***OCC EXHIBIT\_\_\_\_\_\_\_***

**BEFORE**

**PUBLIC UTILITIES COMMISSION OF OHIO**

|  |  |  |
| --- | --- | --- |
| In the Matter of The Commission’s  Investigation into AES Ohio’s Compliance with the Ohio  Administrative Code and Potential  Remedial Action. | )  )  )  )  ) | Case No. 21-1220-EL-UNC |

**DIRECT TESTIMONY**

**OF**

**ANDREW R. TINKHAM**

**On Behalf of**

**Office of the Ohio Consumers’ Counsel**

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**May 16, 2024**

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# I. Introduction and Purpose of Testimony

***Q1. Please state your name, position, and business address.***

***A1.*** My name is Andrew R. Tinkham. My business address is 65 East State Street, Suite 700, Columbus, Ohio 43215. I am a Utility Consumer Program Specialist with the Office of the Ohio Consumers’ Counsel (“OCC”).

***Q2.*** ***PLEASE BRIEFLY SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.***

***A2.*** I am a 1996 graduate of Otterbein College, in Westerville, Ohio, with a Bachelor of Arts degree in History. My professional experience includes six years in the telecom industry and 18 years of utility regulatory experience with OCC.

After joining OCC in 2002, I initially served as a Compliance Investigator. My duties included researching and resolving residential consumers’ hotline inquiries and complaints involving Ohio regulated utilities. In 2006, I became a Senior Outreach and Education Specialist. My role included providing public presentations on utility assistance programs, energy choice and consumers’ rights. I also educated local agencies and organizations on utility rules.

After a brief period away, I rejoined the OCC in 2014 as a Senior Outreach and Education Specialist. My duties were similar to my role as an Outreach and Education Specialist. In 2022, I was promoted to my current position as a Utility Consumer Program Specialist.

***Q3. WHAT ARE YOUR RESPONSIBILITIES AS A UTILITY CONSUMER PROGRAM SPECIALIST?***

***A3.*** As a Utility Consumer Program Specialist, I provide policy recommendations in contested cases and rulemaking proceedings at the Public Utilities Commission of Ohio (“PUCO”) and the Ohio Department of Development. Those policy recommendations involve advocacy for better residential consumer protections, affordability of utility rates, and reasonable access to essential utility service. Also, I represent the OCC on the Public Benefits Advisory Board (“PBAB”).

***Q4. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUCO?***

***A4.*** Yes. I have filed testimony in the following five cases: 22-179-GA-ATA (Opposition to the Joint Settlement and Recommendation), 22-1094-WW-AIR (Direct Testimony), 23-23-EL-SSO (Direct Testimony and Testimony Recommending Modification of the Stipulation), 23-154-GA-AIR (Direct Testimony, and 23-720-GE-UNC (Opposition to the Joint Settlement and Recommendation).

***Q5. What is the purpose and scope of your testimony?***

***A5.*** The purpose of my testimony is to explain and support OCC’s position and recommendations protecting residential consumers as it relates to the Joint Stipulation and Recommendation (“Settlement”) filed in these proceedings on December 9, 2021.[[1]](#footnote-1) As part of my analysis, I reviewed the Settlement, discovery responses from AES in this case and from other cases, and filings by AES in other PUCO cases. I then applied the PUCO’s three-prong test for evaluating settlements. OCC opposes the Settlement between AES and the PUCO Staff and recommends that the PUCO reject the Settlement.

***Q6.* *CAN YOU BRIEFLY SUMMARIZE THE MAJOR PROVISIONS OF THE SETTLEMENT FILED BY THE PUCO STAFF AND AES IN THIS PROCEEDING?***

***A6.*** Yes. The Settlement purports to resolve AES’s violations of the PUCO’s reliability standards during 2019-2020. The major provisions of the Settlement provide:

* AES will use its best efforts to comply with the Customer Average Interruption Duration Index standard in the future; and
* AES agreed to a forfeiture in the amount of $10,000, plus an additional $20,000 payable if AES does not meet its Customer Average Interruption Duration Index standard in either 2021 or 2022.

