February 2, 2024

Ms. Tanowa Troupe,
Secretary Public Utilities Commission of Ohio
180 East Broad Street,
11th Floor
Columbus, Ohio 43215

RE: Late-Filed CUB/UCS Exhibit 1 *In the Matter of the OVEC Generation Purchase Rider Audits Required by ORC Section 4928.148 for Duke Energy Ohio, Inc., The Dayton Power & Light Company D/B/A AES Ohio, Ohio Power Company D/B/A AEP Ohio, Case No. 21-0477EL-RDR.*

Dear Ms. Troupe:

In accordance with the Attorney Examiner's Entry on January 24, 2024, Citizens Utility Board of Ohio ("CUB") and Union of Concerned Scientists ("UCS") are hereby filing a late-filed exhibit removing certain redactions from CUB/UCS Exhibit 1. The exhibit contains the narrative portion of Devi Glick's Testimony with the following references contained in witness Glick's confidential testimony: page 10 (line 6), page 11 (lines 5 and 10), page 27 (lines 16-23), pages 29-30 (all redactions including table 6), page 31, page 33 (lines 5-6), and page 34 (lines 14 and 9-13) unredacted.

Please let me know if you have any questions.

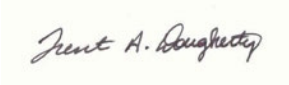

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EXHIBIT NO. ____1_____

BEFORE THE

PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the OVEC Generation Purchase Rider Audits Required by ORC Section 4928.148 for DP&L, Duke Ohio and AEP Ohio	**)** **)** **)** **)**	**Case No. 21-0477-EL-RDR**

DIRECT TESTIMONY

OF

DEVI GLICK

PUBLIC VERSION

On Behalf of
Citizens Utility Board of Ohio and the Union of Concerned Scientists

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1. INTRODUCTION AND PURPOSE OF TESTIMONY

Q Please state your name and occupation.

A My name is Devi Glick. I am a Senior Principal at Synapse Energy Economics, Inc. My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.

Q Please describe Synapse Energy Economics.

A Synapse is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, ratemaking and rate design, electric industry restructuring and market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, federal government agencies, and utilities.

Q Please summarize your work experience and educational background.

A At Synapse, I conduct economic analysis and write testimony and publications that focus on a variety of issues related to electric utilities. These issues include power plant economics, power plant operations in organized electricity markets, utility resource planning practices, valuation of distributed energy resources, and utility handling of coal combustion residuals waste. I have submitted expert testimony on unit commitment practices, plant economics, utility resource needs, and solar valuation before state utility regulators in more than a dozen states.

In the course of my work, I develop in-house electricity system models and perform analysis using industry-standard electricity system models. I am proficient in the use of spreadsheet analysis tools, as well as optimization and electricity dispatch models. I have directly run EnCompass and PLEXOS energy modeling software's and have reviewed inputs and outputs for several other models.

Before joining Synapse, I worked at Rocky Mountain Institute, focusing on a wide range of energy and electricity issues. I have a master's degree in public policy and a master's degree in environmental science from the University of Michigan, as well as a bachelor's degree in environmental studies from Middlebury College. I have more than 10 years of professional experience as a consultant, researcher, and analyst. A copy of my current resume is attached as DG-1.

Q Do you have any experience with the PJM and Midcontinent Independent System Operator (MISO) electricity markets?

A Yes, I have evaluated how utilities commit and operate their power plants in the PJM and MISO electricity markets across multiple states, including Ohio, Indiana, Michigan, Minnesota, and Wisconsin, for expert testimony and expert reports. I provide a list of proceedings where I have given testimony with my resume as DG-1.

Q Who are you testifying on behalf of in this case?

A I am testifying on behalf of Citizens Utility Board of Ohio (CUB) and the Union of Concerned Scientists (UCS).

Q Have you testified before the Public Utilities Commission of Ohio ("PUCO" or "the Commission")?

A Yes. I provided testimony to the PUCO on September 12, 2023, in Case No. 20-165-EL-RDR. I also provided testimony to the PUCO on December 29, 2021, in Case Nos. 18-1004-EL-RDR et al. and on October 26, 2021, in Case No. 20-167-EL-RDR.

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

A In my testimony for this proceeding, I review the costs charged from January 1, 2020, through December 31, 2020 ("the audit period") to the Ohio Power Company (AEP Ohio), Duke Energy Ohio, and AES Ohio (collectively "the Companies") by the Ohio Valley Electric Corporation (OVEC) under the Amended and Restated Inter-Company Power Agreement (ICPA). I review the revenue each of the three Companies received for selling the power provided by the generation assets under OVEC's management into the PJM market, and the resulting costs and revenues passed on to their consumers through the Legacy Generation Rider (the Rider). Next, I summarize each Company's projections of how much it would charge consumers under the Rider during the audit period and compare those projections to other contemporary analysis assessing the long-term cost of remaining in the OVEC Agreement, and to the costs the Companies actually paid. I review the prudence of OVEC's unit commitment practices, and the Companies' oversight of operational decisions made at the OVEC units during the audit period. Finally, I discuss the planning and capital investment decisions the Companies recently made in environmental upgrades at the plants and explain how those costs are passed on to ratepayers during the audit period through the demand charge of the rider.

Q How is your testimony structured?

A In Section 2, I summarize my findings and recommendations for the PUCO.

In Section 3, I provide background on the OVEC plants and the contract that governs the plants' operations.

In Section 4, I briefly explain the background of the Legacy Generation Rider, and the associated Ohio House Bill 6 (H.B. 6) that enabled it. I provide a summary of the prior riders that each Company used to collect the OVEC costs before the enactment of H.B. 6, all of which were approved as a financial hedge, and the analysis that each company performed at the time it requested the prior riders. I summarize other projections completed by OVEC owners that cover the performance of the OVEC plants during the audit period.

In Section 5, I evaluate the costs paid by each of the Company's ratepayers under the Legacy Generation Rider during the audit period. I discuss how the Companies have paid unreasonable charges significantly above the market value of energy and capacity in PJM to OVEC, and now seek to pass on these excess costs to their consumers through the Legacy Generation Rider.

In Section 6, I summarize OVEC's unit commitment practices. I discuss my concerns with OVEC's general practice of uneconomically committing the OVEC plants into the market and outline best practices for reviewing the operational practices of power plants to access the prudence of variable costs incurred. I present evidence of OVEC's uneconomic operational practices that are driving the substantial economic losses at the units.

In Section 7, I discuss OVEC's recent capital investments in environmental compliance measures at its power plants and explain how those costs are passed on to ratepayers through the demand charge of the Legacy Generation Rider.

Q What documents did you use for your analysis, findings, and observations?

A My analysis relies primarily upon the following information: (1) the three audit reports ("Audit Reports") performed in this proceeding by London Economic International (LEI) for AEP Ohio,[1] Duke Energy Ohio,[2] and AES Ohio;[3] (2) the audit reports performed by LEI for Duke Energy Ohio in Case No. 20-0167-EL-RDR and for AEP Ohio in Case No. 18-1004-EL-RDR, and the audit report performed by Vantage Energy Consulting, LLC ("Vantage") for AES Ohio in Case No. 20-165-EL-RDR; (3) OVEC's 2020 annual report; (4) discovery responses of AEP Ohio, Duke Energy Ohio, and AES Ohio associated with the audit as shown in Table 1 below; (5) information filed with the U.S. Bankruptcy Court for the Northern District of Ohio when FirstEnergy Solutions attempted to cancel its obligations under the OVEC Agreement; (6) the Public Versions of my Direct Testimony in Case No. 20-0167-EL-RDR relating to Duke Energy Ohio's Price Stabilization Rider, in Case No. 18-1004-El-RDR relating to AEP Ohio's Power Purchase Agreement Rider, and in 20-165-EL-RDR relating to AES Ohio's Reconciliation Rider; and (7) Public Discovery Responses from Case No.

[1] Audit of the Legacy Generation Resource Rider of AEP Ohio Final Report, Prepared for the Public Utilities Commission of Ohio. London Economics International. December 15, 2021 (*here forth known as* "AEP 2020 Audit").

[2] Audit of the Legacy Generation Resource Rider of Duke Energy Ohio Final Report, Prepared for the Public Utilities Commission of Ohio. London Economics International. December 15, 2021 (*here forth known as* "Duke 2020 Audit").

[3] Audit of the Legacy Generation Resource Rider of AES Ohio Final Report, Prepared for the Public Utilities Commission of Ohio. London Economics International. December 15, 2021 (*here forth known as* "AES 2020 Audit").

20-0167-EL-RDR, Case No. 18-1004-El-RDR, and Case No, 20-165-EL-RDR. In addition, I rely on some public information associated with prior proceedings relating to the OVEC plants and, to a limited extent, I rely on certain external, publicly available documents such as State of the Market reports for PJM and MISO. I also rely on my prior knowledge of the OVEC plants from other cases in which I testified or submitted comments regarding OVEC.[4]

Table 1: Discovery responses cited in testimony

Attach.	Category	Duke	AEP	AES
DG-2C	**OVEC Bills – Confidential**	LEI-DR-01-022 Confidential Attachment 1	LEI-DR-02-009 Confidential Attachment 1	LEI-DR-06-005 Attachment 1 Confidential
DG-3	**PJM Market Revenue - Public**		CUB-INT-02-008 Attachment 1	
DG-3C	**PJM Market Revenue – Confidential**	CUB-INT-02-008 Confidential, CUB-INT-02-008 Confidential Attachment 1		C&U-02-008 Attachment 1 – Confidential, CUB 3rd Set-INT 01 (d) Attachment 1
DG-4C	**OVEC and IKEC Board and Operating Committee Minutes – Confidential**	CUB-POD-02-022 Confidential Attachment 1, CUB-POD-02-023 Confidential Attachment 1 LEI-DR-02-003 CONF Attachment	CUB-INT-02-023 Confidential Attachment 1, LEI-DR-01-017-Confidential Attachment 1	C&U-02-022 Attachment 1-Confidential, C&U-02-023 Attachment 1-Confidential
DG-5	**Unit Commitment and dispatch decision-making - Public**	CUB-INT-02-018	CUB-INT-02-015, CUB-INT-02-016, CUB-INT-02-017, CUB-INT-02-019, LEI-DR-01-003	CUB-INT-02-015, CUB-INT-02-016, CUB-INT-02-017, CUB-INT-02-019

[4] PUCO Case No, 20-165-EL-RDR, PUCO Case No. 20-167-EL-RDR, PUCO Cases Nos. 18-1004-EL-RDR, et al., and Michigan Cases U-20224, U-20530, U-20804, U-20805, U-21052, U-21261.

