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BEFORE THE

PUBLIC UTILITIES COMMISSION OF OHIO

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

DIRECT TESTIMONY OF JUSTIN BIEBER

On Behalf of The Kroger Co.

PUBLIC VERSION

JANUARY 2, 2019

DIRECT TESTIMONY OF JUSTIN BIEBER

Introduction

Q. Please state your name and business address.

A. My name is Justin Bieber. My business address is 215 South State Street, Suite 200, Salt Lake City, Utah 84111.

Q. By whom are you employed and in what capacity?

A. I am a Senior Consultant at Energy Strategies, LLC. Energy Strategies is a private consulting firm specializing in economic and policy analysis applicable to energy production, transportation, and consumption.

Q. On whose behalf are you testifying in this proceeding?

A. My testimony is being sponsored by The Kroger Co. ("Kroger"). Kroger is one of the largest grocers in the United States. Kroger has over 90 facilities served by Ohio Power Company ("AEP Ohio" or "Company") in the Columbus Southern Power rate zone and 40 facilities served by AEP Ohio in the Ohio Power rate zone that collectively consume over 240 million kWh per year. Kroger procures its energy and capacity from competitive retail electric service ("CRES") providers in both service territories.

Q. Please describe your professional experience and qualifications.

A. My academic background is in business and engineering. I earned a Bachelor of Science in Mechanical Engineering from Duke University in 2006 and a Master of Business Administration from the University of Southern California in

2012. In 2017, I completed Practical Regulatory Training for the Electric Industry sponsored by the New Mexico State University Center for Public Utilities and the National Association of Regulatory Utility Commissioners. I am also a registered Professional Civil Engineer in the state of California.

I joined Energy Strategies in January 2017, where I provide regulatory and technical support on a variety of energy issues, including regulatory services, transmission and renewable development, and financial and economic analyses. During the time I have worked at Energy Strategies, I have filed and supported the development of testimony before several different state utility regulatory commissions.

Prior to joining Energy Strategies, I held positions at Pacific Gas and Electric Company as Manager of Transmission Project Development, ISO Relations and FERC Policy Principal, and Supervisor of Electric Generator Interconnections. During my career at Pacific Gas and Electric Company, I supported multiple facets of utility operations, and led efforts in policy, regulatory, and strategic initiatives, including supporting the development of testimonies before and comments at the FERC, California ISO, and the California Public Utility Commission.

Q. Have you testified previously before this Commission?

A. No. This is my first opportunity to testify before the Public Utilities Commission of Ohio ("Commission" or "PUCO").

Q. Have you filed testimony previously with any other state utility regulatory commissions?

A. Yes. I have filed testimony with the Indiana Utility Regulatory Commission, the Kentucky Public Service Commission, the Michigan Public Service Commission, the North Carolina Utilities Commission, and the Public Utility Commission of Oregon.

Overview and Summary of Conclusions

Q. What is the purpose of your testimony in this proceeding?

A. My testimony addresses AEP Ohio's September 19, 2018 Amendment to its 2018 Long-Term Forecast Report in which the Company seeks to demonstrate that there is a general need for at least 900 MW of new, renewable generation in the state of Ohio.

I also address AEP Ohio's proposal to recover costs associated with the Renewable Energy Purchase Agreements ("REPAs") and debt equivalency costs for the Highland Solar (300 MW) and Willowbrook Solar (100 MW) generation projects through the non-bypassable Renewable Generation Rider ("RGR") under R.C. 4928.143(B)(2)(c), as it relates to the demonstration of need and AEP Ohio's claimed economic benefits in an attempt to justify need. Specifically, during this phase of the proceeding, I address AEP Ohio's failure to establish the need for these two generation projects prior to obtaining cost recovery associated with the projects through a non-bypassable surcharge as required under R.C. 4928.143(B)(2)(c).

Absence of comment on my part regarding a particular aspect of AEP Ohio's filing does not signify support (or opposition) toward the Company's filing with respect to the non-discussed issue. Additionally, I reserve the right to file additional testimony regarding cost recovery and other issues raised by AEP Ohio in AEP Ohio's application filed in the tariff cases as set forth in the procedural schedule adopted by the Commission on October 22, 2018, as subsequently modified.

Q. What are your primary conclusions and recommendations?

A. The Commission should find that AEP Ohio has not demonstrated that there is a general need for at least 900 MW of new, renewable generation in the state of Ohio or for the specific Highland Solar (300 MW) and Willowbrook Solar (100 MW) generation projects. Furthermore, the Commission should reject AEP Ohio's request to recover the net cost of energy ("NCOE") and the proposed debt equivalency costs associated with the Highland Solar and Willowbrook Solar REPAs through the non-bypassable RGR, as AEP Ohio fails to demonstrate that there is a need for these specific facilities as required under R.C. 4928.143(B)(2)(c). The Company's alleged need relies on factors such as "customer interest" and the claimed economic benefit of additional renewable generation. The Company's reliance on these factors obscures the fact that demand for electricity in Ohio is already being adequately met with existing resources, and, therefore, no need for the specified facilities (or a general need for 900 MW of renewable generation) exists. If the REPAs proposed by AEP Ohio are truly economic for customers, then there should be no need to recover the costs through a non-bypassable rider.