***Q7. CAN YOU BRIEFLY SUMMARIZE THE REASONS WHY YOU RECOMMEND THAT THE PUCO REJECT THE SETTLEMENT?***

***A7.*** The PUCO must analyze a settlement and decide the following: (1) Is the Settlement a product of serious bargaining among capable, knowledgeable parties representing diverse interests? (2) Does the Settlement, as a package, benefit customers and the public interest? and (3) Does the Settlement violate any important regulatory principles or practices? The Settlement in the present case

fails to meet any of these criteria.

The Settlement violates the first prong of the three-prong test because it is not a product of serious bargaining among capable, knowledgeable parties representing diverse interests. The Settlement fails the first prong because AES and PUCO Staff never invited OCC to participate in settlement negotiations prior to entering into the Settlement. After reaching the Settlement, the terms of the agreement required both parties to defend its terms. After OCC intervened in this case, AES and PUCO Staff should have rescinded the Settlement and started settlement negotiations from scratch, with OCC as a full participant in the settlement negotiations. In addition, PUCO Staff and AES do not represent diverse interests because OCC is the only party whose sole function is to represent residential consumers.

The Settlement violates the second prong of the three-prong test because it does not benefit consumers and the public interest. The amount of the forfeiture is too low in light of all the facts and circumstances underlying AES’s violations of the PUCO’s reliability standards. I discuss these underlying facts and circumstances in my testimony.

In addition, the Settlement does not benefit consumers and the public interest because it does not require AES to pay restitution in addition to the amount of the forfeiture. Finally, the Settlement does not provide for the forfeiture amount to be paid in a way that benefits consumers.

The Settlement violates the third prong of the three-prong test because the Settlement violates important regulatory principles and practices. First, the low amount of the forfeiture is inconsistent with the established regulatory principle and practice of strict enforcement and substantial penalties for violations of O.A.C. Chapter 4901:1-10-10. Second, the PUCO failed to require AES to pay restitution even though the PUCO has required restitution in other similar cases. Third, the PUCO failed to use the Interruption Cost Estimator to help determine the amount of the forfeiture. This tool is used to measure the benefit of reliable service when reviewing cost/benefit analyses in grid modernization cases. The PUCO should have used it here to place a value of the loss of reliable service which AES consumers suffered.

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# II. AES’S DUTY TO PROVIDE SAFE, ADEQUATE AND RELIABLE ELECTRIC SERVICE AT A REASONABLE COST AND THE PUCO’S MISSION

***Q8. DOES AES HAVE A DUTY TO PROVIDE RELIABLE ELECTRIC SERVICE?***

***A8.*** Yes. Under R.C. 4905.22 and R.C. 4928.02(A), AES has a duty to provide safe, adequate and reliable electric service at a reasonable cost.

***Q9. DOES OHIO HAVE ANY STATE POLICY CONCERNING THE RELIABILITY OF ELECTRIC SERVICE PROVIDED BY ELECTRIC UTILITIES?***

***A9.*** Yes. R.C. 4928.02 states “It is the *policy of this state* to do the following *throughout this state* (A) Ensure the availability to consumers of adequate, *reliable*, safe, efficient, nondiscriminatory, and reasonably priced retail electric service.”[[2]](#footnote-2)

***Q10. DOES THE PUCO PLAY ANY ROLE IN PROTECTING OHIO CONSUMERS’ RIGHT TO RECEIVE SAFE, ADEQUATE AND RELIABLE ELECTRIC SERVICE?***

***A10.*** Yes. The PUCO is responsible and obligated under R.C. 4928.11(A) to protect Ohioans by adopting rules that specify the minimum service quality, safety, and reliability requirements for electric services supplied by the Ohio electric distribution utilities (“EDUs”). And R.C. 4928.11(B) grants the PUCO authority to enforce EDU compliance with its minimum service quality, safety, and reliability requirements.