DG-5C	**Unit Commitment and dispatch decision-making – Confidential**	CUB-INT-02-015 Confidential, CUB-INT-02-016 Confidential, LEI-DR-01-003 Confidential	CUB-INT-02-018 Confidential Attachment 1*	C&U-02-018 Attachment 1 – Confidential*, LEI-DR-01-003 Attachment 1 Confidential
DG-6	**Environmental regulations and capex – Public**	CUB-INT-02-014	LEI-DR-04-008, CUB-INT-02-014	LEI-DR-04-008, CUB-INT-02-014
DG-6C	**Environmental regulations and capex – Confidential**	CUB-INT-02-014	LEI-DR-03-002 Confidential Attachment 1	LEI-DR-03-002 Confidential Attachment 1
DG-7	**Economic analysis - Public**	CUB-INT-02-013	CUB-INT-02-013	CUB-INT-02-013

**Attachment is voluminous and will be provided upon request*

2. FINDINGS AND RECOMMENDATIONS

Q Please summarize your findings.

A My primary findings are:

1. From January 1, 2020, through December 31, 2020, AEP Ohio, Duke Energy Ohio, and AES Ohio together incurred $117.9 million in above-market costs for power from the OVEC plants and passed those costs on to Ohio ratepayers through the Legacy Generation Rider.

2. All prior analyses produced by the Company and other OVEC owners, both during this docket and in prior dockets, have projected substantial losses from the OVEC plants both during the audit period and beyond.

3. OVEC uneconomically operated its two power plants, Kyger Creek and Clifty Creek, during the audit period which led to lower market revenues and therefore higher net costs to operate the plants than it would have incurred if it had limited operations to periods when the plant's production

costs equaled or were below energy market prices. These additional costs, which it seeks to pass on to consumers, could have been mitigated with more prudent unit commitment practices.

4. OVEC incurred variable energy losses at the Clifty Creek and Kyger Creek during ten out of the twelve months of the audit period. This means that ratepayers would have been better off if the plants had been offline during the majority of 2020.

Q Please summarize your recommendations.

A Based on my findings, I offer the following chief recommendations:

1. The PUCO should disallow the entire $117 million in above-market energy and capacity charges collected from consumers in 2020 under the Legacy Generation Rider. These costs should be disallowed on the basis that OVEC and the Companies acted imprudently by not taking action to minimize the above-market costs incurred at the OVEC plants.

2. The PUCO should find that the OVEC plants were uneconomically committed, and thus incurred excess variable costs under the Legacy Generation Rider during the audit period.

3. The PUCO should require OVEC and the Companies to provide documentation of the daily unit commitment decisions used for the OVEC plants whenever they are committed with a must-run status, before cost recovery is allowed.

4. The PUCO should put the Companies on notice that it will also disallow collection in future cases for OVEC costs incurred as a result of imprudent

unit commitment decisions that are not in the best interest of retail ratepayers.

5. The PUCO should put the Companies on notice that it will disallow in future Riders dockets any environmental capital costs incurred without robust forward-going analysis to justify the investment over retirement and replacement with alternatives.

3. AEP OHIO, DUKE ENERGY OHIO, AND AES OHIO PURCHASE POWER FROM OVEC UNDER THE ICPA

Q What is OVEC and how is it related to the ratepayers of AEP Ohio, Duke Energy Ohio, and AES Ohio?

A OVEC is jointly owned by twelve utilities in Ohio, Indiana, Michigan, Kentucky, West Virginia, and Virginia. OVEC operates two 1950s-era coal-fired power plants— (1) Kyger Creek, a five-unit, 1,086 MW plant in Gallia County, Ohio, and (2) Clifty Creek, a six-unit, 1,303 MW plant, in Jefferson County, Indiana. The OVEC plants were originally built to provide power for the Piketon uranium enrichment facility, but the facility ceased doing uranium enrichment and OVEC ceased selling power to the U.S. Department of Energy for the Piketon plant effective September 30, 2003.[5]

Today, the plants provide their output to the twelve owners under the ICPA. AEP Ohio has a 19.93 percent ownership share,[6] Duke Energy Ohio has a 9.00 percent

[5] Ohio Valley Electric Corporation, Annual Report – 2021 (p. 1).

[6] AEP Response to LEI-DR-02-009_Confidential_Attachment 1 (*here forth known as* "AEP OVEC Bills").

ownership share,[7] and AES Ohio has a 4.90 percent ownership share of OVEC (through the Dayton Power and Light Company).[8] The ICPA was originally signed on July 10, 1953, and then amended on August 11, 2011, to extend the operation of the plants and the owner's commitment to take the power produced by the plants.[9] It governs each company's rights and duties as to the power produced by the OVEC plants. OVEC bills the sponsoring companies for their shares of energy, capacity, and ancillary services under the OVEC Agreement. Each sponsoring company's power is sold into the PJM market, and each company receives the resulting revenues. In Ohio, for the current audit period, the legislature approved a rider through H.B. 6 called the Legacy Generation Rider.[10] Through this rider, each of the Companies flow to their ratepayers the net impact of their contractual entitlements associated with OVEC (i.e., the positive or negative difference between the OVEC costs billed to each Company under the ICPA and OVEC revenues received from the PJM market). In 2020, ratepayers for these three utilities received only charges under the rider, no credits.[11]

Q Do you have any prior experience with the OVEC plants?

A Yes. I filed testimony before the PUCO on the prudency of OVEC's costs paid by AEP Ohio, Duke Energy Ohio, and AES Ohio's consumers and the long-term

[7] Duke Response to LEI-DR-01-022 Confidential Attachment 1 (*here forth known as* "Duke OVEC Bills").

[8] AES Response to LEI-DR-06-005 Attachment 1 Confidential (*here forth known as* "AES OVEC Bills").

[9] Ohio Valley Electric Corporation, Annual Report – 2021 (p. 1).

[10] House Bill 6, Sec. 4928.148. (A), effective October 22, 2019. Available at https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_133/bills/hb6/EN/06/hb6_06_EN?format=pdf.

[11] I will discuss full analysis supporting this statement in Section 5.

cost-effectiveness of the OVEC Plants in Case Nos. 18-1004-EL-RDR et al., Case No. 20-167-EL-RDR, and Case No. 20-165-EL-RDR.[12, 13, 14]

I also filed testimony before the Michigan Public Service Commission assessing the prudence of power supply costs incurred by Indiana Michigan Power, a subsidiary of AEP. Indiana Michigan Power obtains power from the OVEC plants for its consumers in Indiana and Michigan. Table 2 below lists all the cases in which I have filed testimony on the prudency of the OVEC plants and agreement:

[12] Direct Testimony of Devi Glick, PUCO Case Nos. 18-1004-EL-RDR, et al.
[13] Direct Testimony of Devi Glick, PUCO Case No. 20-167-EL-RDR.
[14] Direct Testimony of Devi Glick, PUCO Case No. 20-165 -EL-RDR.

Table 2. Prior and current OVEC dockets with testimony filed/ to be filed by Devi Glick

Case #	Date of Testimony	On Behalf of
Ohio		
21-477-EL-RDR (current docket)	October 10, 2023	Citizens Utility Board of Ohio, Union of Concerned Scientists
20-165-EL-RDR	September 12, 2023	Ohio Consumers' Counsel
18-1004-EL-RDR, et al.	December 29, 2021	Ohio Consumers' Counsel
20-167-EL-RDR	October 26, 2021	Ohio Consumers' Counsel
Michigan		
U-20805	April 27, 2023	Attorney General of Michigan
U-21261	March 23, 2023	Sierra Club
U-21052	March 9, 2022	Sierra Club
U-20530	August 21, 2021	Attorney General of Michigan
U-20804	March 12, 2021	Sierra Club
U-20224	October 23, 2020	Sierra Club

Q Based on your experience with OVEC in the current case and these other dockets, are these plants providing value to the customers?

A No. These plants are old, inefficient, and costly to maintain and operate. They are also increasingly uncompetitive in the market, due in large part to the entry and abundance of new renewable generation and gas facilities that are coming online. As a result, OVEC's costs for energy and capacity are significantly higher than market prices for energy and capacity. These high costs are all passed on to the ratepayers of the twelve entities (including utilities) that have an ownership share in OVEC.

The Michigan Public Service Commission agreed with my assessment that ratepayers are being charged above market prices for power from OVEC. In Case No. U-20804 and Case No. U-21052, dockets in which AEP subsidiary Indiana Michigan Power Company (I&M) filed its power supply cost recovery plans, the

Commission issued a warning that it would disallow OVEC costs above market prices in the Company's subsequent power cost reconciliation dockets. The Michigan PUC followed through on this warning in Case No. U-20530 and disallowed $1.347 million in above-market power costs for OVEC for the calendar year 2020. I&M is responsible for 7.85 percent of OVEC's power costs. That power is shared between Indiana and Michigan, and Michigan's share represents only 1.09 percent of OVEC. That means that if the Michigan disallowance was scaled to all of OVEC, that would amount of a disallowance of $123.6 million.