Further, to the extent that customers desire renewable energy, retail electric customers in Ohio have a choice to procure the renewable energy resources they desire from a CRES provider.

More specifically, the Company's alleged need for 900 MW of renewable generation and the specific Highland Solar and Willowbrook Solar REPAs is dependent in part on the claimed economic benefits to its customers. Given the Company's reliance on the purported economic benefits of these REPAs to justify its proposal, to the extent that the Commission finds that need exists and approves recovery associated with these REPA costs through the RGR, I recommend that the Commission order the Company to share 30% of the benefits (or costs) associated with these REPAs.

Additionally, as it relates to AEP Ohio's claim of economic benefits for customers to justify need, to the extent that the Commission finds that need exists and approves AEP Ohio's request to recover costs associated with the Highland Solar and Willowbrook Solar REPAs through the RGR, it should reject AEP Ohio's proposal to recover the proposed debt equivalency costs, which have a significant negative impact on the projected economics for customers. Further, it should find that the fixed price structure in AEP Ohio's proposed REPAs is not in the best interest of customers, as it would substantially increase the projected costs for customers during the first several years of the contracts relative to an escalating price structure, and should, therefore, condition any finding of need, that is based on the purported economic benefits to customers, on AEP Ohio's ability to

renegotiate reasonable equivalent net present value ("NPV") REPAs with an escalating price structure.

History of the Renewable Generation Rider

Q. How was the Renewable Generation Rider Established?

A. The RGR was introduced in Case Nos. 16-1852-EL-SSO, et al. ("ESP III Extension Case") and was approved by the Commission as part of a settlement agreement reached in that case. The RGR is an alternative method to recover costs of renewable power from customers, which replaced the renewable component of the PPA Rider set forth in the settlement authorized in AEP Ohio's Affiliate PPA Rider proceeding, Case Nos. 14-1693-EL-RDR, et al. ("PPA Rider Case"). Based on that settlement, AEP Ohio was permitted to recover costs associated with certain, approved generation projects through the PPA rider, including "new renewable generation projects subsequently approved by the Commission."[1] According to the terms of the settlement in the PPA Rider Case, AEP Ohio and its affiliates committed to develop 500 MW of wind and 400 MW of solar capacity if AEP Ohio received full cost recovery through the PPA rider.[2]

In the ESP III Extension Case, the Commission ultimately approved the RGR, in an effort to "better distinguish the separate issues relating to renewable projects."[3] In its current form, the RGR is a placeholder rider that is currently set to

[1] Case Nos. 16-1852-EL-SSO, et al., PUCO Opinion and Order, pp. 20-21 (April 25, 2018).
[2] Case Nos. 14-1693-EL-RDR, et al., PUCO Opinion and Order, pp. 42-44 (March 31, 2016).
[3] Case Nos. 16-1852-EL-SSO, et al., PUCO Opinion and Order, p. 20 (April 25, 2018).

zero. That is, AEP Ohio is not permitted at this time to recover any costs through the RGR.

Q. Did the Commission's previous orders in Case Nos. 14-1693-EL-RDR or 16-1852-EL-SSO provide a determination regarding the need for the Highland Solar and Willowbrook Solar facilities that are proposed to be included in the RGR or for any other renewable projects?

A. No. The Commission has not issued a ruling regarding the need for the two solar projects for which AEP Ohio is seeking cost recovery or the 900 MW of new, renewable generation in the state of Ohio for which AEP Ohio is seeking a determination of need.

According to the stipulation and Commission Order in Case Nos. 14-1693-EL-RDR, et al., AEP Ohio is required to file EL-RDR applications to initiate approval for retail cost recovery associated with each project.[4] The settlement specifies that nothing in the stipulation was intended to limit the rights of the signatory parties to take positions for or against the terms of any individual project.[5]

Q. What does AEP Ohio propose with respect to the current consolidated proceeding?

A. According to AEP Ohio witness William Allen, AEP Ohio proposes to demonstrate that "there is a need for in-state economically beneficial renewable energy to benefit and meet the needs and requirements of the Company's current and future customers."[6] Witness Allen also explained that "the Company is asking

