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**BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Review of the Power)	
Purchase Agreement Rider of Ohio Power)	Case No. 18-1004-EL-RDR
Company for 2018.)	
)	
In the Matter of the Review of the Power)	
Purchase Agreement Rider of Ohio Power)	
Company for 2019.)	Case No. 18-1759-EL-RDR

INITIAL POST-HEARING BRIEF OF NATURAL RESOURCES DEFENSE COUNCIL

At issue in this audit proceeding is whether AEP Ohio has demonstrated prudence in the operation of two sixty-year-old coal plants owned by the Ohio Valley Electric Corporation (“OVEC”). These decisions have a considerable impact on AEP Ohio’s regulated, captive customers through the Power Purchase Agreement Rider (“PPA Rider”) approved by the Commission in March 2016. The justification for the Commission’s approval of the PPA Rider was to provide AEP Ohio’s captive customer base a “hedge” against energy price volatility, not (as then-Commissioner Haque put it) to operate as a “blank check” for AEP Ohio or OVEC to charge non-competitive rates for energy and capacity to captive residential and commercial customers.¹ To prevent such an outcome, the Commission ordered an annual review of OVEC’s operations as “an integral part of the PPA Rider.”² In the course of this annual audit, AEP Ohio “bear[s] the burden of proof in *demonstrating the prudence of all* costs and sales during the review, as well as that such actions were in the best interest of retail ratepayers.”³ Unless AEP

¹ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016), Concurring Opinion of Commissioner Haque, at 5.

² Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016) at 89.

³ *Id.* at 89 (emphasis added).

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Ohio can demonstrate that costs associated with OVEC and passed on to ratepayers through the PPA Rider had been prudently incurred, AEP Ohio—and not ratepayers—must bear responsibility for those costs.

AEP Ohio has failed to demonstrate that the negative energy margins incurred by the OVEC units during the audit period (January 1, 2018 through December 31, 2019) were prudently incurred, or that the OVEC units were operated in the best interests of retail ratepayers. To the contrary, both the audit conducted by Dr. Fagan (“the Auditor”) of London Economics International (the firm retained by PUCO staff) and an independent hourly analysis performed by Dr. Jeremy Fisher on behalf of the Natural Resources Defense Council concluded that the OVEC units were routinely operated at a variable loss (variable costs to operate the OVEC plants exceeded energy market revenues), and found no evidence that OVEC or its Sponsors (including AEP Ohio) made any effort to consider such losses when making unit commitment decisions.

In addition to the unreasonably incurred negative energy market revenues identified by the Auditor, Dr. Fisher discovered further excess charges to retail ratepayers: First, OVEC compounded its uneconomic bidding strategy by excluding variable operations and maintenance cost from its offer curve, which leads to artificially low market bidding—*i.e.* offers that do not include all the actual costs of operating the plant. The impact of this under-bidding is obscured because OVEC includes these costs as part of its demand charge, not its energy charge. Second, the audit’s conclusions as to the appropriateness of OVEC’s *fixed* operations and maintenance (“O&M”) costs relied on a significant understatement of the total operations costs included as part of the demand charge on AEP Ohio, and subsequently their retail ratepayers. The true total operations and maintenance costs are far larger than at comparable coal-burning units, making the need for an annual spending cap even more urgent than the Auditor recognized.

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Given this evidence of an uneconomic commitment strategy and uncontrolled capital expenditures, the staff Auditor appropriately concluded that operating—running—the OVEC plants as they were in 2018-19 was “not in the best interests of the ratepayers.”⁴ Although the Auditor removed this ultimate finding after PUCO staff explained its “concerns” that the statement was “not appropriate” without further context and was “outside the scope of the audit,”⁵ the facts in the audit itself supports this conclusion: AEP Ohio failed to show the OVEC plants were operated or maintained prudently during the 2018-2019 period, or that the OVEC units are ever likely to benefit ratepayers by offering below-market-cost energy and capacity. AEP shareholders and not Ohio ratepayers should shoulder the excess costs associated with an imprudent, uneconomic must-run strategy, misclassification of variable costs, and unfettered capital expenditures.

Although the staff and Auditor maintained that what is in the best interests of ratepayers is beyond the scope of the *Auditor’s* work, the Commission is tasked with protecting ratepayers’ best interests and has been granted broad powers to do so. Evidence produced in this proceeding goes beyond the imprudent operation of the OVEC plants during the 2018-2019 audit period to demand the Commission’s attention to whether continued operation of the OVEC plants is “not in the best interest of the ratepayers.” The Auditor found that the fundamental economic disadvantage of the OVEC units in the PJM market giving rise to negative energy margins was unlikely to change: if forced to operate in the current PJM market without the subsidy guaranteed

⁴ See NRDC Exhibit 2 at 1; Tr. 340:16-341:13.

⁵ Staff Exhibit 3, Testimony of Rodney P. Windle (“Windle Testimony”), at 3-4.

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by the PPA Rider and legacy generation resource rider⁶ Clifty Creek and Kyger Creek “would not be viable on a going-forward basis.”⁷

The Michigan Public Service Commission warned another OVEC Sponsor that they risked disallowances from the full cost of the Intercompany Power Agreement (“ICPA”), “[W]hile long-term contracts are encouraged, this does not absolve a utility from monitoring and responding to market conditions and system needs and making good faith efforts to manage existing contracts....The Commission does not control the business judgment or decisions of utilities, but the Commission has a duty to customers to assure utilities are not subsidizing uneconomic, unreasonable, and imprudent decisions through customer rates.”⁸ For a private generator, the business calculus is simple: recover enough revenue through the market (energy and capacity) to cover all costs (variable and fixed), or the generator will have an unprofitable plant and will need to shut it down if that unprofitability persists.