Q For what portion of OVEC is each of the three Companies responsible?

A Each of the three Company's ownership shares of OVEC are equivalent to the share of the power and energy to which it is entitled. The share, called a Power Participation Ratio ("PPR"), is 19.93 percent for AEP Ohio, 9.00 for Duke Energy Ohio, and 4.90 percent for AES Ohio. This means that AEP Ohio, Duke Energy Ohio, and AES Ohio are responsible for 19.93 percent, 9.00 percent, and 4.90 percent respectively of OVEC's fixed and variable costs while also being entitled to the same percent share of OVEC's revenues from the PJM markets.[15]

While AEP Ohio, Duke Energy Ohio, and AES Ohio are all obligated to pay OVEC for the costs billed under the ICPA, ratepayers and customers are not obligated to cover these costs.

[15] Ohio Valley Electric Corporation, Annual Report – 2021 (p. 1).

Q Did the bankruptcy of FirstEnergy Solutions (FES) impact the Companies' entitlements during the audit period?

A Yes. Starting in September 2018, OVEC allocated to each other sponsoring company a portion of FES' 4.85 percent share of energy and capacity based on each Company's proportional ownership of the OVEC plants. Each Company paid the variable energy costs associated with this additional entitlement, and earned the associated energy and capacity market revenues, but was not responsible for any FES fixed costs or demand charges.[16,17] This ended May 31, 2020, when FES's bankruptcy was settled.[18]

Q How long is each Company under contract with OVEC under the ICPA?

A The Companies are under contract with the OVEC plants under the ICPA through 2040.[19] The Clifty Creek and Kyger Creek Plants will each be 85 years old by then.

Q Is this timeline consistent with industry-wide coal generation trends?

A No. As shown in Figure 1, Clifty Creek and Kyger Creek are the oldest utility-owned coal-fired power plants in the United States (over 20 MW in size) without a scheduled retirement date.

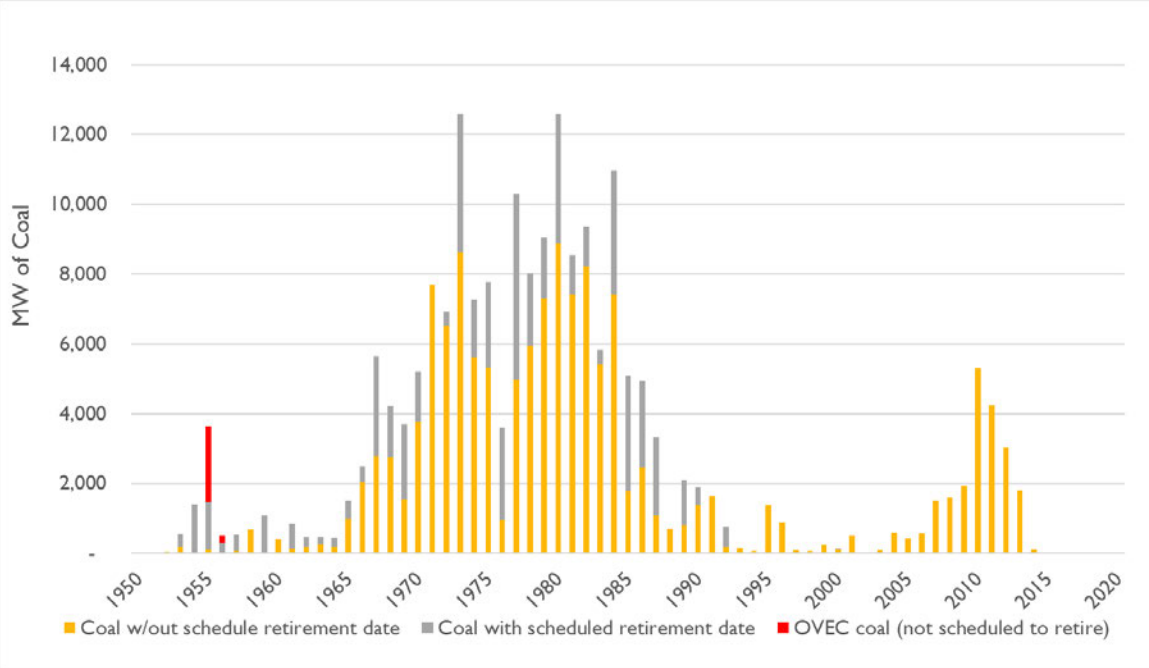
[16] AEP 2020 Audit, Pg. 15; AES 2020 Audit, Pg. 15; Duke 2020 Audit, Pg. 15.

[17] The AEP 2020 Audit, Pg. 15 states that "AEP Ohio did not take on any of FES's entitlements during the audit period." But in AEP response to CUB-INT-02-031, AEP states that FES shares of capacity and revenues were credited to the Company.

[18] AEP 2020 Audit, Pg. 15; AES 2020 Audit, Pg. 15; Duke 2020 Audit, Pg. 15.

[19] Ohio Valley Electric Corporation, Annual Report – 2021 (p. 9).

Figure 1. Retirement status of current coal capacity by year online



Source: U.S. Energy Information Administration ("EIA"), form 860, supplemented by public information on updated unit retirement dates.

The lack of a retirement plan for the OVEC plants is inconsistent with the actions and announcements of all three utilities regarding retirement of their other coal assets. Specifically, AEP Ohio, Duke Energy Ohio, and AES Ohio have all recently announced accelerated retirement dates for many of their coal plants based on the declining economics of operating aging coal plants.[20] All of these

[20] Darren Sweeney, S&P Global. *AEP to retire more than 1,600 MW of coal capacity. November 2020*. Available at https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/aep-to-retire-more-than-1-600-mw-of-coal-capacity-61144417; Darren Sweeny, S&P Global. *AEP to close both units at 2,600 MW Rockport coal plant by end of 2028.* September 2021. Available at https://ieefa.org/aep-to-close-both-units-at-2600mw-rockport-coal-plant-by-end-of-2028/. Darren Sweeny, Krizka Danielle, and Del Rosario, S&P Global. *Duke Energy considering retiring 9,000 MW Of coal, adding vast amounts of storage*. September 2020. Available at

plants were built after the Eisenhower-era OVEC units, which have no firm retirement dates.

Duke Energy committed to reduce energy generated from coal to represent less than 5 percent of total generation by 2030 and to totally exit coal by 2035 as part of what the Company claimed was the largest planned coal fleet retirement in the industry.[21] The Company went on to tout its 2050 net-zero goals and its efforts to reduce its carbon emissions.

AEP CEO Nicholas Akins echoed these sentiments in AEP's "Powering Forward to Net Zero" report, where he touted AEP's efforts to retire or sell nearly 13,500 megawatts of coal-fueled generation during the past decade, and went on to state that as AEP "continue[s] to balance the remaining operating life and economic viability of each of our remaining coal-fueled generating units with other options for delivering power to customers, the sources of our generation will become cleaner."[22]

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https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/duke-energy-considers-retiring-9-000-mw-of-coal-adding-vast-amounts-of-storage-60476894; AES Corporation News, CISION PR Newswire. *AES announces intent to exit coal by 2025; reaffirms 7% to 9% annualized growth target through 2025; delivers on all 2021 financial and strategic objectives*. February 24, 2022. Available at https://www.prnewswire.com/news-releases/aes-announces-intent-to-exit-coal-by-2025-reaffirms-7-to-9-annualized-growth-target-through-2025-delivers-on-all-2021-financial-and-strategic-objectives-301490172.html.

[21] Duke Energy News Center. *Duke Energy expands clean energy action plan*. February 9, 2022. Available at https://news.duke-energy.com/releases/duke-energy-expands-clean-energy-action-plan.

[22] American Electric Power. *Powering Forward to Net-Zero*. March 2021. Accessed at: http://www.aepsustainability.com/performance/report/docs/AEPs-Climate-Impact-Analysis-2021.pdf.

Additionally, in a February 2022 news report, AES CEO Andrés Gluski touted AES's position as the "fastest growing US renewables developer and the largest supplier of corporate renewables contracts in the world." He went on to say that "To continue to accelerate the future of energy today, we are announcing our intent to exit coal generation by the end of 2025."[23]

Despite these assertions from leadership and commitments to transition off of coal from all three Companies and the presence of lower cost alternatives, AEP Ohio, Duke Energy Ohio, and AES Ohio all plan to continue charging consumers high-cost power from OVEC's aging power plants.

4. THE LEGACY GENERATION RIDER, AND THE OVEC RIDERS THAT PRECEDED IT, PASS THE NET COSTS ASSOCIATED WITH THE OVEC PLANTS ON TO THE COMPANY'S RATEPAYERS

Q How does each Company collect OVEC costs from its ratepayers?

A In 2019, the Ohio legislature approved H.B. 6. This bill replaced the prior riders each utility was using to collect OVEC costs with the Legacy Generation Rider. The rider was effective January 1, 2020, and extended the collection of OVEC costs by the sponsoring companies through 2030.[24] Under the Legacy Generation Rider, each of the three Companies provides its ratepayers with the net costs or

[23] AES Corporation News, CISION PR Newswire. *AES announces intent to exit coal by 2025; reaffirms 7% to 9% annualized growth target through 2025; delivers on all 2021 financial and strategic objectives*. February 24, 2022. Available at https://www.prnewswire.com/news-releases/aes-announces-intent-to-exit-coal-by-2025-reaffirms-7-to-9-annualized-growth-target-through-2025-delivers-on-all-2021-financial-and-strategic-objectives-301490172.html.