[4] Case Nos. 14-1693-EL-RDR, et al., PUCO Opinion and Order, p. 43 (March 31, 2016); see also Case Nos. 16-1852-EL-SSO, et al., PUCO Opinion and Order, p. 21 (April 25, 2018).
[5] Id., footnote 22.
[6] Case No. 18-501-EL-FOR, AEP Ohio Witness Allen Testimony, p. 8 (September 19, 2018).

the Commission to issue a finding of need for at least 900 MW of economically beneficial renewable energy projects that are located in Ohio and deliverable to the Company's service territory based on the information presented in this [FOR] case. The Company will be filing an application in the near future to advance specific renewable projects and seeking cost recovery under the RGR. If the Commission consolidates that filing with this need case, the Commission may choose to consider the need question in conjunction with specific renewable projects."[7]

As promised, AEP Ohio filed to recover the net costs, or to pass through any net benefits, associated with the REPAs for two specific renewable projects, the 300 MW Highland Solar facility and the 100 MW Willowbrook Solar facility, through the non-bypassable RGR in Case Nos. 18-1392-EL-RDR, et al. In addition to the REPA costs, AEP Ohio proposes to collect debt equivalency costs associated with the REPAs. The RGR is a non-bypassable rider, meaning that the costs would be assigned to customers procuring electricity through AEP Ohio's Standard Service Offer ("SSO") as well as customers that procure their energy through a CRES provider. The net cost, or benefit, would be determined by offsetting the REPA contract price plus the debt equivalency cost less the PJM market revenues received for the REPAs output and any revenues received from customer participation in the Green Power Tariff. AEP Ohio also proposes that the capacity revenues and any capacity performance assessment costs flow through the RGR.[8]

[7] Id., p. 4.
[8] Case Nos. 18-1392-EL-RDR, et al., Direct Testimony of William A. Allen, pp. 10-11 (September 27, 2018).

The Company also states that it has entered into 20-year REPAs to facilitate the development of these new projects.[9]

Thus, through the consolidated proceeding, AEP Ohio intends to demonstrate the general need for at least 900 MW of economically beneficial renewable energy projects, including the need for the two specific solar facilities, and to recover the net costs, or benefits, associated with the REPAs for the two specific solar projects. The Commission consolidated the cases and bifurcated the proceeding into two phases, with Phase I consisting of a hearing on the issue of need and Phase II consisting of a hearing to consider the issues raised in AEP Ohio's tariff cases (Case Nos. 18-1392-EL-RDR, et al.).

Q. How does the Company seek to justify approval for its proposal to develop renewable resources?

A. AEP Ohio states that the requirement to demonstrate the need for new renewable resources is being addressed in Case No. 18-501-EL-FOR, or the Company's Long-Term Forecast Report ("LTFR"). Additionally, AEP Ohio states that the intent of its filing in Case Nos. 18-1392-EL-RDR, et al., is to "build on the foundation laid in the ESP III Extension Case and to demonstrate that it is reasonable, prudent, and beneficial to customers, and also consistent with R.C. 4928.143(B)(2)(c) to include the Highland Solar and Willowbrook Solar REPAs in the RGR (...)."[10] According to Mr. Allen, the proposed REPAs also will provide economic benefits to the state of Ohio.[11] Mr. Allen contends that in-state resources,

[9] Case Nos. 18-1392-EL-RDR, et al., AEP Ohio's Application, pp.1-2 (September 27, 2018).
[10] Id., p. 4
[11] Case No. 18-501-EL-FOR, AEP Ohio Witness Allen Testimony, pp. 9-10 (September 19, 2018).

such as the proposed solar facilities, will benefit the local community by promoting economic activity and sustainability goals.[12]

Q. Please describe how the Company proposes to demonstrate the need for new renewable resources through its LTFR.

A. The LTFR is an annual filing requirement in which certain transmission line owners provide, among other information, a year-by-year, ten-year forecast of annual energy demand, peak loads, reserves, and a general description of the resource planning projections to meet demand.[13] AEP Ohio submitted its required LTFR on April 16, 2018. A supplement to the 2018 LTFR was subsequently filed on May 31, 2018 and then again on June 26, 2018 to provide additional information regarding planned electric transmission lines and proposed substations.[14]

On September 19, 2018, the Company submitted an Amendment to its 2018 LTFR ("Amended LTFR"). According to the Company, AEP Ohio submitted the amendment in an effort to "demonstrate the need for at least 900 megawatts (MW) of renewable energy projects in Ohio" consistent with the Commission's orders issued in the PPA Rider Case and ESP III Extension Case.[15]

Q. How does AEP Ohio support the proposed need for the development of 900 MW of new generation in the State of Ohio?

A. According to the Company, although the PJM wholesale markets are adequately supplying capacity and energy to the AEP Ohio load zone, there is a