The PUCO communicates its obligation to the public for protecting consumers on its web page describing its mission as follows:

Our mission is to assure all residential and business consumers access to adequate, safe and reliable utility services at fair prices, while facilitating an environment that provides competitive choices.

The mission is accomplished by:

* Mandating the availability of adequate, safe and reliable utility service to all business, industrial and residential consumers.

Ensuring financial integrity and service reliability in the Ohio utility industry.[[3]](#footnote-3)

***Q11. DID THE PUCO CARRY OUT ITS RESPONSIBILITY UNDER OHIO LAW AND ITS MISSION TO PROTECT THE RIGHT OF AES CONSUMERS TO RECEIVE RELIABLE ELECTRIC SERVICE BY AGREEING TO A $10,000 FORFEITURE IN THIS CASE?***

***A11.*** No. The low amount of the forfeiture is not appropriate based on the circumstances of this case. Due to the low amount of the forfeiture, the PUCO has failed its responsibility to adequately enforce the service quality rules that are intended to protect consumers’ right to a minimum level of electric service standards and its mission to protect AES consumers’ right to receive reliable electric service.

***Q12. YOU STATED THAT STATE POLICY IS TO ENSURE THAT CONSUMERS “THROUGHOUT THIS STATE” WILL HAVE ACCESS TO RELIABLE ELECTRIC SERVICE. BY ONLY IMPOSING A $10,000 FORFEITURE, WOULD THE PUCO BE IMPLEMENTING THIS STATE POLICY FOR AES CONSUMERS?***

***A12.*** No, it would not. The PUCO Staff’s $10,000 forfeiture is too low under the circumstances of this case. Such a low forfeiture will only encourage AES to continue to provide its consumers with inadequate service as compared to the services provided by other EDUs to Ohioans “throughout the state.”[[4]](#footnote-4) The PUCO has failed to implement this state policy for the protection of AES consumers.

# III. **PUCO RULES AND REPORTING REQUIREMENTS RELATING TO THE RELIABILITY OF ELECTRIC SERVICE**

***Q13. CAN YOU SUMMARIZE THE RULES AND REPORTING REQUIREMENTS THAT THE PUCO HAS ADOPTED UNDER R. C. 4928.11 RELATING TO AN ELECTRIC UTILITY’S DUTY TO PROVIDE RELIABLE ELECTRIC SERVICE?***

***A13.*** Yes. These rules are found in the minimum Electric Service and Safety Standards (“ESSS”) rules contained within O.A.C. Chapter 4901:1-10. The following rules (and reporting requirements) are relevant to this case:

* O.A.C. 4901:1-10-10 – this rule requires electric distribution utilities to achieve minimum performance levels relating to service reliability. Utilities must file an annual report with the PUCO by March 31st of every year. The reports must state whether the utility has met these minimum performance standards during the prior year. If the utility fails to meet the minimum performance standard in a given year, then the utility must submit an action plan explaining why it missed the minimum performance standard and what remedial actions it will take to improve its performance. The annual March 31st report is sometimes referred to as the “Rule 10 Report.”
* O.A.C. 4901:1-10-26 – this rule requires electric distribution utilities to file an annual system improvement plan. Utilities must file an annual report with the PUCO by March 31st of every year. The plan must provide details on how the utility expects to comply with the PUCO’s minimum performance standards pertaining to inspection, maintenance, repair and replacement of its distribution system. The plan must include the utility’s projected vs. actual distribution capital expense and operations and maintenance spending. In addition, the report must review the utility’s performance relative to its prior year’s plan. This annual March 31st report is sometimes referred to as the “Rule 26 Report.”