Regulated utilities or quasi-regulated utilities with riders, however, can ask the Commission to grant cost recovery from ratepayers even when their plants are unprofitable on the market. In those cases, the ratepayers have lost money relative to the market — essentially subsidizing non-cost-competitive plants. That is the situation with the OVEC plants. While the Commission believed that the PPA Rider would provide a positive benefit to ratepayers

⁶ See Ohio Rev. Code § 4928.148.

⁷ Tr. 381:10-21, 382:17-383:7 (“it’s cheaper to build a new CCGT to meet demand in PJM than to have the OVEC plants going forward”).

⁸ *In the Matter of the Application of Indiana Michigan Power Co. for Approval to Implement A Power Supply Cost Recovery Plan for the 12 Months Ending Dec. 31, 2021.*, No. U-20804, 2021 WL 5494242, at *13 (Nov. 18, 2021)

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(projecting a net credit to ratepayers of \$214 million over the life of the original PPA Rider⁹), that projection has been shown to be wrong.

The Commission must act now to protect the ratepayers by disallowing ongoing imprudently incurred energy market losses (or losses that were not proven to be prudently incurred) at the OVEC units and whether electric distribution utilities, including AEP Ohio are acting prudently and reasonably by continuing to remain a party to the ICPA without seeking to wind down operation of the OVEC units to protect rate payers.¹⁰ NRDC respectfully requests the Commission find:

1. AEP Ohio failed to meet its burden, under the Order authorizing the PPA Rider, to show that variable costs associated with the OVEC plants were prudently incurred because OVEC's PJM energy market bidding strategy, which is set by OVEC's Sponsors, ignores energy market prices.
2. OVEC unreasonably excluded [REDACTED] from its energy market bids and in accounting of costs.
3. AEP Ohio should be disallowed rate recovery for that proportion OVEC's energy market losses attributable to its imprudent must-run commitment strategy that were passed through the PPA Rider to AEP Ohio customers, an amount NRDC witness Dr. Fisher estimates to be \$ [REDACTED].
4. The Commission should impose an annual cap on capital expenditures, as recommended by the Auditor.
5. The Commission should direct AEP Ohio to exercise its authority as a Sponsor of the ICPA to seek retirement of the OVEC units as economically unviable on a forward-going basis.

⁹ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016) at 80.

¹⁰ See Ohio Rev. Code § 4928.148(A)(1) (tasking the Commission with determining, beginning in 2021 and every three years thereafter, "the prudence and reasonableness of the actions of electric distribution utilities with ownership interests in [OVEC]").

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I. Ordering a Disallowance for Imprudent Operation Does Not Undermine the Decision to Issue the PPA Rider.

AEP Ohio and Staff have taken the position that to issue a disallowance is to second-guess the PPA Rider itself. They are wrong.

Whatever the value of the PPA Rider as a hedge, AEP Ohio is obligated, by the Commission Order authorizing the Rider, to demonstrate the OVEC units are *operated* in a prudent manner. Protecting captive customers from excessive spending where neither the wholesaler or the retailer has market competition is the purpose of this audit process, which was made an express condition of approval of the anti-competitive PPA Rider. A disallowance of energy market losses incurred as a result of OVEC's uneconomic must-run bidding strategy is not just consistent with, but mandated by, the Commission Orders authorizing the PPA Rider. If the Commission could not disallow costs AEP Ohio failed to demonstrate were prudently incurred, the audit process would be rendered meaningless.

In authorizing the PPA Rider in the first place, the Commission held that disallowances are appropriate on exactly the findings made by the Auditor and Dr. Fisher here. Directly addressing concerns that OVEC would not engage as a competitive operator within the PJM marketplace, the Commission made clear: "retail cost recovery may be disallowed, following the annual prudency review, if the output from the PPA units was not bid in a manner consistent with participation in a broader competitive marketplace comprised of sellers attempting to maximize revenues," and AEP Ohio "will bear the burden of proof to demonstrate that bidding behavior is prudent and in the best interests of retail ratepayers."¹¹ In both its initial decision

¹¹ Second Entry on Rehearing, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (November 3, 2016) at ¶185. Staff witness Windle also agreed on cross-examination that "failure to prove that those bidding practices were prudent could lead to a disallowance." Tr. 1772:17-25.

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granting the PPA Rider and Order on Rehearing, the Commission has consistently reaffirmed that disallowances are possible and that AEP Ohio “*bear[s] the burden of proof* in demonstrating the prudence of *all* costs and sales during the review, as well as that such actions were in the best interest of retail ratepayers.”¹² “The PPA Rider...remains subject to adjustment during the annual audit and reconciliation, through which the Staff, or another auditor selected by the Commission, will review...the prudence of AEP Ohio’s decisions and actions.”¹³ This language is superfluous unless the Commission could disallow costs where AEP Ohio failed to carry its burden of proof. Staff witness Windle confirmed this interpretation on cross-examination as well: *all* costs—variable and fixed—are subject to this prudence determination.¹⁴

Confusion between the *existence* of the PPA Rider and the appropriateness of its *amount* based on how the plant is operated led to Staff asking the Auditor to alter the results of the audit. In the initial draft of the audit submitted to staff, the Auditor concluded: “[K]eeping the plants running does not seem to be in the best interests of the ratepayers.”¹⁵ Staff’s confusion between the *existence* of the Rider and the plants *operation* led them to ask the Auditor to remove this statement, citing the need for a “milder tone and intensity,” and the Auditor acquiesced.¹⁶ In pre-filed testimony, a staff member responsible for the request explained that he believed this

¹² Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016) at 89 (emphasis added); *accord* Second Entry on Rehearing, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (November 3, 2016) ¶178 (“AEP Ohio will bear the burden of proof, in each annual audit, to establish the prudence of all costs and sales flowing through the PPA rider and to demonstrate the Company’s actions were in the best interests of retail ratepayers.”)