[24] House Bill 6, Sec. 4928.148. (A), effective October 22, 2019. Available at https://search-prod.lis.state.oh.us/solarapi/v1/general_assembly_133/bills/hb6/EN/06/hb6_06_EN?format=pdf.

net revenues associated with its respective ownership share of the OVEC plants. This means that if OVEC's costs exceed market revenues in a given year, the ratepayers for each of these three Companies pay the difference.

Q How did the Companies collect the OVEC costs prior to the passage of H.B.6 and the enactment of the Legacy Generation Rider?

A Prior to 2020, each of the three Companies received approval from the PUCO to collect the net costs associated with the OVEC plants through separate riders, as shown in Table 3 below. For AEP Ohio the rider was called the Power Purchase Agreement Rider, for Duke Energy Ohio it was called the Price Stabilization Rider, and for AES Ohio it was called the Reconciliation Rider. The Legacy Generation Rider replaced each of these riders. In each of the prior dockets, the Companies justified their requests for the rider as a financial hedge.[25]

Between 2018 and 2019, the Companies passed along $112 million in net losses to their Ohio ratepayers. Ratepayers received zero benefits or value in exchange for those expenses.

[25] Opinion and Order Filed March 31, 2016. Case No. 14-1693-EL-RDR. Pg. 23; Opinion and Order Filed October 20, 2017. Case No. 16-0395-EL-SSO. Pg. 21; Opinion and Order Filed December 19, 2018. Case No. 17-1263-El-SSO.

Table 3. Prior OVEC riders approved for the Companies

Company	AEP Ohio	Duke Energy Ohio	AES Ohio
Name of prior rider	Power Purchase Agreement Rider	Price Stabilization Rider	Reconciliation Rider
Docket prior rider was approved	13-2385-EL-SSO / 14-1693-EL-RDR (amended in 16-1852-EL-SSO)	17-1263-EL-SSO	16-0395-EL-SSO
Rider length before H.B. 6 passage	2018–2024	2018–2025	2017–2022
Projected rider performance (per company analysis)	110 million in credits 2015-2024[1]	$77 million in losses 2018-2025[3]	$49 million in losses 2017-2022[5]
Timeframe for prior audit	2018–2019	2019	November 2018-2019
Actual rider performance during audit period	$74.5 million in net losses[2]	$24.6 million in net losses[4]	$12.9 million in net losses[6,7]
MWh	4,750,122[8]	1,062,624[4]	691,559[6]
Net losses /MWh[9]	$15.68/MWh	$23.15/MWh	$21.55/MWh
PPR	19.93%	9.00%	4.90%

Sources: 1 Application for Rehearing of Ohio Power Company, Filed May 2, 2016. Case No. 14-1693-EL-RDR; 2 Direct Testimony of Devi Glick, Case Nos. 18-1004-EL-RDR et al., Pg. 6; 3 Direct Testimony of Judah Rose, Case No. 17-1263-EL-SSO (ESP IV) (July 10, 2018); 4 Direct Testimony of Devi Glick, Case No. 20-167-EL-RDR, Pg. 6; 5 Direct Testimony of Jeffrey Malinak, Case No. 16-0395-EL-SSO; 6 Direct Testimony of Devi Glick, Case No. 20-165-EL-RDR, Pg. 6;7 Actual rider performance value stated in 20-165-EL-RDR is $14.9 million in $2023. Value here of $12.9 million is stated in nominal dollars; 8 Estimated based on OVEC 2020 Annual Report MWh and PPR; 9 Calculated based on Actual rider performance and MWh.

Q Did the Companies conduct analysis as part of their applications for each prior rider?

A Yes, as shown in Table 3 above, each Company conducted analysis on the projected forward-going economics of the OVEC plants. Duke and AES both

projected substantial losses from the OVEC riders—only AEP projected net gains.

In Case No. 16-1693-EL-RDR, AEP substantially over-projected the net benefits that the Power Purchase Agreement would deliver to customers. After normalizing for weather, the Company projected the Rider would provide $110 million in credits to consumers over the period 2015 – 2024.[26] As shown above, instead of earning credits, since its adoption the PPA Rider actually incurred substantial charges in each year. In 2018 and 2019 alone, the Company incurred $74.5 million in net losses under the Power Purchase Agreement Rider.[27]

In Case No. 17-1263-EL-SSO, Duke filed testimony from Judah Rose with analysis on the projected forward-looking performance of the OVEC plants. Specifically, Mr. Rose projected that OVEC's projected energy and demand charges will exceed forecasted market revenues by $77 million on a net present value basis over the analysis period (2018–2025).[28] Nonetheless, he justified the rider stating that the units have "operating leverage" and that the contract has hedge value because it has lower volatility than relying on the market.[29] Duke incurred $24.6 million in net losses in 2019 alone.[30]

[26] Application for Rehearing of Ohio Power Company, Filed May 2, 2016. Case No. 14-1693-EL-RDR.

[27] Direct Testimony of Devi Glick, Case Nos. 18-1004-EL-RDR et al.

[28] Direct Testimony of Judah Rose, Case No. 17-1263-EL-SSO (ESP IV) (July 10, 2018).

[29] *Id.*

[30] Direct Testimony of Devi Glick, Case No. 20-167-EL-RDR.

In Case No. 16-0395-EL-SSO AES Company Witness Jeffrey Malinak[31,32] conducted analysis on the projected costs of the Reconciliation Rider over the next five years (2017–2021). Mr. Malinak projected the Reconciliation Rider charges would be around $7 to $9 million per year to recover DP&L's investment in the OVEC facilities.[33] The Company claimed that without the Reconciliation Rider, as well as several other non-bypassable charges, the Company's credit rating would drop to a "junk" category.[34] Mr. Malinack went on to say that reduction of rider charges or elimination of the riders "could jeopardize DP&L's ability to provide safe and reliable service to its customer and modernize its distribution grid."[35] The rider was projected to total approximately $49 million over six years.[36] Actual loses under the Reconciliation Rider between November 2018 and the end of December 2019 were $14.9 million.[37]

Q Did the prior riders act as hedges to mitigate spikes in market prices during the audit period?

A No. But this is not surprising because, as discussed above, two of the three Companies projected that the riders would incur net costs at the time they

[31] Direct Testimony of AES Company Witness Malinak in Case No.16-395-EL-SSO.

[32] In Case No. 20-165-EL-RDR, the Confidential version of the Direct Testimony of AES Company Witness Malinak from Case No. 16-395-EL-SSO was provided by AES as a Confidential Attachment in Response to OCC RDP-04-23. During the hearing for 20-165-EL-RDR, AES Company Lawyers designated as public all values from Mr. Malinack's testimony that I sited in my direct testimony relating to the projected cost/value of the Reconciliation Rider.

[33] Direct Testimony of AES Company Witness Malinak in Case No.16-395-EL-SSO, Pg. 6.

[34] *Id. at* 5.

[35] *Id. at* 8.

[36] *Id*, Exhibit RJM-1.

[37] Direct Testimony of Devi Glick, Case No. 20-165-EL-RDR.

submitted their applications. The losses the Companies incurred continued a pattern of exceptionally high prices paid under the OVEC Agreement (relative to the market value) since at least 2015. As shown in Table 4, OVEC's average cost per MWh across all owners has regularly been substantially above the market value of its energy and capacity combined. As a result, the Reconciliation Rider did not act as a hedge against market price spikes during the audit period.

Table 4. OVEC power costs and revenues under the OVEC Agreement vs. market prices

	MWh Electricity	Total OVEC Charges billed ($Million)	OVEC ($/MWh)	Energy and capacity market value* ($/MWh)	Total above-market costs ($Million)
2015	8,681,829	$559.10	$64.40	$44.61	($171.85)
2016	9,946,877	$571.70	$58.66	$38.50	($200.55)
2017	11,940,259	$636.30	$54.27	$37.85	($196.00)
2018	12,146,856	$644.10	$54.29	$44.28	($121.56)
2019	11,238,298	$640.80	$57.04	$35.91	($237.45)
2020	9,033,056	$605.30	$67.00	$31.76	($318.41)
Total	**62,987,175**	**$3,657.30**	**$58.06**	**$38.90**	**($1,245.82)**

Note: 2015-2020 based on AEP costs from PUCO Case Nos. 18-104-EL-RDR et al.
Source: Billed costs from OVEC annual reports; PJM locational marginal pricing from PJM data miner 2 available at https://dataminer2.pjm.com/feed/da_hrl_lmps; hourly load data downloaded from U.S. Clean Air Markets Database; and capacity prices from PJM State of the Market Reports.

Q Did other owners conduct any additional analyses at the same time to project the forward-going cost of the OVEC plants?

A Yes. Table 5 below shows two additional sources of analysis. The first is analysis conducted as part of the FES bankruptcy proceeding. The second is analysis from a Moody's analytics report. The findings of these analyses all align with the findings of my review of the audit period. Specifically, they all find that the costs

of the OVEC plants are projected to far exceed the value the plants provide to ratepayers going forward.

Table 5. Summary of prior OVEC and OVEC Agreement studies

Date Completed	Completed by / for	Finding
April, 2019	FirstEnergy Solutions[1,2]	Forward-looking analysis of OVEC Agreement through 2040; found $268 million in losses relative to market for FES & Allegheny Power's share. That is $3.4 billion for all of OVEC (2018–2040).
December, 2018	Moody's Analytics[3]	Assessment of the OVEC Agreement; found annual losses of $10–$13 million for FES's share. That is $206–$268 million annually for all of OVEC.

Source: 1 Expert declaration of Judah Rose (Doc. 46, filed Apr. 1, 2018), In re FirstEnergy Solutions Corp., No. 18-50757 (AMK) (Bankr. N.D. Ohio); 2 Motion for entry of an order authorizing FirstEnergy Solutions Corp. and FirstEnergy Generation LLC. to reject a certain multi-party Intercompany Power Purchase Agreement with the Ohio Valley Electric Corporation as of the petition date. (Doc 44. filed Apr. 1, 2018), In reFirstEnergy Solutions Corp., No. 18-50757 (AMK) (Bankr. ND.Ohio); 3Moody's Investors Service. December 2018. Credit Opinion: Ohio Valley Electric Cooperative.