***Q14.* *PLEASE EXPLAIN THE PUCO’S MINIMUM RELIABILITY PERFORMANCE STANDARDS UNDER OAC 4901:1-10-10.***

***A14.*** O.A.C. 4901:1-10-10 establishes two minimum electric distribution reliability performance standards: (1) the Customer Average Interruption Duration Index (“CAIDI”); and (2) the System Average Frequency Index (“SAIFI”). Both standards are calculated excluding outages associated with major event days defined under OAC 4901:1-10-01(T), transmission caused interruptions, and outages with durations under five minutes. These two standards were developed by the Institute of Electrical and Electronics Engineers.

These standards are often considered as the “blue sky” standards because they measure reliability performance under normal day-to-day operating conditions and normal weather. These standards provide a uniform and objective method for measuring service reliability. This case involves AES’s violation of the Customer Average Interruption Duration Index in 2019 and 2020. O.A.C. 4901:1-10-10(E) states: “Failure to meet the same performance standard for two consecutive years shall constitute a violation of this rule.”

***Q15.* WHAT WAS THE CUSTOMER AVERAGE INTERRUPTION DURATION INDEX STANDARD APPLICABLE TO AES IN 2019 AND 2020?**

***A15.*** The Customer Average Interruption Duration Index standard for AES for 2019

and 2020 was 125.04 minutes. This standard was established in 2013 in Case No. 12-1832-EL-ESS.[[5]](#footnote-5)

***Q16.*** ***WHEN THE PUCO APPROVED THE CUSTOMER AVERAGE INTERRUPTION DURATION INDEX OF 125.04 MINUTES FOR AES IN 2013, WHAT DIRECTION DID THE PUCO GIVE AES REGARDING IMPLEMENTATION OF THIS STANDARD?***

***A16.*** The PUCO’s 2013 Order directed AES to “take all necessary steps” to implement the new Customer Average Interruption Duration Index standard of 125.04 minutes.[[6]](#footnote-6)

***Q17.* *PLEASE EXPLAIN THE CUSTOMER AVERAGE INTERRUPTION DURATION INDEX.***

***A17.*** The Customer Average Interruption Duration Index measures how much time (on average) the utility needed to restore electric service for the outages consumers experienced during the prior year. The Customer Average Interruption Duration Index is determined by dividing the total customer minutes interrupted (“CMI”) by the total number of customers interrupted (“CI”).

***Q18. ARE THE RULE 10 REPORTS RELEVANT AND, IF SO, WHICH ARE RELEVANT TO AES’S RULE VIOLATION IN THIS CASE?***

***A18.*** Yes. The Rule 10 Reports are relevant because, among other reporting requirements, they show the Customer Average Interruption Duration Index in effect for each year. They also show AES’s actual performance. These reports therefore show AES’s violation of O.A.C. 4901:1-10-10. The reports are also important because they discuss the number of outages and the cause for each outage. The following Rule 10 Reports are relevant to AES’s rule violation in this case:

* Attachment ART-A - AES’s Annual Report Pursuant to Rule 4901:1-10-10 Electric Distribution System Reliability for the year 2017, filed in Case No. 18-995-EL-ESS.
* Attachment ART-B - AES’s Annual Report Pursuant to Rule 4901:1-10-10 Electric Distribution System Reliability for the year 2019, filed in Case No. 20-995-EL-ESS.
* Attachment ART-C - AES’s Annual Report Pursuant to Rule 4901:1-10-10 Electric Distribution System Reliability for the year 2020, filed in Case No. 21-995-EL-ESS.

***Q19. ARE THE RULE 26 REPORTS RELEVANT AND, IF SO, WHICH ARE RELEVANT TO AES’S RULE VIOLATION IN THIS CASE?***

***A19.*** Yes. The Rule 26 Reports are relevant because they show when and how AES failed to follow its PUCO-approved plans for the inspection, maintenance, repair and replacement of its transmission and distribution.[[7]](#footnote-7) I will discuss the following Rule 26 Reports because they are relevant to the conditions which existed leading up to AES’s violation of the Customer Average Interruption Duration Index:

* Attachment ART-D - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2002), filed in Case No. 03-1000-EL-ESS;
* Attachment ART-E - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2012), filed in Case No. 13-1000-EL-ESS;
* Attachment ART-F - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2017), filed in Case No. 18-1000-EL-ESS;
* Attachment ART-G - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2018), filed in Case No. 19-1000-EL-ESS;
* Attachment ART-H - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2019); filed in Case No. 20-1000-EL-ESS; and
* Attachment ART-I - AES’s Annual Report Pursuant to Rule 4901:1-10-26 Annual System Improvement Plan (covering the year 2020), filed in Case No. 21-1000-EL-SSS.