¹³ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016) at 90

¹⁴ Tr. 1757-60.

¹⁵ NRDC Exhibit 2; Tr. 495:13-24.

¹⁶ Tr. 498:13-24; 1807:1-7 & NRDC Exhibit 2.

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statement was outside the scope of the audit because “whether there should be a Rider or the cost benefit metrics of the OVEC plants” had already been resolved by the Commission in its Order approving the PPA Rider.¹⁷

But the Auditor’s finding was clear and consistent with the Auditor’s charge under the Order and Opinion authorizing the PPA Rider. As Staff witness Windle acknowledged on cross-examination, the PPA Rider would still exist (and indeed, could include charges passed on to ratepayers) if the OVEC plants were not run during periods of low energy prices and, conversely, that the rider itself “could...be set at zero” consistent with the Order approving it.¹⁸ The OVEC units could have been put on reserve shutdown for the entirety of the 2018-2019 audit period and maintained solely as an insurance policy against higher energy and capacity market prices in the future, with the cost of that maintenance passed through the PPA Rider, consistent with the Commission’s prior Order. Nothing in the ICPA or the PPA Rider Order requires the OVEC units be run whenever available, without regard to energy market prices, at whatever cost to customers may result. Keeping the units running *in this way* is not in the best interest of ratepayers and neither the Auditor, Staff, nor AEP Ohio introduced any evidence to defend the commitment choices OVEC actually made during the audit period.¹⁹

Issuing a disallowance under the circumstances presented, namely, an energy market bidding strategy that is willfully ignorant of market prices and which incurs significant losses on

¹⁷ Staff Exhibit 3, Testimony of Rodney P. Windle (“Windle Testimony”) 7:8-20.

¹⁸ Tr. 1810:8-1811:8.

¹⁹ *Cf.* AEP Ohio Exhibit 1, Testimony of Jason Stegall (“Stegall Testimony”) at 11:3-22 (defending the must-run commitment strategy as “reasonable” on the grounds that the overall revenue margin for the two-year period was positive and citing a number of hypothetical factors to be considered if OVEC altered its bidding strategy).

a monthly basis, is entirely consistent with the Commission's prior orders. It does not undermine the Commission's prior finding that the OVEC plants provide capacity assurances for AEP Ohio customers to *also* conclude that the units should not be run—operated—as if they were a low-cost source of energy under ordinary conditions.

II. AEP Ohio Failed to Carry its Burden of Proof that OVEC's PJM Day-Ahead Market Bidding Strategy was Prudent with Respect to Either Commitment Status or Offer Price

As part of the PJM day-ahead energy market, generators typically offer electricity according to a price offer curve that incorporates the unit's incremental cost of production, which includes fuel, sorbents and reagents needed to operate pollution control systems, and variable operation and maintenance costs.²⁰ The difference between variable costs of electricity production and energy market revenues is typically referred to as the generator's "energy margin" over a certain period.²¹ If a unit has a negative energy margin, that means it costs more to run than the market price of electricity; the operator will have less money at the end of the period than at the beginning. Fixed costs of production (such as capital costs and fixed operation and maintenance costs) are generally not included in energy market offers.²² To cover a generating unit's capital and fixed costs, revenue earned through energy sales must exceed the variable cost of production, *i.e.* the plant must have a positive energy margin. A generator can

²⁰ See NRDC Exhibit 3, Testimony of Jeremy Fisher ("Fisher Testimony") at 12:2-8 (describing costs appropriately incorporated into energy market bids); 14:3-5 (AEP typically incorporates variable O&M into its bidding strategies).

²¹ Tr. 826:3-8 (cross-examination of AEP Ohio witness Stegall).

²² Tr. 825:14-19 (cross-examination of AEP Ohio witness Stegall).

also recoup fixed costs through the PJM capacity market, in which generation resources are compensated for their commitment to offer power into the energy market on a yearly basis.²³

Evidence produced as part of the audit and hearing failed to show that the energy market bidding of the OVEC units during the audit period was prudent for two reasons. First, the “must-run” commitment strategy used for the OVEC plants caused the plants to operate for a significant portion of the year when its variable cost of production was higher than energy market revenues, incurring a negative energy margin, and AEP Ohio failed to produce any evidence—to the Auditor, in discovery, or during the hearing—to show this persistent uneconomic commitment was nevertheless prudent. Second, certain operation and maintenance (“O&M”) costs were inappropriately classified as fixed instead of variable, leading to artificially low energy market *offers* that cause the units to be dispatched at higher levels when revenues do not cover true costs.

a. OVEC’s “Must Run” Commitment Strategy Resulted in Millions of Dollars of Avoidable Energy Market Losses.

For a significant portion of the audit period, the OVEC units incurred a negative energy margin. As a result, AEP Ohio customers paid more in energy charges for electricity from the OVEC units than they would have on the PJM energy market. The Auditor took a semi-random sample of seven months in the two-year audit period and found that in four (*i.e.* more than half) of these months the ICPA energy charge exceeded, on a dollar per megawatt hour basis, PJM energy prices.²⁴

²³ Audit at 40-41.