5. DURING THE AUDIT PERIOD, AEP OHIO, DUKE ENERGY OHIO, AND AES OHIO PASSED ON TO THEIR RATEPAYERS UNREASONABLE CHARGES FOR OVEC POWER UNDER THE LEGACY GENERATION RIDER

Q How do the Companies serve customer load, and which associated costs are at issue in this case?

A AEP Ohio, Duke Energy Ohio, and AES Ohio serve consumers who choose to buy their power from them as the provider of last resort. Each Company buys power for these ratepayers through a competitively bid descending clock auction to obtain the lowest reasonable prices. This is known as the Standard Service Offer ("SSO") price.

Under the Legacy Generation Rider, OVEC sells its output into the PJM market, and the difference between OVEC's costs and the market price flows through to consumers as either a credit or charge. The Companies' share of the OVEC output is not directly used to supply any of their customers.

Q What does it mean that AEP Ohio, Duke Energy Ohio, and AES Ohio are paying above-market costs for OVEC's power and passing those costs on to ratepayers under the Legacy Generation Rider?

A It means that OVEC's costs are substantially higher than PJM market prices for the same energy, capacity, and ancillary services during the audit period. When OVEC sells its output into the PJM market, the difference between OVEC's costs and the PJM market prices are charged or credited to each of the Company's consumers under the Legacy Generation Rider.

Q What costs related to the OVEC plants did the Companies collect from Consumers under the Legacy Generation Rider during the audit period?

A During the audit period, each Company's share of the above-market costs incurred by the OVEC plants (in $2020) was $69.0 million for AEP Ohio, $31.9 million for Duke Energy Ohio, and $17.0 million for AES Ohio. Combined, the Legacy Generation Rider above market cost to Ohio ratepayers for 2020 was $117.9 million ($2020). Through this filing, the Companies are asking the Commission to force its consumers to subsidize each of the Company's costs for owning the OVEC plants. AEP Ohio, Duke Energy Ohio, and AES Ohio's parent companies (and the parent companies' shareholders) otherwise would have paid the $117.9 million in above-market costs.

Q How did you calculate the above-market costs that each Company collected from consumers under the Legacy Generation Rider during the audit period?

A To evaluate how much in above-market costs each Company incurred under the Rider, I compared the total cost billed to the each of the OVEC-sponsoring Companies to the value of the energy, capacity, and ancillary services provided by OVEC as sold into the PJM market.

More specifically, each Company provided the monthly billing from OVEC for 2020 which includes MWh sold, energy, demand, and transmission charges, along with PJM expenses and fees.[38] Each Company also provided energy market revenue, capacity market revenue, and ancillary services revenue for the power that OVEC sold into the PJM market.[39] I assumed the cost of the OVEC contract was equivalent to the monthly billing from OVEC. I assumed the value of the OVEC Agreement would be equal to the sum of the energy, ancillary services, and capacity value. The difference represents the costs passed onto Ohio ratepayers under the Legacy Generation Rider.

[38] AEP OVEC Bills; Duke OVEC Bills; AES OVEC Bills.

[39] AES Response to C&U-02-008 Attachment 1-Confidential; AES Response to CUB 3rd Set – INT 01(d) Attachment 1; Duke Response to CUB-INT-02-008 CONF; Duke Response to CUB-INT-02-008 CONF Attachment; Duke Response to LEI-DR-01-022 Confidential Attachment 1; Confidential Duke 2020 Audit, Figure 8, Column C; AEP Response to CUB-INT-02-008 Attachment 1.

Q How much in excess costs were Ohio ratepayers charged under the Legacy Generation Rider during the audit period?

Q Table 6 below summarizes the billed charges, total revenues, and net costs/revenues for the OVEC units for each of the three Companies.

For AEP, OVEC charged AEP $122.0 million for 1,831,721 MWh[40] during the audit period, for an average cost of $66.59 per MWh.[41] In contrast, the value of the market revenue that OVEC obtained for the energy, capacity, and ancillary services it sold into the PJM market was only $53.0 million, or around $28.94/MWh.[42] This amounts to a loss of $69.0 million for AEP ratepayers, or $37.65/MWh.

For Duke Energy Ohio, OVEC charged the Company $54.8 million for 827,167 MWh during the audit period, for an average cost of $66.30/MWh.[43] In contrast, the value of the market revenue that OVEC obtained for the energy, capacity, and ancillary services it sold into the PJM market was only $22.9 million, or around $27.71/MWh.[44] This amounts to a loss of $31.9 million for Duke Energy Ohio ratepayers, or $38.58/MWh.

For AES Ohio, OVEC charged the Company $30.0 million for 450,349 MWh during the audit period, for an average cost of $66.60/MWh.[45] In contrast, the

[40] This MWh value includes each Company's entitlement to FES's share of energy through May 31, 2020.

[41] AEP OVEC Bills.

[42] AEP Response to CUB-INT-02-008 Attachment 1.

[43] Duke OVEC Bills.

[44] Duke Response to CUB-INT-02-008 CONF; Duke Response to CUB-INT-02-008 CONF Attachment; Duke Response to LEI-DR-01-022 Confidential Attachment 1; Confidential Duke 2020 Audit, Figure 8, Column C.

[45] AES OVEC Bills.

value of the market revenue that OVEC obtained for the energy, capacity, and ancillary services it sold into the PJM market was only $13.0 million, or around $28.83/MWh.[46] This amounts to a loss of $17.0 million for AES Ohio ratepayers, or $37.76/MWh.

Table 6: Confidential summary of costs and revenues for the OVEC plants

	MWh	Billed Charges		Revenues		Net Costs	
		$ Million	$/MWh	$Million	$/MWh	$ Million	$/MWh
AEP	1,831,721	$122.0	$66.59	$53.0	$28.94	$(69.0)	$(37.65)
Duke	827,167	$54.8	$66.30	$22.9	$27.71	$(31.9)	$(38.58)
AES	450,349	$30.0	$66.60	$13.0	$28.83	$(17.0)	$(37.76)
Total	**3,109,237**	**$206.8**	**$66.52**	**$88.9**	**$28.60**	**$(117.9)**	**$(37.92)**

In total, that means that during the audit period, the Companies collected $117.9 million in above-market costs while providing consumers no additional value. In figure 2 below, I show the all-in monthly charges and monthly market revenues for OVEC being passed through to the Companies customers, and the net difference between the two that the Companies customers are paying each month under the Legacy Generation Rider. This shows that in nearly every month during the audit period, the Companies customers were paying substantial additional costs under the Legacy Generation Rider.

[46] AES Response to C&U-02-008 Attachment 1-Confidential; AES Response to CUB 3rd Set – INT 01(d) Attachment 1.

Q How do the costs you calculated compare to the costs the auditor calculated in the three audits?

A The $/MWh losses I calculated are very close to the ones LEI calculated for all three utilities when I corrected a minor error LEI made in double counting capacity market revenues in the AES Ohio and Duke Energy Ohio audits.[47] Specifically, the auditor found net losses for AEP were $38.36/MWh and were $33.90/MWh and $31.68/MWh for Duke Energy Ohio and AES Ohio respectively. When AES Ohio and Duke Energy Ohio's values are adjusted to remove the double counted revenues, AES's losses are $38.42/MWh and Duke Energy Ohio's are $37.46/MWh which is very close to my finding of around $38/MWh in losses for each Company during the audit period.

The small differences between my calculations and LEI's result stem from differences in our mandate. LEI was conducting an accounting audit, and as such relied on accounting month data for some of its calculations. My analysis focused on net costs incurred and revenues earned each month, regardless of when they are recorded on the Company's books. Therefore, I relied entirely on actual or risk month data for all my calculations.

[47] The auditor appears to have double counted capacity market revenues for Duke Energy Ohio and AES Ohio in Figure 13 of the Duke Energy Ohio and AES Ohio Audits. Specifically, in Figure 13, the auditor nets out capacity market revenue from OVEC charges, and then nets out PJM settlements from the remainder. But PJM settlements also include capacity market revenues. This is why the auditor found net losses were only $33.90/MWh and $31.68/MWh for Duke Energy Ohio and AES Ohio respectively but were $38.36/MWh for AEP, where capacity market revenues were not double counted.

Q Will the current legacy generation rider likely provide value to the Companies ratepayers going forward?

A No. My analysis, outlined above, demonstrates that to date the prior OVEC Riders have passed on substantial costs to the Companies ratepayers. I do not see any scenario where the economic trends that have rendered the OVEC plants uneconomic rapidly reverse for the next few years.

Additionally, in each of the three audits in this docket, the auditor found the following:

1. Based on the OVEC costs billed and the revenues earned in the market, the OVEC plants cost more than they earn.[48]
2. LEI's analysis indicates that a new combined cycle gas turbine ("CCGT") has an estimated levelized cost of energy ("LCOE") of $35.9/MWh for PJM West and $42.2/MWh for PJM. The reported cost of the OVEC plants, at $67.00/MWh, is higher than the levelized cost of building a new CCGT in PJM. The LCOE analysis implies that the OVEC plants are not competitive with a new CCGT based on full cycle costs.[49]
3. The ICPA does not expire until June 30, 2040. Customers could be locked into paying a premium for energy and capacity from the OVEC plants in future years.[50]

[redacted]

[48] Duke 2020 Audit, Pg. 29; AEP 2020 Audit, Pg. 31; AES 2020 Audit, Pg. 27.
[49] Duke 2020 Audit, Pg. 21; AEP 2020 Audit, Pg. 22-23; AES 2020 Audit, Pg. 21.
[50] Duke 2020 Audit, Pg. 30; AEP Audit, Pg. 32; AES Audit, Pg. 29.