***Q20. WHY ARE THE PRE-2019 RULE 26 REPORTS RELEVANT TO THIS CASE?***

***A20.*** The pre-2019 Rule 26 reports are relevant because they show AES’s plan for maintaining reliable service during the years leading up to 2019-2020. The reports show AES’s plan relating to: (1) how much capital investment was budgeted (and actually spent) each year to replace aged equipment; (2) the types of equipment which needed to be replaced; and (3) the amount of tree trimming needed (and actually performed) each year.

The reports are relevant to show that AES became aware several years ago that certain defective equipment was causing outages, but AES failed to remove the defective equipment in a timely manner. This defective equipment was the main cause of the rule violation in 2019-2020.

The reports also show how AES failed to complete its tree trimming program in 2017 (and later years), which increased the risk of outages and made the outages more difficult to mitigate. This was also a major cause of the rule violation in 2019-2020.

The pre-2019 Rule 26 reports are relevant for the PUCO to decide the appropriate amount of the forfeiture in this case. In deciding the forfeiture, the PUCO should consider that AES’s violation of the PUCO’s rules were the foreseeable result of AES’s failure to replace the defective equipment in a timely manner and AES’s failure to complete its tree trimming programs in 2017-2020.

***Q21. WHY IS THE POST-2020 RULE 26 REPORT RELEVANT TO THIS CASE?***

***A21.*** I discuss one post-2020 Rule 26 report. This is the Rule 26 report filed in 2021 (Attachment H). This post-2020 Rule 26 report is relevant because it shows the actions taken by AES to attempt to comply with the Customer Average Interruption Duration Index during 2020.

# IV. **AES’S VIOLATION OF THE PUCO’S MINIMUM PERFORMANCE STANDARDS FOR ELECTRIC RELIABILITY**

***Q22. DID AES VIOLATE THE PUCO’S MINIMUM PERFORMANCE STANDARDS FOR ELECTRIC RELIABILITY DURING THE PERIOD LEADING UP TO AND INCLUDING 2019-2020?***

***A22.*** Yes. AES violated the PUCO’s Customer Average Interruption Duration Index standard during 2017, 2019 and 2020. The table below shows the minimum performance level and AES’s actual performance on the Customer Average Interruption Duration Index standard during 2017 – 2020. The applicable standard and AES’s actual score is found at page 2 of Attachments A through C and is summarized below:

**Table 1 – AES** Customer Average

Interruption Duration Index **Violation 2017-2020**

|  |  |  |
| --- | --- | --- |
| **Year** | **PUCO**  **Requirement**  **(in minutes)** | **Actual**  **Performance**  **(in minutes)** |
| 2017 | 125.04 | 133.07\* |
| 2018 | 125.04 | 118.41 |
| 2019 | 125.04 | 133.29\* |
| 2020 | 125.04 | 132.17\* |
| \* denotes rule violation | | |

# V. DISCUSSION OF THE PUCO’S THREE-PRONG TEST FOR REVIEWING SETTLEMENTS

***Q23.* *WHAT THREE FACTORS DOES THE PUCO EVALUATE IN DECIDING WHETHER TO APPROVE A SETTLEMENT?***

***A23.*** It is my understanding that the PUCO will approve a settlement only if it meets all of the three criteria delineated below. The PUCO must analyze a settlement and decide the following: (1) Is the Settlement a product of serious bargaining among capable, knowledgeable parties representing diverse interests? (2) Does the Settlement, as a package, benefit customers and the public interest? and (3) Does the Settlement violate any important regulatory principles or practices?