[12] Id.; see also Case No. 18-1392-EL-RDR, Direct Testimony of William A. Allen, p. 10 (September 27, 2018).
[13] PUCO Entry, p. 2, § 4 (November 13, 2018).
[14] See Amendment to the 2018 Long-Term Forecast Report of the Ohio Power Company, p. 1 (September 19, 2018).
[15] Id., p. 1.

purported need for at least 900 MW of *economical* renewable generation,[16] provided the projects can be developed within a reasonable price range.[17] The Company asserts that an independent consulting study shows that its customers want and need long-term renewable power generated by Ohio renewable projects.[18] Further, the Company states that Ohio renewable projects can help reduce congestion costs and transmission rates, reduce the amount of power that Ohio imports from out-of-state generation, promote fuel diversity, advance renewable technology, and help reduce carbon emissions in Ohio.[19] The Company also states that significant federal tax credits are expiring soon.[20]

Q. Does the Company's effort to demonstrate need in its Amended LTFR include the requisite need showing for at least 900 MW of renewable generation or the two identified solar projects that AEP Ohio seeks to include in the RGR?

A. No, it does not. First, the Company's Amended LTFR does not even seek a need finding for any specific projects. Rather, as explained in Mr. Allen's testimony, the Company is asking instead to affirm "the need for at least 900 MW of economically beneficial renewable energy projects that are located in Ohio and deliverable to the Company's service territory (...)"[21] Yet without a demonstration in the LTFR that the two specific projects are necessary to meet demand, peak load, or reserves, the requisite need showing cannot be satisfied. Second, in its resource planning projections, AEP Ohio has failed to demonstrate that at least 900 MW of

[16] Id., p. 3.
[17] Id., p. 5.
[18] Id., p. 7.
[19] Id., pp. 7-9.
[20] Id.
[21] Case No. 18-501-EL-FOR, Direct Testimony of William A. Allen, p. 4.

economical renewable generation is needed to meet demand, peak load, or reserves as required for the authorization of a non-bypassable surcharge under R.C. 4928.143(B)(2).

Q. Has the Commission established a precedent regarding the demonstration of need required for the authorization of a non-bypassable surcharge to be authorized by R.C. 4928.143(B)(2)?

A. Yes, it has. The Commission addressed the requirement to demonstrate need for the authorization of a non-bypassable surcharge under R.C. 4928.143(B)(2) when it addressed the Generation Resource Rider in AEP Ohio's ESP II Case.[22] The Commission stated that new generation or capacity projects would only be authorized under R.C. 4928.143(B)(2) when generation needs cannot be met through the competitive market, and must be based upon a demonstration of need under the integrated resource planning process. As I explain above, AEP Ohio acknowledges that the PJM market provides adequate capacity and energy, and that the Company does not have a traditional integrated resource planning need.

The Commission's Order issued in the ESP II Case provides:

> While Section 4928.143(b)(2), Revised Code, provides the Commission with authority to order construction of new generation facilities in Ohio, such new generation or capacity projects will only be authorized when generation needs cannot be met through the competitive market. Therefore, generation projects under the GRR, or any other surcharge authorized by Section 4928.143(b)(2), Revised Code, must be based upon a demonstration of need under the integrated resource planning process and be narrowly tailored to advance the policy provisions contained in Section 4928.02,

[22] *In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to § 4928.143, Ohio Rev. Code, in the Form of an Electric Security Plan*, Case Nos. 11-346-EL-SSO, et al. ("ESP II Case").

Revised Code, or the statutory mandates contained in Section 4928.64, Revised Code.[23]

Q. What is your assessment of the Company's proposal to demonstrate need and recover the costs associated with at least 900 MW of economical renewable generation or the specific Highland Solar and Willowbrook Solar REPAs through the RGR consistent with R.C. 4928.143(B)(2)(c)?

A. AEP Ohio has not demonstrated a true need for 900 MW of renewable resources, nor has it demonstrated a need specifically for the Highland Solar and Willowbrook Solar REPAs. Based on my regulatory experience and understanding of Section (B)(2)(c) of the ESP statute, R.C. 4928.143, before approving cost recovery through a non-bypassable rider such as the RGR, the Commission must first determine that there is a *need.* According to R.C. 4928.143(B)(2)(c), "no surcharge shall be authorized unless the Commission first determines in the proceeding that there is *need for the facility based on resource planning projections* submitted by the electric distribution utility." (emphasis added). It is important to note that the statute qualifies that the requisite need for the resource must be based on *resource planning projections.*

In its application, AEP Ohio acknowledges that PJM wholesale markets are adequately supplying capacity and energy to the AEP Ohio load zone. Further, the Company admits that it does not have a traditional integrated resource planning need for generation.[24] AEP Ohio's assertions that renewable resources might

[23] Id., Opinion and Order, pp. 39-40 (December 14, 2011).
[24] Case No. 18-501-EL-FOR, Amendment to the 2018 Long-Term Forecast Report of Ohio Power Company, p. 3.

provide economic or policy benefits, or that its customers desire renewable energy clearly does not constitute a need based on *resource planning projections.*

Q. What is your assessment of AEP Ohio's claim that a formal study performed by an independent consultant shows that AEP Ohio customers want and need long-term renewable power generated by new Ohio renewable projects?

