROUND**
13 **INFORMATION**

14 **Q. PLEASE PROVIDE ADDITIONAL BACKGROUND INFORMATION**
15 **REGARDING THE TIMING AND INFORMATION UTILIZED IN THE**
16 **ORIGINAL LMP ANALYSIS PERFORMED BY AEP TRANSMISSION AND**
17 **DESCRIBED IN YOUR DIRECT TESTIMONY IN THIS PROCEEDING.**

18 A. AEP Transmission's LMP analysis utilized the best information available at the time the
19 analysis was performed in May 2018. The purpose of this analysis was to determine the
20 impact on LMPs caused by adding renewables in AEP Ohio's footprint.

1 **Q. WAS THE ORIGINAL LMP ANALYSIS INTENDED TO MODEL THE**
2 **IMPACTS OF SPECIFIC PROJECTS INTERCONNECTING TO THE**
3 **TRANSMISSION SYSTEM?**

4 A. No. The analysis was generic in nature, but my team utilized specific locations to obtain
5 more accurate results.

6 **Q. ON WHAT INFORMATION WERE THE ORIGINAL GENERIC LMP MODEL**
7 **INPUTS BASED?**

8 A. As part of the LMP analysis, AEP Transmission reviewed available PJM documentation,
9 such as generation interconnection feasibility study reports, to help determine potential
10 model inputs. The Company provided one such report, which is associated with the
11 proposed Highland Solar Farm project, in response to INT-IEU-01-001 on October 24,
12 2018. As per the publicly-available PJM documentation available at the time AEP
13 Transmission's generic LMP analysis was performed, the Highland Solar Farm feasibility
14 study for PJM Generation Interconnection Request Queue Position AC1-085 stated that
15 the primary point of interconnection would be a direct connection to AEP's Hillsboro 138
16 kV substation, and the secondary point of interconnection would be to DP&L's Stuart –
17 Clinton 345 kV line.¹ We included the Hillsboro substation interconnection location as
18 an assumption in the generic analysis.

¹ Generation Interconnection Feasibility Study Report For PJM Generation Interconnection Request Queue Position AC1-085 Hillsboro 138 kV, ftp://www.pjm.com/planning/project-queues/feas_docs/ac1085_fea.pdf (Feb. 2017).

1 **POINT OF INTERCONNECTION CHANGE**

2 **Q. HAS THERE BEEN A CHANGE TO THE INTERCONNECTION LOCATION**
3 **ASSOCIATED WITH THE PROPOSED HIGHLAND SOLAR FARM PROJECT?**

4 A. Yes. As per the Revised Generation Interconnection System Impact Study Report For
5 PJM Generation Interconnection Request Queue Position AC1-085, published on October
6 3, 2018, the primary interconnection point for the proposed Highland Solar Farm project
7 changed from AEP's Hillsboro 138 kV substation to DP&L's transmission system via the
8 Stuart-Clinton 345 kV line.² This revised generation interconnection system impact
9 study was also provided as part of the Company's response to Interrogatory INT-IEU-01-
10 001 on October 24, 2018.

11 **IMPACT OF THE INTERCONNECTION POINT CHANGE**

12 **Q. DOES THE CHANGE IN THE PLANNED LOCATION OF THE HIGHLAND**
13 **SOLAR FARM PROJECT'S INTERCONNECTION IMPACT THE RESULTS OF**
14 **AEP TRANSMISSION'S LMP ANALYSIS?**

15 A. No, it does not. Changing the interconnection location for the renewable generation
16 resource from the AEP transmission zone to the DP&L zone does not impact the results
17 of the LMP analysis or the customer benefits derived from lower LMPs presented in the
18 Company's September 19, 2018 filing due to the proximity of the generator to the AEP
19 zone.

² Revised Generation Interconnection System Impact Study Report For PJM Generation Interconnection Request Queue Position AC1-085 "Stuart-Clinton 345 kV," ftp://www.pjm.com/pub/planning/project-queues/impact_studies/ac1085_imp.pdf (Oct. 2018).

1 **Q. UPON WHAT INFORMATION ARE YOU RELYING TO SUPPORT THIS**
2 **CONCLUSION?**

3 A. My conclusion that the change in the location of interconnection does not impact the
4 results of the previous LMP analysis is supported by the following information:

- 5 • AEP Transmission has performed an updated LMP analysis utilizing the Highland
6 Solar Farm project's current planned interconnection with the DP&L transmission
7 zone;
- 8 • The revised PJM generation interconnection system impact study issued on October
9 3, 2018 only identified negligible transmission upgrades necessary for the new
10 interconnection with the Stuart-Clinton 345 kV line, which demonstrates that there is
11 ample capacity on the Stuart-Clinton 345 kV line and that the change in the point of
12 interconnection does not create congestion on the nearby AEP or DP&L facilities;
- 13 • The Highland Solar Farm project's point of interconnection changed from
14 interconnection with a 138 kV transmission line to interconnection with the Stuart-
15 Clinton 345 kV line, which is a larger, stronger transmission line, with no congestion;
16 and
- 17 • The available capacity on the Stuart-Clinton 345 kV line, to which the Highland Solar
18 Farm project now plans to interconnect, is reflective of, and will not be adversely
19 impacted by, the announced retirements of the Stuart and Killen power plants. In
20 fact, based on the October 2018 PJM generation interconnection system impact study,
21 the retirement of these power plants eliminates the need for some of the upgrades
22 identified for the original point of interconnection.