***Q24.* *DOES THE SETTLEMENT FILED IN THIS PROCEEDING MEET ALL THREE CRITERIA?***

***A24.*** No. The Settlement does not meet any of these criteria.

***Q25. WHY DOES THE SETTLEMENT NOT SATISFY THE FIRST PRONG OF THE THREE-PRONG TEST. IN OTHER WORDS, WHY IS*** ***THE SETTLEMENT NOT A PRODUCT OF SERIOUS BARGAINING AMONG CAPABLE, KNOWLEDGEABLE PARTIES REPRESENTING DIVERSE INTERESTS?***

***A25.*** The Settlement does not satisfy the first prong of the three-prong test because all interested parties were not given an opportunity to participate in the settlement negotiations. There is also no indication that any serious bargaining occurred.

***Q26. WHY DO YOU CONCLUDE THAT INTERESTED PARTIES WERE NOT GIVEN AN OPPORTUNITY TO PARTICIPATE IN THE SETTLEMENT NEGOTIATIONS?***

***A26.*** The Settlement is between AES and PUCO Staff.[[8]](#footnote-8) The PUCO opened this case on December 9, 2021.[[9]](#footnote-9) And the Settlement was filed on the very same day.[[10]](#footnote-10) Neither AES nor PUCO Staff contacted OCC to engage in settlement negotiations prior to filing the Settlement on December 9, 2021 despite knowing that OCC would have a keen interest in these issues concerning residential consumers of AES. These are the type of exclusionary settlement meetings that are disfavored by the Ohio Supreme Court, where an entire class of consumers were intentionally excluded from settlement meetings.

PUCO proceedings and documents must be public.[[11]](#footnote-11) But in this case, the Settlement was reached after negotiations occurred between AES and the PUCO Staff behind closed doors.There was no opportunity for stakeholders to participate, including the OCC, who represents the interests of residential consumers harmed by AES’s inadequate service.

The Settlement did not even become public until AES and the PUCO Staff filed it in the docket opening this case. Because OCC was excluded from the negotiations, the Settlement should not be considered a product of serious bargaining.

The Settlement fails the first prong of the PUCO’s settlement test, and it should be rejected.

***Q27.* SHOULD PUCO STAFF BE ABLE TO CIRCUMVENT THE SETTLEMENT PROCESS BY NEGOTIATING IN SECRET?**

***A27*.** No. Transparency is essential in PUCO proceedings and is required by law. Negotiations with alleged violators should be conducted with notice to interested parties including OCC, the statutory advocate for the residential consumers harmed by AES’s inadequate service. Closed-door discussions raise concerns about fairness and accountability. The matter at hand, involving closed negotiations with an alleged violator and resulting in an inappropriately low forfeiture, exemplifies this need for transparency.

***Q28. WHY DOES THE SETTLEMENT NOT SATISFY THE SECOND PRONG OF THE THREE-PRONG TEST. IN OTHER WORDS, WHY DOES THE SETTLEMENT NOT BENEFIT CONSUMERS OR THE PUBLIC INTEREST?***

***A28.*** The Settlement does not benefit consumers and the public interest because the amount of the forfeiture is too low, the Settlement does not require AES to pay restitution and the Settlement does not provide for the forfeiture to be paid in a way that benefits consumers.

***Q29. WHY IS THE AMOUNT OF THE FORFEITURE TOO LOW?***

***A29.*** The amount of the forfeiture is too low because it fails to provide a meaningful penalty or a deterrent in light of AES’s actions. The amount of the forfeiture is simply a cost of doing business for AES.

AES’s rule violation arises from AES’s failure to replace defective equipment in a timely manner and AES’s failure to complete its tree trimming program for an extended time period. AES knew or should have known that this would increase outages, create hazardous conditions, increase service restoration costs and increase the duration of outages. Under these circumstances, the PUCO Staff should have required AES to pay a higher forfeiture amount.