A. While certain customers that were surveyed may have expressed a desire for renewable energy, the survey results do not demonstrate a need based on resource planning projections. The survey conclusions include caveats, including that customers are supportive of competitively-priced renewable energy.[25] Passing through the costs of the Company's proposed REPAs and debt equivalency costs through a non-bypassable rider does not promote competition. Further, the proposed REPAs represent a commitment for $[redacted] in payments over the 20-year life of the contracts,[26] in addition to $113 million of proposed debt equivalency costs.[27] There are many alternatives for AEP Ohio customers to procure the renewable energy that they purportedly desire. Accordingly, a proper evaluation of the alleged need for the Company's proposed REPAs requires complex analyses. A demonstration of need for a proposal of this magnitude should require a more in-depth analysis than what can be provided by a customer survey.

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[25] Id., p. 7.

[26] See Confidential Exhibit JDB-2. Source: Derived from AEP Ohio Exhibit JFT-1 and AEP Ohio's Discovery Responses to IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_7, and IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_6.

[27] Case No. 18-1392-EL-RDR, Direct Testimony of William A. Allen, p. 15 (The proposed debt equivalency costs are $4.30 million annually for Highland Solar REPA and $1.36 million annually for the Willowbrook Solar REPA. The total proposed costs = ($4.30M + $1.36M) x 20 years = $113M).

Q. Although AEP Ohio has not demonstrated need based on resource planning projections, should the Commission nonetheless consider other economic or policy benefits or purported customer desires?

A. No. It is neither reasonable nor prudent to introduce a new generation cost obligation that customers will owe AEP Ohio. Competition among renewable developers in the market can yield lower prices for customers that chose to procure the renewable resources they desire to satisfy their energy needs through a CRES provider.

It is particularly unreasonable and inappropriate to impose such a financial obligation on shopping customers, who have demonstrated their preference to procure their generation supplies through a competitive supplier other than AEP Ohio. If the REPAs and associated debt equivalency costs proposed by AEP Ohio were truly economic, then there would be no need to recover the costs through a non-bypassable rider. To the extent the Commission approves the inclusion of certain generation costs in the RGR, I recommend that the Commission eliminate the non-bypassability provision of the RGR, which, under current terms, would require shopping customers to pay for the net costs of AEP Ohio's proposed renewable contracts. Customers who have chosen to receive their power from a competitive supplier should not be forced to bear the costs of AEP Ohio's decisions to procure new renewable resources that are not needed for capacity or energy.

Purported Economic Benefits to Justify Need

Q. AEP Ohio claims that the proposed 900 MW of renewable generation, as well as the specific REPAs, will result in economic benefits for customers, thereby creating a need for the economical renewable generation resources.[28] Has AEP Ohio demonstrated that the proposed REPAs are economical or will provide the purported cost benefits?

A. In my expert opinion, the Company has not demonstrated that the proposed REPAs are economical or beneficial for its current ratepayers. The economic benefits of the proposed REPAs are highly dependent on future market prices, which are very uncertain. Depending on the Company's various forecast scenarios of future market prices, customers may experience net benefits, or they may experience net costs, on an NPV basis, over the life of the proposed REPAs. However, in all of the Company's forecast scenarios, including the most optimistic scenario in terms of customer benefits, customers would still be expected to experience annual net costs for at least the first five years of the contracts. Even if there were economic benefits for customers over the 20-year life of the REPAs, on an NPV basis, there would be a substantial inter-generational inequity. Further, the forecasted market prices during the later years of the contracts are inherently less accurate than the forecasted prices in the early years. This means that the projected benefits are less certain than the costs that are expected to be experienced during at least the first five years.

[28] Case No. 18-501-EL-FOR, Amendment to the 2018 Long-Term Forecast Report of Ohio Power Company, p. 5-6, and Witness Allen Testimony, pp. 7-9.