²⁴ Audit at 52-53. As the Auditor acknowledged, these monthly averages do not necessarily account for the full extent of energy market losses due to OVEC’s must-run commitment strategy. LEI took an average of PJM energy prices across the month and compared those to the OVEC energy charge (which, as discussed below, is equal to fuel costs). Tr. 264:1-3. These monthly averages may obscure shorter periods of a week where energy market losses exceed the start-up or shut-down costs and where net

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OVEC incurs these negative energy market margins because it commits the units at both Clifty Creek and Kyger Creek (except Clifty Creek Unit 6) as must-run without regard to energy prices.²⁵ This is not common, nor prudent, utility practice, especially because units that are committed as ‘economic’ in the PJM Day-Ahead energy market are generally guaranteed to recover their variable cost. As described by Dr. Fisher, a prudent utility (and even other AEP-owned utilities) develop multi-day forecasts of energy market clearing prices and evaluate, over a multi-day period, whether a coal unit is likely to net positive energy revenues during that period.²⁶ The utility incorporates start-up and shutdown costs into its calculation and assesses if a unit should be committed to operate, given expected costs, the potential for revenue, and the avoided cost of start-up or shutdown.²⁷

By relying on market forecasts and incorporating the cost of start-up and shut-down, a prudent coal plant operator can avoid both excessive cycling and persistent energy market losses

revenue could have been increased by shutting down the units for several days to avoid these losses. *See* Tr. 306:15-25, 314:14-19. LEI did not conduct a full re-dispatch to identify such periods, Tr. 264:6-20, but Dr. Fisher performed a 7-day-look-ahead analysis that approximated such a re-dispatch, *see* below at 12-13.

²⁵ Audit at 44; *see also* Tr. 436:22-23 (Q: [D]id you look at the data and the forecasts or whatever data AEP had and determine if their decision at the time was prudent? A: We looked at their operating procedures. I don’t think that included specific forecasts of PJM prices.” Q: “I think your answer to me right now was with regard to OVEC, is that correct?...A: Oh, I’m sorry, yes, OVEC.”); Tr. 468:13-16 (if OVEC considered demand projections from PJM or energy market prices, those would have been listed as considerations as part of OVEC’s Scheduling Department’s internal daily call, but were not so listed in the audit); Tr. 305:6-306:3. Clifty Creek Unit 6 is scheduled as “economic” status during the summer ozone season. *Id.*

²⁶ Fisher Testimony at 16:14-17:2, 18:5-20; *see also* Tr. 310:7-311:4 and 312:3-12 (Dr. Fagan described the use of profit/loss statements on cross-examination).

²⁷ Fisher Testimony at 16:20-22.

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by selectively operating the coal units only when they are anticipated to earn net revenue.²⁸ As the Auditor Dr. Fagan put it, the use of such profit and loss statements is “commonsense” for utilities.²⁹ AEP Ohio’s witness Stegall concurred that taking a plant’s “startup costs, shutdown costs and expected revenues over a period of time in committing” that plant into the day-ahead energy market is “good utility practice,” and that AEP does so with respect to the plants that it wholly owns and operates.³⁰

OVEC failed to follow good utility practice and did not operate its units so prudently during the audit period. Consistent with the procedures set forth by the OVEC Operating Committee (which includes AEP), OVEC scheduled all but Clifty Creek Unit 6 as “must-run” during all hours in which the unit was physically available during the audit period.³¹ AEP Ohio produced no documents or testimony to show that they, any of the other Sponsors, or OVEC produced or reviewed energy market forecasts or otherwise considered economic factors when adopting the must-run commitment strategy or making daily commitment decision.³² Contrary to “commonsense” utility practice, the AEP Ohio and the other Sponsors directed OVEC to operate

²⁸ See Tr. 315:16-22 (“Q:...[I]s it correct to say that a profit/loss statement can help a reasonable utility determine when to use an economic commitment status to avoid incurring negative energy margins by operating the plant? A: Yes, that’s what’s implied by our recommendation, yes.”)

²⁹ Tr. 312:3-6.

³⁰ Tr. 783:16-23, 784:11-18.

³¹ Audit at 45.

³² Fisher Testimony 20:1-12; see Tr. 436:22-23 (Q: [D]id you look at the data and the forecasts or whatever data AEP had and determine if their decision at the time was prudent? A: We looked at their operating procedures. I don’t think that included specific forecasts of PJM prices.” Q: “I think your answer to me right now was with regard to OVEC, is that correct?...A: Oh, I’m sorry, yes, OVEC.”); Tr. 468:13-16 (if OVEC considered demand projections from PJM or energy market prices, those would have been listed as considerations as part of OVEC’s Scheduling Department’s internal daily call, but were not so listed in the audit);

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all but one unit without regard to energy market prices for the entire audit period. The result of this consistent uneconomic operation was that OVEC incurred negative energy margins over sustained periods and passed those losses—or excessive variable costs not covered by energy market sales—to AEP Ohio ratepayers.

As both Dr. Fagan and Dr. Fisher found, OVEC operated its units without regard to market prices and without even considering economic forecasts, simply committing the units (except for Clifty Creek Unit 6) as must-run whenever possible without relying on any contemporaneous projections of likely energy margin. Dr. Fisher found that had OVEC relied on reasonably accurate forecasts on a rolling seven-day basis, decommitted (*i.e.* turned the plants off) or bid the units as “economic” when the forward forecast indicated negative margins in excess of the avoidable start cost, and committed the plants as must-run only when the seven-day look-ahead period showed net energy revenues, OVEC could have increased its net energy market revenues by an estimated \$ [REDACTED] over the audit period and converted an \$ [REDACTED] energy market loss to a \$ [REDACTED] positive net revenue in 2019.³³ By ignoring price signals and committing the OVEC units as must-run throughout the audit period in defiance of utility best practices, OVEC cost its Sponsors an estimated \$ [REDACTED] in fuel, reagent, and variable O&M costs that were not recouped through energy market sales, including an estimated \$3.3 million alone in fuel burned at a loss.³⁴ The Auditor did not perform a similar analysis, but

³³ NRDC Exhibit 3A, CONFIDENTIAL Testimony of Jeremy Fisher (“CONF Fisher Testimony”), at 22:9-23:5 and Confidential Table 2. To make these estimates, Dr. Fisher “ran an hourly assessment of OVEC’s production costs as provided both from information through AEP as well as from billing information and locational marginal prices on an hourly basis...and reviewed...what differential commitment decisions would have entailed for the costs of the OVEC units...relative to market[] energy prices.” Tr. 1140:2-10.