***Q30. YOU STATED THAT THE SETTLEMENT DOES NOT BENEFIT CONSUMERS OR THE PUBLIC INTEREST BECAUSE THE AMOUNT OF THE FORFEITURE IS TOO LOW TO ACT AS A MEANINGFUL PUNISHMENT OR DETERRENT BASED ON THE CIRCUMSTANCES OF THIS CASE. WHAT IS THE BASIS FOR YOUR OPINION?***

***A30.*** One reason the Settlement does not benefit consumers or the public interest is that the forfeiture amount is too low in light of AES’s failure to replace defective equipment extending over a long period of time. Defective equipment was the main cause for AES’s rule violation. AES knew for many years that the defective equipment was causing reliability problems. AES, however, failed to replace the defective equipment in a timely manner.

In my opinion, the purpose of a forfeiture is to serve as a punishment and as a deterrent against the same conduct in the future. The $10,000 forfeiture is not adequate punishment based on AES’s failure to replace its defective equipment over an extended period lasting several years. In addition, such a low forfeiture would not be an adequate deterrent when AES or other utilities must decide how quickly to replace defective equipment when confronted with a similar situation in the

future.

***Q31. DID AES IDENTIFY THE UNDERLYING CAUSES FOR ITS RULE VIOLTION?***

***A31.*** Yes. AES filed an Action Plan in 2018, 2020 and 2021 to address its violation of the PUCO’s Customer Average Interruption Duration Index standard during 2017, 2019 and 2020. These Action Plans are attached to my testimony at Attachments ART-J, K and L, respectively. The Action Plans state: “Equipment failure is consistently the number one outage cause…” The Action Plans identify “underground primary cable failures” and “cutouts” as the top two causes of equipment failure.

***Q32. WHEN DID AES FIRST RECOGNIZE THAT UNDERGROUND CABLE WAS CAUSING RELIABLITY PROBLEMS?***

***A32.*** AES first recognized that underground cable was causing reliability problems at least by 2003. The Rule 26 Report for 2002 (Attachment ART-D at 2) shows that AES established a budget to replace the underground cable beginning in 2003.

***Q33. WHAT IS A CUTOUT?***

***A33.*** A cutout is a fuse and switch that interrupts the power flow on a distribution circuit when the current becomes too high. The cutout is designed to protect other equipment from damage when from overcurrent and to limit an outage to a small, localized area (which can be restored more quickly).[[12]](#footnote-12)

***Q34. WHEN DID AES FIRST RECOGNIZE THAT CUTOUTS WERE CAUSING RELIABLITY PROBLEMS?***

***A34.*** AES first recognized that cutouts were causing reliability problems at least by 2012. The Rule 26 Report for 2011 (Attachment ART-E at 7) shows that AES established a budget to replace the cutouts beginning in 2012.

***Q35. DO YOU HAVE AN OPINION AS TO WHETHER AES SHOULD HAVE TAKEN MORE TIMELY ACTION TO REPLACE THE UNDERGROUND CABLE AND CUTOUTS?***

***A35.*** Yes. In my opinion, AES should have taken more timely action to replace the underground cable and cutouts after recognizing, in 2003 and 2012, respectively, that this defective equipment was causing reliability problems. AES should have implemented a five-year replacement program for each type of defective equipment, beginning in 2003 and 2012, respectively. If AES would have done so, then the defective underground cable and cutouts could have been completely removed by 2019-2020. AES’s 2018, 2020 and 2021 Action Plans (Attachments ART-J, ART-K AND ART-L) identified this defective equipment as the number one outage cause. The Action Plans noted that defective underground cable and defective cutouts caused one-half of the outages attributed to equipment failure. AES could have, and should have, eliminated this outage cause by replacing the defective equipment in a timely manner.