The Company utilizes four scenarios from the AEP Fundamental Analysis Department's 2018 Fundamentals Forecast to estimate future market prices: Low Band, Status Quo, Base Band, and High Band.[29] Under the Company's High Band scenario, the expected economic benefit to customers is $80 million, on an NPV basis, over the 20-year life of the proposed REPAs.[30] However, even under the Company's High Band scenario, which is the most optimistic scenario in terms of expected benefits for customers, customers would still be expected to experience annual costs flowing through the RGR for the first five years of the contracts, totaling $[redacted], on a nominal basis.[31] Under the Low Band scenario, customers would be expected to experience an economic *loss* of $13 million, on an NPV basis over the life of the contracts,[32] and would experience significant annual costs flowing through the RGR for the first eight years of the REPAs, totaling $[redacted], on a nominal basis.[33] Confidential Exhibit JDB-1 attached to my testimony summarizes the economic impacts to customers under the Company's various forecast scenarios.

[29] Case No. 18-1392-EL-RDR, Direct Testimony of John F. Torpey, pp. 5-6.
[30] Case No. 18-1392-EL-RDR, Direct Testimony of John F. Torpey, pp. 7-8; see also Case No. 18-1392-EL-RDR, Direct Testimony of William A. Allen, p. 15 (The NCOE benefits range from a high estimate of $133M to a low estimate of $41M on an NPV basis over the life of the contracts. The NPV of the proposed debt equivalency costs is $54M on an NPV basis over the life of the contracts. ($133M - $54M = $80M).
[31] See Confidential Exhibit JDB-1. Source: Derived from AEP Ohio Exhibit JFT-1 and AEP Ohio's Discovery Responses to IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_7, and IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_6.
[32] Case No. 18-1392-EL-RDR, Direct Testimony of John F. Torpey, pp. 7-8; see also Case No. 18-1392-EL-RDR, Direct Testimony of William A. Allen, p. 15 (The NCOE benefits range from a high estimate of $133M to a low estimate of $41M on an NPV basis over the life of the contracts. The NPV of the proposed debt equivalency costs is $54M on an NPV basis over the life of the contracts. $41M - $54M = $-13M).
[33] See Confidential Exhibit JDB-1. Source: Derived from AEP Ohio Exhibit JFT-1 and AEP Ohio's Discovery Responses to IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_7, and IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_6.

Q. Company witness John Torpey presents an analysis of the proposed REPAs that indicates project lifecycle savings for customers between $41 million to $133 million over the life of the REPAs on an NPV basis for the low band and high band scenarios respectively.[34] Please explain why the lifecycle savings estimates are different than the economic impacts that you describe above.

A. The lifecycle savings estimates that Mr. Torpey describes represent the NCOE from the proposed REPAs, which is the difference between the REPA price and the revenues that AEP Ohio would receive from liquidating the output of the resources into the PJM capacity, energy, and ancillary services markets. However, the lifecycle estimates do not include the Company's proposed debt equivalency costs, which have a significant impact on the economics for customers. The AEP Ohio Impact analysis evaluated the NCOE from adding 250 MW of wind REPAs and 400 MW of generic solar REPAs, but does not include the impacts from the proposed debt equivalency costs either.[35] The economic impacts that I describe above include both the NCOE and the proposed debt equivalency costs which represents the *net costs* from the proposed REPAs that the Company proposes to flow through the RGR to its customers. With respect to the Company's alleged need based on the purported economic benefits,[36] the proposed debt equivalency costs substantially diminish any potential economic benefits for customers relative to the Company's Project Life-Cycle savings projections, and substantially increase

[34] Case No. 18-1392-EL-RDR, Direct Testimony of John F. Torpey, pp. 7-8.
[35] Case No. 18-501-EL-FOR, Direct Testimony of John F. Torpey, p. 7.
[36] Case No. 18-501-EL-FOR, Amendment to the 2018 Long-Term Forecast Report of Ohio Power Company, p. 5-6, and Witness Allen Testimony, pp. 7-9.

the annual net costs customers would be expected to experience during the first several years of the proposed REPAs.

Q. Please describe the Company's proposal to recover debt equivalency costs through the RGR as it relates to AEP Ohio's claimed economic benefits in an attempt to justify need.

A. AEP Ohio witness William Allen explains that the proposed REPAs do not provide any earnings opportunity for AEP Ohio. AEP Ohio claims that the costs associated with REPAs are simply passed on to customers without any margin for the Company. According to Mr. Allen, when AEP Ohio enters into a REPA, it incurs costs beyond the payment to the renewable developer and takes on additional risk, because it enters into a long-term commitment to make payments to the renewable developer under the terms of the REPA.[37] According to Company witness Steve Fetter, rating agencies like S&P consider REPAs when they evaluate financial risks for bondholders, and impute a debt equivalency associated with the REPA to reflect these risks.[38] According to Mr. Allen, additional equity is required to maintain the debt to equity ratio that existed prior to entering the REPA, and this additional equity comes with a debt equivalency cost. The Company proposes to include a debt equivalency cost component for recovery through the RGR, in addition to the NCOE from the REPAs.