1 **Q. PLEASE DESCRIBE THE UPDATED LMP ANALYSIS THAT AEP**
2 **TRANSMISSION PERFORMED.**

3 A. The Company used the new interconnection location information as an input to perform
4 an additional LMP analysis utilizing the PROMOD software, following the process
5 discussed in my direct testimony. The only changes made to the analysis involved the
6 change in the point of interconnection for the Highland Solar Farm facility and MW
7 output. All other inputs to the updated LMP analysis were the same as those used in the
8 original analysis.

9 **Q. WHAT WERE THE RESULTS OF THE UPDATED LMP ANALYSIS?**

10 A. As previously stated, the results of the additional LMP analysis showed that moving the
11 interconnection for the proposed Highland Solar Farm project from the AEP transmission
12 zone to the DP&L zone has no impact on LMPs or the associated customer benefits
13 presented in the Company's September 19, 2018 filing. Figure 1 below shows the results
14 of the Company's original LMP analysis, which was a reduction in LMPs for the AEP
15 zone as well as a reduction in total yearly energy costs for the AEP zone.

Figure 1

| AEP Zone | 2021 | 2024 | 2027 |
|---------------------------------|-------------|-------------|-------------|
| LMP Savings (\$/MWh) | 0.050 | 0.043 | 0.062 |
| Average Energy Use (GWh) | 133,952 | 136,721 | 138,989 |
| LMP Savings/Yr (\$) | 6,716,561 | 5,877,571 | 8,599,389 |

Figure 2 shows the results of the updated LMP analysis performed as a result of the interconnection change.

Figure 2

| AEP Zone | 2021 | 2024 | 2027 |
|---------------------------------|-------------|-------------|-------------|
| LMP Savings (\$/MWh) | 0.053 | 0.053 | 0.068 |
| Average Energy Use (GWh) | 133,952 | 136,721 | 138,989 |
| LMP Savings/Yr (\$) | 7,099,456 | 7,306,885 | 9,398,417 |

As can be seen from Figure 2, there were no material changes between the original and updated LMP analyses. These results confirm the prior analysis I presented in my direct testimony.

Q. PLEASE ELABORATE ON YOUR STATEMENT EARLIER THAT THE REVISED PJM GENERATION INTERCONNECTION SYSTEM IMPACT STUDY ONLY IDENTIFIED NEGLIGIBLE TRANSMISSION UPGRADES FOR THE NEW INTERCONNECTION.

A. PJM Facilities Study Report for AC1-085³ indicates that this Project has a total cost allocation towards network upgrades of \$66,055. These upgrades are not required for the Project to be in service. Minimal upgrades indicate that the system is strong enough to allow the interconnection of these generating facilities with few transmission system changes. Secondly, the minimal upgrade costs incentivize the renewable developer to interconnect at this location because there are fewer transmission system changes than had been originally identified, resulting in lower project development costs.

³ Generation Interconnection Facility Study Report For PJM Generation Interconnection Request Queue Position AC1-085 “Stuart-Clinton 345 kV,” https://pjm.com/pub/planning/project-queues/facilities/ac1085_fac.pdf (Nov. 2018).

1 **Q. PLEASE PROVIDE ADDITIONAL DETAILS RELATED TO THE**
2 **RETIREMENT OF THE STUART AND KILLEN POWER PLANTS AS IT**
3 **RELATES TO CONGESTION ON DP&L’S STUART-CLINTON 345 KV**
4 **TRANSMISSION LINE.**

5 A. The PJM Facilities Study Report for AC1-085⁴ indicates that previously identified
6 network upgrades n5136, n5457, and n5933 are no longer required because Stuart Unit 1
7 deactivated on September 30, 2017, and the remaining Stuart and Killen generating units
8 deactivated on June 1, 2018. Stuart Unit 1’s capacity rights terminated on September 30,
9 2018, and the remaining Stuart and Killen units’ rights will expire June 1, 2019.

10 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

11 A. Yes.

⁴ *Id.*

CERTIFICATE OF SERVICE

In accordance with Rule 4901-1-05, Ohio Administrative Code, the PUCO's e-filing system will electronically serve notice of the filing of this document upon the following parties. In addition, I hereby certify that a service copy of the foregoing *Rebuttal Testimony of Kamran Ali* was sent by, or on behalf of, the undersigned counsel to the following parties of record this 1st day of February, 2019, via electronic transmission.

/s/ Christen M. Blend

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Summary: Testimony -Rebuttal Testimony of Kamran Ali on Behalf of Ohio Power Company
electronically filed by Ms. Christen M. Blend on behalf of Ohio Power Company