[redacted]

[redacted].[51]

Q What do you conclude with respect to the Legacy Generation Rider?

A Based on the Companies own data, I find that under the Legacy Generation Rider, during the audit period alone, the total billed charges cost Ohio ratepayers $117.9 million more than the market price for the same amount of energy, capacity, and ancillary services.

The PUCO should disallow this entire amount because the OVEC plants were not operated prudently or in the best interest of retail ratepayers.

6. OVEC UNECONOMICALLY OPERATED THE CLIFTY CREEK AND KYGER CREEK POWER PLANTS DURING THE AUDIT PERIOD AND THE COMPANIES NOW SEEK TO PASS THE RESULTING EXCESS COSTS ON TO THEIR CUSTOMERS

i. OVEC operates its two power plants, Clifty Creek and Kyger Creek, uneconomically and incurs additional losses relative to market energy prices

Q How often did OVEC operate its plants during the audit period?

A OVEC operated the Clifty Creek and Kyger Creek plants at respective capacity factors of 39 percent and 51 percent in 2020,[52] despite both units incurring substantial revenue losses relative to the market. In fact, during the audit period,

[51] Duke Response to CUB-POD-02-022 Confidential Attachment 1; AES Response to C&U – 02-022 Attachment 1 – Confidential; AEP Response to CUB-INT-02-023 Confidential Attachment 1; Duke Response to CUB-POD-02-023 Confidential Attachment; AES Response to C&U – 02-023 Attachment 1 – Confidential.

[52] EIA CAMPD database; EIA form 923; PJM data miner.

at least one unit was online at the Clifty Creek and Kyger Creek plants during 98 percent of the time.[53] This shows that OVEC is not taking action to limit incurring negative energy margins at its plants, and instead is operating its plants even when it projects that doing so will incur negative margins. This is imprudent and not in the best interest of retail ratepayers.

Is there evidence that OVEC operated its plants uneconomically during many hours of the year during the audit period?

A Yes. During the audit period, OVEC's variable costs exceeded market locational marginal prices 83 percent[54] of the time the units were online. Additionally, for ten months during the audit period, the variable costs incurred by the OVEC plants exceeded the revenues the plants earned in the energy market.[55] This means that overall, consumers would have been better off if the plants had not operated at all during ten of the twelve months in 2020. This contributed $10.5 million to the total of $117.9 million in above-market costs across the two plants for AEP Ohio, Duke Energy Ohio, and AES Ohio's consumers during the Audit period.

Coal plants such as Clifty Creek and Kyger Creek require high capital costs to stay online, and therefore they need large positive energy margins (or sufficient capacity payments) to cover these fixed costs. When a plant loses money on a

[53] EIA CAMPD database; EIA form 923; PJM data miner.

[54] EIA CAMPD database; EIA form 923; PJM data miner; OVEC Monthly Bills, provided in AEP response to LEI-DR-02-009_CONFIDENTIAL_Attachment_1.

[55] AEP OVEC Bills; Duke OVEC Bills; AES OVEC Bills; AES Response to C&U-02-008 Attachment 1-Confidential; AES Response to CUB 3rd Set – INT 01(d) Attachment 1; Duke Response to CUB-INT-02-008 CONF; Duke Response to CUB-INT-02-008 CONF Attachment; Duke Response to LEI-DR-01-022 Confidential Attachment 1; Confidential Duke 2020 Audit, Figure 8, Column C; AEP Response to CUB-INT-02-008 Attachment 1.

variable operating basis, that means that not only is it not covering its fuel and variable operations and maintenance (O&M) costs, but it is also carrying no net revenues to offset significant fixed O&M and capital costs.

Q How did the OVEC units incur significant losses if they were operating within the PJM market?

A Generators operating within the PJM market generally commit their available units as either economic or must-run. For units committed economically, the market operator, PJM, has the responsibility for unit commitment and dispatch decisions. Those decisions prioritize reliability for the system as a whole, but then select plants to commit and dispatch based on short-term economics to ensure consumers are served by the lowest-cost resources available to the system. A plant committed as "economic" will operate only if it is the least-cost option available to the market (i.e., has a lower average commitment period cost than other resources available at the time). Because units operated by the market (i.e., using economic commitment) follow short-term economic signals, they tend to cycle off when market prices are low and therefore do not generally incur significant operational losses.

While economic commitment and dispatch tends to be the norm for dispatchable power plants, for units such as OVEC's coal-fired power plants with long start-up and shut-down times, utilities sometimes instead elect to maintain control of unit commitment decisions and utilize a must-run commitment status. For these units, the utility determines independently when to commit a unit.

A unit designated as must-run will operate with a power output no less than its minimum operating level.[56] The unit receives market revenue (and incurs variable operational costs) but does not set the market price of energy. If the market price of energy falls below its operational cost, a must-run unit will not turn off and can incur losses. Absent oversight from a Commission, these losses can be passed on to consumers.

In the case of the OVEC units, they stayed online for nearly all the audit period, despite incurring significant net revenue losses. This is because OVEC's operating procedures dictate that as a default, the plants must be self-committed into the market with a must-run status whenever they are available. OVEC requires unanimous consent of the operating board to switch from the must-run commitment status.[57] That means the OVEC units are bid into the market without regard for economics, and whether they are earning or losing money. OVEC used no daily analysis to drive its unit commitment decisions during the audit period, as discussed below. The Operating Committee did approve a switch to economic commitment between April 14, 2020 and June 30, 2020 based on the impact of

[56] Minimum operating level is an output threshold often determined operationally, and below which a generator is either less stable or operates inefficiently. Once the unit commitment decision is made, the level of generation output (above the minimum) is generally left to the market. The operating level is based upon the marginal running cost assumptions provided by the owner in the form of offers or bids to PJM.

[57] AEP Response to CUB-INT-02-015; AEP Response to CUB-INT-02-016; AEP Response to CUB-INT-02-017; AES Response to CUB-INT-02-015; AES Response to CUB-INT-02-016; AES Response to CUB-INT-02-017; Duke Response to CUB-INT-02-015 Confidential; Duke Response to CUB-INT-02-016 Confidential; Duke Response to LEI-DR-01-003 Confidential.

the COVID-19 pandemic on energy prices, but the units were switched back to their default "Must Run" operating status in July, 2020.[58]

Q Did OVEC economically commit the units in 2020?

A Only to a limited extent. During the exception period between April 14, 2020 and June 30, 2020, OVEC applied an economic commitment status to only three of the eleven OVEC units, and only for a total of 631 hours.[59] This mean that even during a two-and-half-month period of time when energy prices reached record lows, OVEC still only opted to economically commit less than one third of its units just over one third of the time. OVEC did not economically commit Kyger Creek at all, and Clifty Creek was economically committed for only [redacted] percent of the hours in 2020.[60] During the months of April, May and June alone, the Ohio Companies incurred variable losses of more than [redacted] at the OVEC plants. These losses could have been minimized had OVEC actually economically committed more of its units.

Q Did the impacts from COVID-19 drive the substantial variable losses that OVEC incurred at the Kyger Creek and Clifty Creek plants in 2020?

A No. As I show in Figure 2 on page 38, locational marginal prices (LMP) in PJM were at record lows in 2020 due to the impacts from the COVID-19 pandemic.

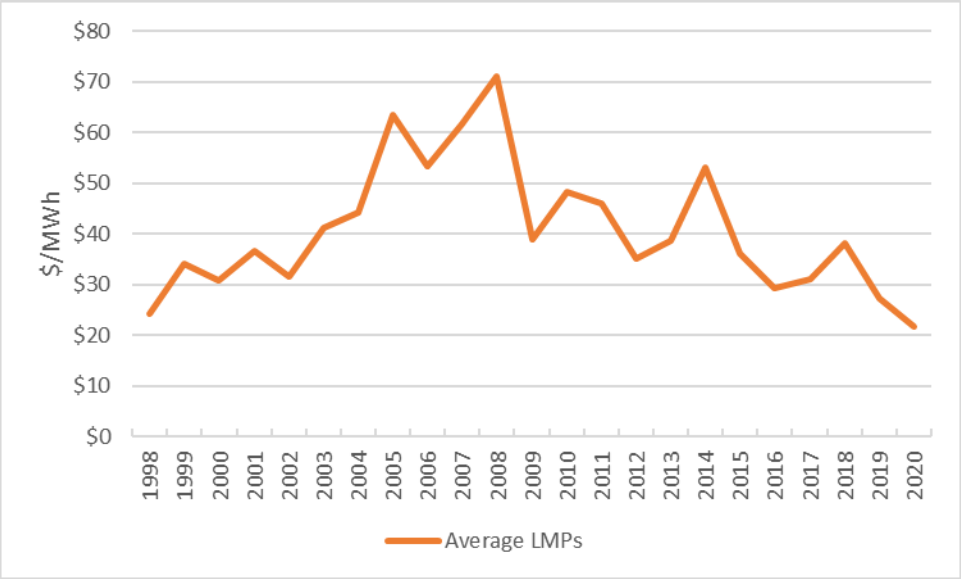
[58] AEP Response to CUB-INT-02-017; AEP Response to CUB-INT-02-018 Confidential Attachment 1; AES Response to CUB-INT-02-017; AES Response to CUB-INT-02-018 Confidential Attachment 1; Duke Response to LEI-DR-01-003 Confidential; Duke Response to CUB-INT-02-018; AEP Response to CUB-INT-02-019; AES Response to CUB-INT-02-019; AEP Response to LEI-DR-01-017-Confidential Attachment 1.

[59] AEP Response to CUB-INT-02-017; AES Response to CUB-INT-02-017.