[37] Case Nos. 18-1392-EL-RDR, et al., Direct Testimony of William A. Allen, pp. 14-15.
[38] Case Nos. 18-1392-EL-RDR, et al., Direct Testimony of Steven M. Fetter, p. 11.

Q. What is the economic impact to customers from AEP Ohio's proposed debt equivalency costs?

A. The proposed debt equivalency costs are $4.30 million annually for the Highland Solar REPA and $1.36 million annually for the Willowbrook Solar REPA.[39] This amounts to a total debt equivalency cost of $113 million over the life of the proposed REPAs, on a nominal basis, or $54 million on an NPV basis.[40]

Q. One of the requirements of AEP Ohio's Solar RFP was that bid prices must be an "all-in" around-the-clock price on a dollar per MWh basis for the term of the REPA at a single, fixed price that does not include escalation.[41] How does the requirement for a fixed price REPA bid impact the purported economic benefits to customers?

A. The requirement for all RFP bids to be a single fixed price bid, that does not include escalation, is a significant shortcoming and contributes to the significant annual costs that customers would be expected to experience for at least the first five years of the REPA contracts. The fixed REPA price does not align the price paid for the renewable solar energy with AEP Ohio's forecast of the avoided cost of energy and capacity in the market. With the proposed fixed price REPAs, customers would be expected to experience significant annual costs flowing through the RGR for the first five to eight years of the REPA contracts, depending on the Company's forecast scenario. This is not a reasonable proposition for customers, nor is the required fixed-price REPA structure in customers' best

[39] Case Nos. 18-1392-EL-RDR, et al., Direct Testimony of William A. Allen, pp. 14-15.
[40] NPV calculated assuming an 8.5% discount rate.
[41] Case Nos. 18-1392-EL-RDR, et al., Direct Testimony of Daniel R. Bradley, p. 6.

interest, and it would exacerbate the inter-generational inequity that would be caused by the Company's proposed REPAs.

Further, as I explain above, the Company's forecast of avoided energy and capacity costs is more certain in the early years of the contracts, and much less certain in the later years of the contracts. This means that the projected net costs to customers in the early years of the contracts are more likely to occur than the projected benefits several more years out. I will demonstrate that an equivalent escalating REPA price would improve the alignment between the price paid for the solar energy and the forecasted avoided energy and capacity costs.

Q. Please explain why the fixed REPA price structure would cause customers to experience annual net costs for the first five to eight years of the REPA contracts before they would see any potential benefits.

A. AEP Ohio proposes to recover the NCOE associated with the REPAs through the non-bypassable RGR. As I explain above, the NCOE is equal to the difference between the REPA price and the revenues that AEP Ohio would receive from liquidating the output of the resources into the PJM capacity, energy, and ancillary services markets. The PJM market revenues represent the avoided cost of energy and capacity. When the PJM market revenues are less than the REPA price, the difference constitutes a positive NCOE, or cost for customers. Conversely, when the PJM market revenues are greater than the REPA price, that difference constitutes a negative NCOE, or benefit.

A fixed price REPA has a constant price for the duration of the agreement in nominal terms. But in terms of NPV, the real price of the REPA is significantly

more expensive in the early years of the contract, and significantly less expensive in the later years. AEP Ohio's forecast of the avoided cost of energy and capacity in the PJM market has the opposite shape. The avoided cost of energy and capacity is lower during the early years of the contract and increases substantially during the later years of the REPA duration. This means that customers would be expected to see a positive NCOE, or cost to customers, in the early years of the REPA duration. This misalignment between the REPA fixed price and the avoided cost of energy and capacity results in expected costs for customers between $[redacted] and $[redacted], on a nominal basis, during the first five to eight years of the REPAs,[42] based on the Company's forecast scenarios and proposed debt equivalency costs. The earliest that customers would even be expected to see a potential annual benefit flowing through the RGR from the proposed REPAs, under the Company's best-case forecast scenario, would not be until 2026.

Q. How would an escalating price REPA mitigate some of the risk and inter-generational inequity relative to the proposed fixed price structure?

A. Escalating power purchase agreement prices are standard in the industry. Typically, the price paid in the first year will escalate at a constant rate each year of the contract. This results in a lower price paid in the early years and a higher price paid in the later years of the contract. This type of contract pricing would be much better aligned with AEP Ohio's forecasts of avoided energy and capacity costs and would help to reduce the significant annual net costs that customers would

[42] See Confidential Exhibit JDB-1. Source: Derived from AEP Ohio Exhibit JFT-1 and AEP Ohio's Discovery Responses to IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_7, and IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_6.

be expected to experience during the first several years of the proposed fixed-price REPAs.

Q. Have you performed any analysis to demonstrate the potential benefit of an escalating price REPA compared to the proposed fixed price REPAs for the Highland Solar and Willowbrook Solar facilities?