³⁴ CONF Fisher Testimony at 25:12-19.

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reaffirmed the audit findings on cross-examination, that based on the monthly “benchmark numbers,” AEP Ohio “in its role as part of the management of OVEC, should carefully examine” whether losses could be avoided by not running the plant when the units were predicted to be out of the money.³⁵

b. AEP Ohio Did Not Prove That It Took Any Actions to Mitigate OVEC’s Imprudent Energy Market Practices.

These excess *energy* charges are largely avoidable in the short-term without altering the terms of the ICPA or PPA Rider. The millions of dollars in energy market losses identified by Dr. Fagan and Dr. Fisher are not the consequence of an unlucky roll of the dice in a balanced hedge, but the result of ongoing mismanagement on the part of OVEC and its Sponsors. Specifically: OVEC and the Operating Committee do not consider energy market forecasts or otherwise compare the cost of operating the OVEC units to PJM energy market prices when making commitment decisions. The OVEC units are offered into the PJM market “irrespective of the day ahead market price.”³⁶ As a result, the OVEC units are forced to run during periods of extended economic loss. And since AEP Ohio’s OVEC costs are passed in their entirety to captive retail ratepayers, the impact of these imprudent decisions come at the detriment of AEP Ohio’s customers.

³⁵ Tr. 308-309. As AEP Ohio witness Stegall acknowledged, the true cost of OVEC’s must-run commitment strategy is not limited to monthly negative energy margins. Even when OVEC had a *positive* energy margin in a given month, this was not necessarily the “maximum energy margin that could have been achieved” with a prudent commitment strategy. Tr. 826:24-827:7. That is why a redispatch analysis of the type Dr. Fisher approximated is necessary to determine the extent of excess costs incurred by a must-run commitment strategy.

³⁶ Tr. 297:9-10.

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This non-stop must-run commitment strategy is set by the OVEC Operating Committee procedures, which have been adopted by OVEC's Sponsors, including AEP Ohio.³⁷ AEP Ohio did not provide any evidence to the Auditor or Dr. Fisher that the Operating Committee or OVEC engaged in any forecasting of energy prices or even retrospective analysis of energy market margins that would enable OVEC to commit its units to avoid these losses.³⁸ Although AEP Ohio's witness Stegall asserted, in pre-filed testimony, that a utility could and should take factors other than energy margins into account when determining unit commitment, he testified on cross-examination that he had not actually performed an analysis of these factors to see if they were applicable.³⁹

Nor did AEP Ohio provide evidence that AEP's representative on the Operating Committee made any effort to address these ongoing energy market losses on behalf of AEP Ohio ratepayers,⁴⁰ despite the fact that "the Operating Committee selects the must-run

³⁷ Audit at 44.

³⁸ See Audit at 42 (listing information discussed at OVEC's Energy Scheduling departments' internal daily call to include "applicable unit derates, potential unit liabilities, outage status, and expected unit return-to-service dates," as the basis on which OVEC "formulate[s] the DA unit offers into the PJM market"); see also Fisher Testimony 20:6-12 (neither materials produced in response to NRDC discovery requests, nor the materials reviewed during the "internal daily call" produced to LEI included cost of operating the units or forecast market prices).

³⁹ Tr. 875:1-876:18, 879:13-22 (AEP Ohio witness Stegall did not analyze the economics of the OVEC power plants over an extended period, a forecast of their long-term economics, their coal contracts or inventory, or have knowledge of the OVEC units' ramp time); see also Tr. 872:14-873:4 (Mr. Stegall raised in his testimony the possibility of a must-run commitment for reliability purposes but did not believe OVEC units were actually committed by PJM for reliability purposes during the audit period, nor had done an hourly analysis to determine whether they were).

⁴⁰ See Audit at 45 (due to their "limited scope," no agendas were prepared for the six conference calls conducted by the Operating Committee in 2018 and 2019); Fisher Testimony at 27:3-6 ("There is no record that the Company even attempted to assess or communicate, much less request, lobby, or convince other Sponsors that uneconomic commitment had impacts on Ohio customers."); Tr. 575:5-6 (AEP Ohio has "input into" the process of changing OVEC's commitment status).

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commitment.”⁴¹ AEP and its fellow Sponsors on the Operating Committee failed to make any efforts *despite* prior recommendations that Operating Committee meetings “be held more frequently to deal with...cost of serve [sic] or profit/loss statements for market-based revenues derived from the PJM markets...[to] help prevent plants running when energy prices are too low to cover variable costs.”⁴² As AEP Ohio witness Stegall testified on cross-examination, the Operating Committee (including AEP Ohio) can and has directed OVEC to change the units’ commitment strategy.⁴³

AEP Ohio and OVEC were on notice, based on *prior* audit recommendations, that reconsideration of the must-run strategy and attention to PJM market forecasts were advisable to prevent negative energy market margins.⁴⁴ But AEP Ohio and OVEC ignored the prior audit findings, AEP Ohio declined to exercise its authority as a member of the Operating Committee, and OVEC continued to operate all units (except Clifty Creek Unit 6) without regard for energy margins and the corresponding excess cost to ratepayers of uneconomic commitment. As the Commission stated when authorizing the PPA Rider, subject to audit, “AEP Ohio will bear the burden of proof in demonstrating that bidding behavior is prudent and in the best interest of retail ratepayers.”⁴⁵ AEP Ohio has not met this burden.