[60] AEP Response to CUB-INT-02-018 Confidential Attachment 1; AES Response to C&U-02-018 Attachment 1; AEP Response to LEI-DR-05-005 Confidential Attachment 2.

Low LMPs explain low total revenues but they do not explain net losses. A plant that operates at a zero-percent capacity factor will earn zero dollars in the market, but it will also incur zero dollars in costs so on net should incur no losses. When energy market prices are low, plants should be committed and dispatched less. This means they will incur lower costs to match the lower revenues. For a plant to incur significant variable losses, it has to be uneconomically committed into the market regardless of economics.

Figure 2. Real-time, load-weighted, average LMP



Source: PJM 2020 State of the Market Report prepared by Monitoring Analytics, LLC.

Q What could drive a power plant operator such as OVEC to uneconomically self-commit its units?

A There are many factors that could drive a power plant operator to uneconomically self-commit its units, but four main ones are: (1) a failure to evaluate the economics of daily unit commitment decisions; (2) a failure to follow the results of daily unit commitment analysis; (3) an incomplete accounting of variable unit

costs in unit dispatch bids; and (4) existence of minimum take provisions in fuel contracts that "lock in" costs that would otherwise be variable. In the case of OVEC in 2020, the plants' unit commitment decisions by and large were not driven by any forward-looking economic analysis. OVEC economically committed only a small portion of its units, and otherwise OVEC committed the units with a must-run status. The Company ran the plants at higher levels that was economic during a period of record low market prices as a way to manage its coal inventory and avoid incurring damages or penalties. But this oversupply of coal was avoidable if OVEC had planned its coal procurement around lower plant utilization assumptions that were consistent with the plant's poor economics.

Q Does OVEC have an economic incentive to avoid running its plants in uneconomic conditions?

A No. The OVEC Agreement assigns plant operating costs and PJM revenues to OVEC's sponsoring organizations, effectively holding OVEC's revenues harmless during uneconomic generation. This dynamic allowed OVEC to maintain a net income in 2020 even while the OVEC plants' variable costs exceeded locational marginal prices during many hours. And while the OVEC sponsoring companies such as AEP Ohio, AES Ohio, and Duke Energy Ohio are obligated to pay the OVEC bills, their ratepayers should not be obligated to pay the net revenues losses. In the absence of action by utility commissions to disallow recovery of the full Rider, OVEC owners have no incentive to demand that the OVEC units change their practices and operate more economically. And the resulting costs will continue to be passed on to Ohio ratepayers.

OVEC is not unique in the practice of operating its plants uneconomically and ultimately passing those costs on to ratepayers. The MISO Independent Market Monitor (IMM) has been conducting a review of coal-fired resource operations and profitability in its annual State of the Market Report for several years now.[61] In the most recent 2022 report, the report found that among regulated utilities, 13 percent of their annual starts between 2017–2020 were unprofitable, 9 percent were unprofitable in 2021, and 7 percent were unprofitable in 2022. This means that it was uneconomic to start up and operate the unit. In contrast, among merchant generators (which are private companies who do not have ratepayers as a safety net) between 2017 and 2020 only 3 percent of annual starts were unprofitable, and in 2021 and 2022 zero percent of annual starts were unprofitable.[62] This data shows that when generators do not have ratepayers to cover their losses, the operators tend to make fundamentally different, and more profitable, operational decisions.

Q Did the Companies and OVEC operate the OVEC plants using least-cost supply principles?

A No. OVEC's and the Companies' continuous use of must-run commitment status at the OVEC plants, except to a very limited extent during the two-and-a-half months in 2020, and their failure to perform a daily financial review to determine whether to use economic commitment status was not consistent with a least-cost

[61] 2022 State of the Market Report for the MISO Electricity Markets, Prepared by Potomac Economics. June 15, 2023. Pg. 52. Available at https://www.potomaceconomics.com/wp-content/uploads/2023/06/2022-MISO-SOM_Report_Body-Final.pdf.

[62] *Id.*

approach and this directly resulted in their Ohio consumers paying above-market charges.

ii. Each individual Company has limited control over the operations and management of the OVEC plants, despite their position on the operating committee and on the board of directors

Q How are the OVEC units operated and managed?

A According to the Amended and Restated OVEC Agreement in effect in 2020,[63] management of the OVEC units is governed by the 15-person Board of Directors, which delegates operational decisions to a separate Operating Committee.

Q What role do the Companies have in operating the OVEC units?

A Each of the three Companies is a Sponsoring Company of OVEC, and as such has one member on the Board of Directors and is allowed to appoint one member to OVEC's Operating Committee. Each of the Companies can make requests and recommendations to the Operating Committee to change unit operations but "unanimous approval of the Operating Committee" is required to change the commitment status of the OVEC units.[64]

This arrangement is concerning both for how little power each of the individual Companies *claims* to have, and for how much influence each Company actually has but generally fails to exercise. First, if each Company really has so little

[63] The OVEC Agreement was subsequently updated on October 7, 2019, and effective November 15, 2019.

[64] AEP Response to CUB-INT-02-015; AES Response to CUB-INT-02-015; Duke Response to CUB-INT-02-015 Confidential.

power and influence, then it means they are all asking to pass the significant costs associated with the OVEC plants onto their ratepayers but have only limited authority to control operational and planning decisions that drive those costs. Second, while it is true that each Company cannot act unilaterally, together, these three Ohio utilities control over one-third of the ownership shares in OVEC. Each Company has a seat on the OVEC and Indiana-Kentucky Electric Cooperative (IKEC)[65] Board of Directors and OVEC Operating Committee. Each Company should have an obligation to exercise its power to prevent imprudent operational and planning decisions that cause unnecessary costs to be passed on to ratepayers.

iii. <u>The PUCO should request that OVEC conduct a daily unit commitment analysis, consistent with industry best practices; the auditor should review this analysis in all future OVEC Rider dockets</u>

Q What type of analysis should be used to evaluate the charges passed on to customers through the Legacy Generation Rider docket?

A As part of the Legacy Generation Rider review, the PUCO should require that the Companies demonstrate that the OVEC power plants were operated prudently and economically and in the best interest of retail ratepayers. This would require that OVEC either economically commit the units into the market on a daily basis or, at a minimum, conduct daily unit commitment economic analysis.

[65] IKEC is a wholly-owned subsidiary of OVEC that operates the power plants.

Q Based on your review, did OVEC use any daily economic analysis to inform its unit commitment process and operations of its plants in 2020?

A Only to a limited extent. Between April 14 and June 30, 2020, the Operating Committee switched the units to economic commitment on account of low energy market prices brought on by the COVID-19 pandemic and allowed the market to economically commit the units. But in general OVEC self-schedules its units in accordance with the OVEC Operating Agreement, as approved by an Operating Committee.[66] The OVEC units (except Clifty Creek Unit 6 during summer ozone non-attainment periods) were self-scheduled into the PJM market with a must-run status at all times outside of the two-and-half-month window in the spring, and except when impacted by a planned, forced, or maintenance outage.[67] The term "self-schedule" has the same meaning as "must-run."

AEP[68] and AES[69] specifically conduct no such analysis for their shares of the OVEC units. Duke conducts a daily unit commitment analysis called a Daily Profit and Loss Report and includes its share of the OVEC units in this report. Duke stated that it does at times share its *findings* from these reports with OVEC management. But critically, the reports and analysis itself are not shared with OVEC management.[70] For example, in April 2020, Duke's analysis showed that

[66] AEP Response to CUB-INT-02-017; Duke Response to LEI-DR-01-003 Confidential; AES Response to CUB-INT-02-017.

[67] AEP Response to CUB-INT-02-017; AEP Response to CUB-INT-02-018 Confidential Attachment 1; AEP Response to LEI-DR-01-003; AES Response to CUB-INT-02-017; AES Response to CUB-INT-02-018 Confidential Attachment 1; AES Response to LEI-DR-01-003 Attachment 1 Confidential; Duke Response to CUB-INT-02-018; Duke Response to LEI-DR-01-003 Confidential.

[68] AEP Response to CUB-INT-02-015.

[69] AES Response to CUB-INT-02-015.

[70] Duke Response to CUB-INT-02-018.

with low market prices, the units would be out of the money and could potentially be decommitted. Duke brought these findings before the Operating Committee, which voted on and authorized a temporary change to the must-run commitment status as discussed above. But as a normal course of business, OVEC does not produce or rely on forward-going economic analysis to inform its unit commitment decisions.

Q Does OVEC have the information it needs to evaluate the economics of its daily unit commitment decisions?

A Yes. Duke already conducts this type of daily analysis for the OVEC plants, demonstrating that it is possible.[71] Additionally, operators know day-ahead market prices with certainty for the next day and can project them with a sufficient level of accuracy for the purposes of unit commitment. Fuel and variable O&M costs are also known with relative certainty a few days out, and start-up costs are known and should not fluctuate significantly over the course of the week. This means that at the time the utility makes a decision to self-commit a unit in the day-ahead market (i.e., to either bring the unit online, keep it online, take it offline, or keep it offline) it has the information needed to make a prudent decision. That decision should maximize projected net revenues/minimize projected net losses to ratepayers over a several-day period.

Q What standard industry practices do regulated utilities undertake to ensure their power plants are economically committed into the market?

A If a utility is going to self-commit a power plant outside of the market, it should rely on a robust, price-based forward-looking analysis process to replace the

[71] Duke Response to CUB-INT-02-018 Confidential.

market's economic process.[72] AEP[73] and Duke[74] use such a daily unit commitment analysis to decide whether and how to commit their other power plants they own into the market.[75]

As part of this process, AEP and Duke review the forecasted energy market prices and projected variable operation costs for the next week (or another similar, multi-day time period) to project net operational revenues (or losses) for each unit for each individual day over the forecast period. If a unit is projected to be profitable, then ratepayers expect to see savings from operating the unit related to the acquisition of market-supplied power. If the unit is projected to lose money, then consumers would expect to see savings by the acquisition of market-supplied power.