A. Yes. My analysis is summarized in Confidential Exhibit JDB-2 attached hereto.[43] I determined an NPV-equivalent escalating REPA price for both the Highland Solar and Willowbrook Solar REPAs. I calculated the equivalent escalating price by setting a yearly escalation rate of 2%, and solving for the price in the initial year of the contract that would yield the same NPV as the stream of revenues from the proposed REPAs at a fixed price. In order to compare the NPV between the fixed and escalating price structures, I estimated the developer's cost of capital to determine a discount rate. I assumed a discount rate of 9.6%, based on an 8% cost of debt, 12% cost of equity, and 60/40 debt to equity ratio. I based these cost of capital assumptions on the assumptions utilized in Lazard's 2018 Levelized Cost of Energy Analysis.[44] The developer's actual discount rate required to convert the fixed price REPA to an escalating price REPA may differ slightly. The results below are intended to be illustrative of the customer benefits from an escalating REPA price structure relative to a fixed price. A slight change in these assumptions will not substantially change the impacts or benefits to customers discussed below.

[43] See Confidential Exhibit JDB-2. Source: Derived from AEP Ohio Exhibit JFT-1 and AEP Ohio's Discovery Responses to IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_7, and IEU-01-RPD-002_Competitvely-Sensitive_Confidential_Attachment_6.

[44] Lazard's Levelized Cost of Energy Analysis – Version 12.0, November 2018. Lazard's Levelized Cost of Energy Analysis is an annual in-depth study comparing the costs of energy from various generation sources that is generally well regarded in the industry.

The resulting NCOE from the equivalent NPV escalating price REPAs would yield a projected benefit for customers during every year of the contracts in all of the Company's forecast scenarios, except the Low Band scenario. Customers would still be expected to see annual net costs flow through the RGR for the first three to eight years of the REPAs, depending on the forecast scenario, due to AEP Ohio's proposed debt equivalency costs. However, the net costs that would be expected to flow through the RGR would be significantly reduced during the early years of the proposed contracts. This would substantially reduce, but not eliminate, some of the inter-generational inequity that would be caused by AEP Ohio's proposed REPAs and recovery of such through the RGR.

Q. Has the Company proposed any form of risk sharing to allocate the financial risk associated with its proposal between the Company and its ratepayers?

A. No, it has not. The Company's alleged need for the 900 MW of economical renewable generation resources and the proposed REPAs is conditional on the claimed economic benefits to its customers. However, the economic benefits that would result from the Company's proposal are uncertain and depend on future market prices. As I explain above, the economic impacts from the Company's proposal actually is expected to be negative for customers under the Company's forecasted Low Band scenario. Under the Company's proposal, if the net economic benefits of its proposal results in a net loss to customers, the Company will not share in any of the cost responsibility. In fact, AEP Ohio actually would be

expected to earn $113 million from the proposed debt equivalency costs,[45] regardless of the resulting economic benefits or costs for its ratepayers.

Q. What do you recommend regarding the allocation of financial risk?

A. As I explain above, I am not recommending that the Commission approve cost recovery associated with AEP Ohio's proposed REPAs through the RGR because it has not demonstrated a need. However, to the extent that the Commission determines there is a need based upon the purported economic benefits and approves cost recovery of the proposed REPAs, the Commission should require the Company to share in 30% of the benefits, or costs, that flow through the RGR. This would improve the alignment between the Company's financial interests and the economic interests of its customers.

Conclusion

Q. Based upon the above conclusions, what is your recommendation regarding AEP Ohio's purported need for at least 900 MW of new renewable generation or for the Highland Solar and Willowbrook Solar generation projects and its proposal to recover the costs for the Highland Solar and Willowbrook Solar generation projects through the RGR?

A. Given that the Company has not demonstrated the requisite need based on resource planning projections or otherwise, the Commission should find that AEP Ohio has not demonstrated a need for at least 900 MW of renewable generation. AEP Ohio has not demonstrated a need for the Highland Solar and Willowbrook

[45] Case No. 18-1392-EL-RDR, Direct Testimony of William A. Allen, p. 15 (The proposed debt equivalency costs are $4.30 million annually for Highland Solar REPA and $1.36 million annually for the Willowbrook Solar REPA. The total proposed costs = ($4.30M + $1.36M) x 20 years = $113M).

Solar generation projects, and, therefore, the Commission should reject its proposal to recover the costs associated with the REPAs and debt equivalency costs for the Highland Solar and Willowbrook Solar facilities through the non-bypassable RGR under R.C. 4928.143(B)(2)(c).

Q. Does this conclude your direct testimony?

A. Yes, it does.

Confidential Exhibit JDB-1
Filed Under Seal

Confidential Exhibit JDB-2

Filed Under Seal