⁴¹ Tr. 873:5-10 (cross-examination of AEP Ohio witness Stegall).

⁴² Audit at 53.

⁴³ Tr. 883:25-884:2.

⁴⁴ *See* Audit at 54 (“Recommendation from previous audit: LEI recommends that OVEC OC meetings should be held more frequently to deal with updates on each plant’s operating performance, cost of serve or profit/loss statements for market-based revenues derived from the PJM markets in a timelier manner. This may help prevent plants running when energy prices are too low to cover variable costs.”); Tr. 919:19-920:3 (in response to prior audit recommendations the Operating Committee added six conference calls over the two-year audit period).

⁴⁵ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016) at 89.

c. OVEC's Energy Market Bidding Strategy Understated Variable Non-Fuel Costs, Both Increasing and Obscuring Energy Market Losses

The losses—and correspondingly increased costs for AEP Ohio customers—described above are the difference between OVEC's energy charge and revenue for energy sales on the PJM market. OVEC's energy charge includes the cost of fuel, chemical reagents for emission controls, and emission allowances.⁴⁶ But running Clifty Creek and Kyger Creek incurs more variable costs than simply fuel, reagents, and allowances. Variable operating costs—that is, costs that change depending on how much a plant is operated—include water, waste, and maintenance materials.⁴⁷ The National Energy Technology Laboratory of the U.S. Department of Energy estimates that for a subcritical coal unit like Clifty Creek or Kyger Creek, these costs total \$4.24/MWh.⁴⁸ None of these costs are assessed as part of OVEC's energy charge, and according to documents produced in discovery [REDACTED]

[REDACTED],⁴⁹ The energy charge only covers fuel and reagent costs; all other variable costs are included as part of the demand charge.⁵⁰

The impact of OVEC's [REDACTED] the costs of water or continuous maintenance in either [REDACTED] or the energy charge to Sponsors is twofold. First: The energy market losses discussed above—*i.e.* the difference between energy charges to Sponsors and PJM market revenue—understate excess costs AEP Ohio customers pay for electricity from the OVEC plants

⁴⁶ Fisher Testimony at 9:5-7 (citing Section 5.021 of the ICPA).

⁴⁷ Fisher Testimony at 9:9-13 (citing the National Energy Technology Laboratory. Cost and Performance Baseline for Fossil Energy Plants: Volume 1: Bituminous Coal and Natural Gas to Electricity. September 24, 2019. Page 443.).

⁴⁸ *Id.* at 9:13-17.

⁴⁹ CONF Fisher Testimony at 9:23-10:8.

⁵⁰ Tr. 332:13-17.

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as compared to the market price of energy. To fully and accurately assess the extent of negative energy market margins at the OVEC plants, as Dr. Fagan testified, a re-dispatch analysis should include all variable O&M, and any variable portion of waste handling and water usage.⁵¹ None of these costs are included in the energy charge used by Dr. Fagan to assess energy market losses for the OVEC units during the audit period. As the Auditor acknowledged on cross-examination, PJM energy prices were not enough “in the months [the Auditor] looked at... on average” to cover fuel costs alone,⁵² much less the total variable costs associated with operating the plants. Because some of the variable costs of operating the OVEC units are improperly classified as fixed, a portion of the losses due to uneconomic operation of the unit flow to the OVEC demand charge and are not included within the losses identified by the Auditor which are based solely on comparing energy charge to PJM prices.

Second, OVEC’s policy [REDACTED] is itself imprudent and results in uneconomic dispatch of the OVEC units. OVEC only incorporates the cost of [REDACTED] in its PJM energy market bids.⁵³ Although the OVEC units are, as discussed above, committed as “must-run” whenever physically available, the units are *dispatched* above that economic minimum⁵⁴ by the grid operator PJM based on an offer price curve. Dr. Fisher estimated that variable O&M costs identified by the National Energy

⁵¹ Tr. 336:4-337:9.

⁵² See Tr. 264:2-11.

⁵³ Fisher Testimony Exhibit JIF-6, OVEC-IKEC PJM Fuel Cost Policy, October 2017, at 10 [REDACTED]

⁵⁴ The economic minimum is “the lowest level of stable output” for a thermal generating unit. Tr. 811:16-20.

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Technology Laboratory as variable but reported as fixed charges in OVEC's billing statements to Sponsors increase the incremental cost of operating the OVEC units by about [REDACTED].⁵⁵ By submitting offer price curves that [REDACTED], OVEC and its Sponsors are intentionally causing the plants to be dispatched at higher generation levels when any increase in generation above the economic minimum actually costs OVEC, its Sponsors, and AEP Ohio ratepayers more in variable costs than revenue received for this marginal increase in generation.