The data presented in these forecasts represents the market price information and the unit cost data available to the plant owners at the time they are making unit commitment decisions. This market price data is readily available through PJM and widely used by plant operators. While it is true that market prices and other market inputs are constantly changing, there is a knowable set of information on unit costs and market prices at the time commitment decisions are made and submitted to PJM. Regardless of whether prices may continue to change, OVEC

[72] The best practice for a utility is to economically commit its power plants into the market and allow the market to decide when to operate the plant based on economics.

[73] *See*, for example, the Rebuttal Testimony of Jason Stegall in Case No. U-20530.

[74] *See*, for example, the Direct Testimony of John Swez in IURC Case No. 38707 FAC123 S1.

[75] Even with robust daily unit commitment analysis, I have found utilities can ignore the result of their own analysis and "uneconomically self-commit" their power plants. A robust process with Commission oversight will dramatically decrease how much this occurs.

and the Companies can and should save the full set of information it has at the time of its decisions to allow the PUCO to assess the prudence of its decisions.

Q How exactly should OVEC be using the results of price-based analysis to inform its unit commitment decisions?

A OVEC should either (a) commit its units as economic and let the market decide when to operate the units, or (b) make unit commitment decisions based on the results of its price-based analysis and document any deviations from its quantitative analysis. Specifically, OVEC should elect to self-commit its units as must-run on a forward-looking basis only if it expects to make positive energy market margins over a reasonable near-term period (incorporating consideration of start-up and shut-down costs). OVEC should commit its units as "economic" when the units are expected not to run, or to operate at a loss if they do run. This is the standard practice followed by AEP and Duke, as described in the testimony of Mr. Stegall and Mr. Swez in prior dockets which I discussed earlier.[76] The Companies' and OVEC's failure to follow this standard industry practice resulted in imprudent plant operations. As a result, the Companies incurred above-market variable costs which they are now asking to collect through the Legacy Generation Rider.

Q How did Company witness's Swez, Stegall, and Crusey defend OVEC's unit commitment practices during the audit period?

A In their direct testimony in this docket, Duke Energy Ohio Witness Swez spent the most time discussing unit commitment practices, but AEP Ohio Witness

[76] Rebuttal Testimony of Jason Stegall in Case No. U-20530; Direct Testimony of John Swez in IURC Case No. 38707 FAC123 S1.

Stegall and AES Ohio Witness Crusey also discussed OVEC's practices in their direct testimonies. Specifically, all three Witness's defended the extensive use of the Must-Run commitment status at the OVEC plants, claiming that the units cannot quickly ramp on and off, and that cycling them comes with unnecessary costs and risks or equipment failures.[77] I don't disagree with their characterization of the units, but if the units have operational characteristics that make them inherently challenging to operate economically within the current market, then perhaps they are not a good asset to continue operating and funding through ratepayers.

Further, there is a large gap between the things Swez says OVEC can't or shouldn't do when operating its units, and prudent unit commitment practices. I am not recommending that OVEC commit the units with an Economic status and cycle them extensively. But it is also not reasonable for OVEC to claim that the only alternative is to continue committing the units with a Must Run status with zero analysis and documentation to support its decisions.

Should a utility be considered to have made an imprudent decision every time it doesn't maximize actual revenues to ratepayers?

A Not necessarily. Utilities are expected to use accurate cost and pricing information and to make prudent decisions based on that information, but they are not expected to always be right. If market prices deviate significantly from what the utility reasonably projected, the utility's self-commitment decisions may not actually maximize net revenues. To be prudent, the utility's decision to self-

[77] Direct Testimony of David Crusey, Pg. 10; Direct Testimony of Jason Stegall, Pgs. 11-12; Direct Testimony of John. D. Swez, Pgs. 12-15.

commit its units must have been projected to maximize net revenues at the time the utility made the must-run commitment decision.

On the other hand, utilities should also monitor the accuracy of their projections. If the utility finds it is consistently wrong in its projections, that information itself should provide feedback to improve the utility's approach and be used to drive changes to the utility's commitment process.

Q How do Commissions review the prudence of utility operational practices in other jurisdictions?

A In Michigan, the commission uses a two-step process: at the beginning of the yearly cycle, the utility files a Power Supply Cost Recovery (PSCR) Plan; at the end of the yearly cycle, there is a reconciliation docket to reconcile the differences between projected power and fuel costs and actual power and fuel costs.

In Indiana, the commission uses a Fuel Adjustment Clause (FAC) process that trues-up the difference between fuel costs the utility projected and costs that actually materialized every three months.

Both Michigan's PSCR and Indiana's FAC dockets constitute a prudency review of a utility's fuel and power supply practices where the commission determines whether a utility acted reasonably to procure energy for consumers at the lowest cost. Such a prudence review should include an evaluation of a utility's operational practices at its power plants and the associated fuel costs incurred. To allow such a review, utilities must conduct and retain daily unit commitment decision-making analysis, submit that analysis for review, and document any deviations between the economic commitment status recommended by analysis and the utility's actual commitment decision. When the utility ignores the results of its own unit commitment analysis, uneconomically self-commits a plant, and

then incurs (predictable) losses relative to the market without justification, the commission can issue a disallowance for imprudently incurred fuel costs. This level of oversight more carefully aligns operational practices with economics.

Q Did the Companies and OVEC operate the plants using least-cost supply principles?

A No. As discussed above, OVEC's and the Companies' use of must-run commitment status at the OVEC plants for the majority of the audit period, and their failure to perform a daily financial review to determine whether to use economic commitment status was not consistent with a least-cost approach and resulted in above-market charges.

Therefore, the PUCO should disallow any monthly energy charges in excess of energy market revenues from the OVEC plants during the audit period. The imprudence and failure to act in the retail ratepayers' best interest is evident from the [redacted] during 2020 where the OVEC plants incurred variable net losses relative to the market, which were avoidable by following prudent market commitment practices.

7. ENVIRONMENTAL UPGRADE COSTS INCURRED

Q Did the OVEC plants incur any environmental upgrade costs that the Companies are asking to pass on to ratepayers through the Legacy Generation Rider?

A Yes, [redacted]

[redacted].[78]

Additionally, on November 22, 2019, the U.S. Environmental Protection Agency published a draft effluent limitation guidelines (ELG) rule in the Federal Register. Based on requirements in the final rule, OVEC expects to have until no later than December 31, 2025, to modify how it manages both bottom ash transport wastewater and FDG wastewater at the Clifty Creek and Kyger Creek plants. AEP expected construction to begin in 2021 and continue over the next few years.[79] [redacted]

[redacted].[80]

This means that the costs associated with compliance with the revised CCR and ELG rules will not be included in the 2020 audit period but will be included in the Rider during subsequent audit periods as part of the demand charge.

[78] AEP Response to LEI-DR-03-002 Confidential Attachment 1; AES Response to LEI-DR-03-002 Confidential Attachment 1.

[79] AEP Response to LEI-DR-04-008; AES Response to LEI-DR-04-008.

[80] AEP Response to LEI-DR-01-017 Confidential Attachment 1; AEP Response to CUB-POD-02-022 Confidential Attachment 1; Duke Response to LEI-DR-02-003 CONF Attachment; Duke Response to CUB-POD-02-022 Confidential Attachment 1; AES Response to C&U-02-022 Attachment 1-Confidential.

Q What role do the Companies play in making decisions regarding capital expenditures such as those required to comply with environmental regulations?

A Each of the Companies has a seat on OVEC's Board of Directors. OVEC's management makes decisions on capital expenditures with oversight and approval of annual capital expenditure budgets by OVEC's Board of Directors.[81] Capital expenditures, including environmental capital expenditures, are passed on to ratepayers through the OVEC demand charges.

Q Do you have any concerns with these environmental control costs being passed on to Ohio ratepayers through the Rider?

A Yes, I do. First, neither OVEC nor the Companies completed any analysis to demonstrate that investing in additional environmental upgrades at these plants is economic relative to retiring the plants.[82]

Second, as my analysis in Section 5 shows, the charges billed by OVEC to AEP Ohio, Duke Energy Ohio, and AES Ohio substantially exceed the revenues received in the PJM market for both plant's energy and capacity. The demand charges billed by OVEC include all fixed and capital costs, including the costs for environmental upgrades. OVEC's demand charges have historically exceeded the capacity market revenues that the Companies earn for their shares of the OVEC plants. This means that each time the Companies incurs costs at the OVEC plants,

[81] AEP Response to CUB-INT-02-014; AES Response to CUB-02-014; Duke Response to CUB-02-014.

[82] AEP Response to CUB-INT-02-013; AES Response to CUB-02-013; Duke Response to CUB-02-013.

those costs are passed on to ratepayers through demand charges that exceed the revenue the Companies can recover in the market.

Q What do you recommend regarding the future ELG and CCR project costs?

A I recommend that the Commission disallow the inclusion of these costs from the Rider on the basis that the Companies have not conducted robust analysis to demonstrate that investing in additional capital upgrades at the plants is the most economic option relative to retirement and replacement of the plants with alternatives.

Q Does this conclude your testimony?

A Yes.

CERTIFICATE OF SERVICE

I certify that a copy of the foregoing **Direct Testimony of Devi Glick (Public Version)**, will be electronically served via the Public Utilities Commission's e-filing system and via electronic mail on all parties referenced in the service list of the docket.

/s/ Trent Dougherty
Trent Dougherty

Summary: Exhibit Late Filed CUB/UCS Exhibit 1 - Public Version of the Direct Testimony of Devi Glick electronically filed by Mr. Trent A. Dougherty on behalf of Citizens Utility Board of Ohio and Union of Concerned Scientists.