In sum, OVEC's imprudence is not limited to use of a must-run commitment strategy that is entirely unresponsive to market signals. OVEC also imprudently and improperly classified variable costs as fixed both for billing its Sponsors (disguising the extent of its energy market losses) and [REDACTED] (amplifying energy market losses beyond the plants' economic minimum).

d. The Commission Should Disallow \$ [REDACTED] Million in Avoidable PJM Energy Market Losses for the 2018-2019 Audit Period

Despite Staff interference in the final audit report, the facts in the audit (and the additional information adduced by Dr. Fisher) still stand: AEP Ohio has not proven that OVEC's must-run energy market bidding strategy benefits ratepayers. AEP Ohio and OVEC's other Sponsors employed a must-run commitment "strategy" at the units that failed to maximize revenue and that is out-of-step with utility best practices. AEP Ohio and OVEC presented no evidence of economic forecasting or retrospective analysis to predict or assess the performance of this strategy in the PJM market. As the Auditor reaffirmed on cross-examination, "the impact on ratepayers...weighs against [the OVEC plants] operating in the way they have been."⁵⁶

⁵⁵ Fisher Testimony at 12:17-13:6.

⁵⁶ Tr. 342:12-17.

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OVEC (and AEP Ohio, as a Sponsor with the ability to direct OVEC's operation) ran Clifty Creek and Kyger Creek without any regard for ratepayer cost. This is precisely the scenario the Commission sought to avoid in imposing the annual audit as a condition of the PPA Rider.

While the OVEC units could in theory (however unlikely) offer a hedge against a major reversal in the energy market that makes coal units economic relative to other forms of generation, *during the audit period* the OVEC units were run imprudently, incurring excessive costs. The Commission was clear when it authorized the OVEC hedge who should pay such costs: shareholders, not customers. AEP Ohio has not met its burden to show that OVEC adopted a prudent market bidding strategy during the audit period or that AEP Ohio, as a Sponsor, made any effort to protect customers from imprudently incurred energy market losses. As shown by Dr. Fisher, a reasonable estimate of the avoidable energy market losses incurred due to OVEC's uneconomic must-run bidding strategy is \$ [REDACTED]. As a 19.3% shareholder of the ICPA, AEP's Ohio proportion of these losses is \$ [REDACTED]. The Commission should protect customers and disallow this \$ [REDACTED] in excess energy charges AEP Ohio incurred through the PPA Rider due to OVEC's imprudent commitment strategy.

III. Notwithstanding AEP Ohio's Underreporting of Fixed Costs at the OVEC Units, Capital Expenditures at Clifty Creek and Kyger Creek were Excessive and Should be Capped Going Forward

Dr. Fisher also found discrepancies in AEP Ohio's reporting of *fixed* expenditures during the audit period. In its publicly-available Annual Report, OVEC reported maintenance and non-fuel operation expenses of \$172.6 and \$178.8 million in 2018 and 2019 respectively, during the audit period.⁵⁷ Dr. Fisher found that these values were [REDACTED] through

⁵⁷ Fisher Testimony at 43:6-9 (citing OVEC Annual Report, 2019 *available online at* <https://www.ovec.com/FinancialStatements/AnnualReport-2019-Signed.pdf>, at 7).

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the ICPA.⁵⁸ AEP Ohio, however, reported [REDACTED]—\$73.4 million, on average—in annual O&M costs for the same period.⁵⁹ Dr. Fisher confirmed the discrepancy further by reviewing the Auditor’s “spot checks”—which examined O&M expenses included as part of the demand charge—and determining these partial totals were consistent with the larger number reported by OVEC and billed to Sponsors.⁶⁰ This discrepancy calls into question the integrity of the audit process; either AEP Ohio misrepresented the true extent of OVEC’s capital expenditures, or the Auditor misstated those costs.

The magnitude of the discrepancy also calls into question whether this O&M spending was prudent. LEI found that capital expenditures during the audit period underwent a “fairly prudent evaluation *process*,” but questioned whether “the *level* of capital spending” was “justified by the revenues earned in PJM.”⁶¹ LEI expressed this skepticism based on the false premise that O&M expenditures were “on the lower end of industry average.”⁶² In fact, O&M expenditures by OVEC were more than twice what LEI inferred based on the inaccurate information provided by AEP Ohio. Correctly tabulated, O&M costs were approximately \$60/kW-year—more than 50% *higher* than the industry average cited by LEI.

⁵⁸ *Id.* at 43:9.

⁵⁹ *Id.* at 42:10-12 (citing LEI Audit, page 100).

⁶⁰ *Id.* at 43:11-17 (citing LEI Audit Figure 10).

⁶¹ Audit at 96 (emphases added).

⁶² Audit at 100, citing EIA. *Capital Cost and Performance Characteristic Estimates for Utility Scale Electric Power Generating Technologies*. February 2020. LEI found that Clifty Creek and Kyger Creek had O&M costs of \$29.43/kW-year and \$32.21/kW-year, respectively, as compared to \$40.58/kW-year for a 650 MW nominal capacity ultra supercritical coal plant. Note, however, that Dr. Fagan conceded on cross-examination that the OVEC plants used an older technology than ultra-supercritical coal combustion and so this number reflected a “benchmark” rather than an “average.” Tr. 597:2-9.

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Even without the information identified by Dr. Fisher, the Auditor found that the level of capital investment in the Eisenhower-era OVEC plants was out of step with general market practices, observing that, “[m]ost coal plants of similar size as Clifty Creek and Kyger Creek” are planned to retire in the foreseeable future “due to economic viability issues...and are therefore having limited capital investments.”⁶³ Absent market change, the Auditor suggested, Clifty Creek and Kyger Creek are unlikely to remain economically viable. Thus, to avoid “over-investment in the plants,” in the absence of ongoing Commission oversight of capital expenditures charged to the PPA Rider, the audit found a cap on annual expenditures “would be prudent.”⁶⁴

Quite literally, OVEC’s maintenance and operations expenses don’t add up. AEP Ohio failed to justify, and may have failed to disclose, the extent of capital expenditure at the OVEC units during the audit period. Alternatively, it appears the Auditor failed to check the reasonableness of the total O&M expenses based on a “spot check” that was obviously inconsistent with the reported total. In any case, the Auditor raised concerns about the magnitude of capital spending at the OVEC units based on a dramatic understatement of the true costs. The Commission should adopt the Auditor’s recommendation of a cap on annual expenditures and warn AEP Ohio that it cannot meet its burden to prove the prudence of expenses if those expenses are not disclosed, or if AEP Ohio misrepresents the total costs associated with the OVEC plants as part of the audit process.⁶⁵

⁶³ Audit at 96.

⁶⁴ Audit at 10, 92.

⁶⁵ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM at 89 (emphasis added).

IV. The PPA Rider is Not in Best Interests of AEP Ohio Ratepayers

The Commission, in authorizing the PPA Rider, intended for it serve as “a financial hedging mechanism” that would “smooth out fluctuations in market prices.”⁶⁶ The PPA Rider purports to serve this purpose by authorizing pass-through rate treatment of the demand and energy charges associated with the OVEC ICPA in lieu of two market services: capacity and energy. Ratepayers—in theory—avoid steep rate increases by AEP Ohio having locked in lower capacity and energy costs through the ICPA. But ratepayers have not realized this hypothesized benefit and nothing in the record currently before the Commission suggests they will in the future.

As Dr. Fisher found, the total cost of the OVEC contract (demand and energy) exceeded the price of capacity and energy in the PJM market, both over the entire audit period and on a monthly basis from March 2018 through December 2019.⁶⁷ The Auditor, although considering a far more limited seven month sample during the audit period, reached the same conclusion: “the ICPA costs AEP Ohio more than the value of the OVEC plants’ energy and capacity in the PJM market.”⁶⁸ AEP Ohio customers paid more per megawatt-hour of electricity because AEP Ohio had committed to purchasing overpriced energy and capacity from OVEC rather than the PJM market.⁶⁹

⁶⁶ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM, March 31, 2016, page 94; *see also* PUCO Docket 16-1852-EL-SSO, Opinion and Order, April 25, 2018, paragraph 252.

⁶⁷ Fisher Testimony Figure 3 and 37:4-13. Dr. Fagan testified the PPA Rider was a charge in 23 of the 24 months covered by the audit period (all but January 2018). Tr. 378:20-23.

⁶⁸ Audit at 31.

⁶⁹ Tr. 299:5-10.

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The persistence of these losses and energy market trends that have increased the cost of coal generation relative to other resources suggest that the OVEC units will continue to raise customers' electricity bills for the foreseeable future, as long as AEP Ohio is able to pass through above-market costs of generation and maintenance at the units through a rider.⁷⁰ Consistent with Dr. Fisher's findings, the Auditor urged "regulators" in the final audit "[to] re-examine the ongoing approval of the PPA Rider retail cost recovery mechanism" in light of the possibility that "AEP Ohio customers could be locked into paying a premium for energy and capacity from the OVEC plants for up to another 20 years" if the costs of the ICPA continue to be passed through.⁷¹ The Auditor also confirmed, under cross-examination, that it would be "cheaper to build a new [combined-cycle gas plant] to meet demand in PJM than to have the OVEC plants going forward," making the plants economically unviable on a going-forward basis.⁷²

In short, "keeping the plants running does not seem to be in the best interests of the ratepayers."⁷³ This statement is true both with respect to the Operating Committee's must-run commitment strategy (which keeps the plants "running" on a daily basis regardless of energy market losses) and the long-term economic viability of the OVEC units. Tellingly, the Auditor's initial response to Staff's request to change the tone of this finding was to make an even broader statement about the value of the OVEC units to ratepayers. After removing the statement about "keeping the plants running," the Auditor included, in a draft version dated September 9, 2020

⁷⁰ See Fisher Testimony 17:10-14; Audit at 96 (observing that most coal plants of the size and age of Clifty Creek and Kyger Creek have retired or their operators are in the process of planning deactivation).

⁷¹ Audit at 31.

⁷² Tr. 381:10-21, 382:17-383:7 ("it's cheaper to build a new CCGT to meet demand in PJM than to have the OVEC plants going forward").

⁷³ NRDC Exhibit 2; Tr. 495:13-24.

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and sent to AEP Ohio for confidentiality review, the statement: “[T]he OVEC contract overall is not in the best interest of AEP Ohio ratepayers.”⁷⁴ That statement, too, was removed from the final audit.⁷⁵ Even so, the audit still urges the Commission to consider the possibility of retirement rather than keeping the plants running on an open-ended basis.⁷⁶

The Commission should take up this invitation. The record is clear that energy and capacity from the OVEC units were a bad deal for customers during the audit period, and the Commission should be clear going forward, as they were in authorizing the PPA Rider and imposing the audit procedure, that AEP Ohio customers are not to be treated as a “trust account” for antiquated plants untethered to PJM energy market competition.⁷⁷

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Respectfully submitted,

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⁷⁴ Tr. 176:21-177:9; 504:13-505:15.

⁷⁵ Tr. 505:16-24.

⁷⁶ Audit at 96.

⁷⁷ Opinion and Order, Case Nos. 14-1693-EL-RDR and 14-1694-EL-AAM (March 31, 2016), Concurring Opinion of Commissioner Asim Haque, at 5.

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CERTIFICATE OF SERVICE

In accordance with Rule 4901-1-05, Ohio Administrative Code, the PUCO's e-filing system will electronically serve notice of the filing of this document upon the following parties. In addition, I hereby certify that a service copy of the foregoing *Initial Post-Hearing Brief of the Natural Resources Defense Council* was sent by, or on behalf of, the undersigned counsel to the following parties of record this 18th day of March, 2022, via electronic transmission.

/s/Robert Dove

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