***Q36. DID AES HAVE THE ABILITY TO REPLACE THE DEFECTIVE UNDERGROUND CABLE AND CUTOUTS IN A MORE TIMELY MANNER?***

***A36.*** Yes. AES stated in its Action Plan for 2020 (Attachment ART-K) that: “[AES] monitors its reliability performance on an hourly, daily, weekly and monthly basis and adjusts its operations accordingly to improve reliability and ultimately meet its reliability standards.” AES knew that the underground cable and the cutouts were causing reliability problems by 2003 and 2012, respectively. Although AES claims that it adjusts operations on “an hourly, daily, weekly and monthly basis” to improve reliability, AES failed to take sufficient action to remove this defective equipment for an extended period lasting several years.

***Q37. IS $10,000 AN APPROPRIATE AMOUNT FOR THE FORFEITURE GIVEN THAT AES KNEW THAT UNDERGROUND CABLE AND CUTOUTS WERE CAUSING RELIABLITY PROBLEMS AS EARLY AS 2003 AND 2012, RESPECTIVELY, BUT FAILED TO REPLACE THIS DEFECTIVE EQUIPMENT FOR SUCH A PROLONGED PERIOD OF TIME?***

***A37.*** No. The $10,000 forfeiture is too low. AES knew for a prolonged period of time that defective underground cable and cutouts were causing reliability problems. AES knew about the problem but failed to replace the defective equipment in a timely manner. AES knew as early as 2003 that the underground cable was causing reliability problems. AES knew as early as 2012 that the cutouts were causing reliability problems. Yet AES allowed this defective equipment to remain in place through 2019-2020. This was imprudent, unreasonable and inconsistent with good utility practice. The $10,000 forfeiture is not an adequate punishment or deterrent for AES’s failure to correct the problem over such a long period of time. As a result, the Settlement does not benefit consumers or the public interest.

***Q38. ARE THERE ANY OTHER CIRCUMSTANCES WHICH LEAD YOU TO CONCLUDE THAT THE AMOUNT OF THE FORFEITURE IS TOO LOW?***

***A38.*** Yes. The forfeiture is also too low because AES’s rule violation in 2019-2020 arose, in part, from AES’s conscious decision not to complete its tree trimming program during 2017 or during any of the following years through 2020. AES had a plan to trim the trees for 20% of its distribution circuits every year. In other words, AES would trim the trees along every circuit once every five years. AES knew, or should have known, that failing to complete this tree trimming plan would substantially increase the risk of outages and would make service restoration more complex. Yet AES decided not to complete its tree trimming plan during 2017. AES knew, or should have known, that this would substantially increase the risk of outages and make the outages more difficult to mitigate in future years. And this is exactly what happened. In my opinion, the $10,000 forfeiture is too low in light of AES’s conscious decision not to complete its tree trimming plan during 2017 or during any of the following years through 2020. The Settlement therefore does not benefit consumers or the public interest.

***Q39. DID AES COMPLETE ITS PLAN FOR TREE TRIMMING FOR ITS DISTRIBUTION CIRCUITS DURING THE 2017-2020 TIME PERIOD?***

***A39.*** No. The chart below compares the planned versus actual number of distribution circuits for which AES planned to trim trees every year. Attachment ART-M is a report filed by AES in Case No. 18-1837-EL-ESS which explains its tree trimming program. At page 11, AES described its planned tree trimming cycle (20% of the circuits every year) an “optimal timeframe between circuit trims to limit tree outages caused by Trees in ROW and also to meet state regulatory needs.”[[13]](#footnote-13) Even though AES acknowledged that the tree trimming cycle is “optimal” to limit tree outages, AES failed to complete its tree trimming performance plan during 2017-2020.

AES dramatically reduced its tree trimming efforts in 2017. During 2017, AES’s plan called for trimming the trees along 85 distribution circuits. However, AES actually only trimmed the trees for 45 distribution circuits – about one-half of the number called for by the plan.

This put AES behind its normal five-year cycle. This forced AES to try to play catch-up. Beginning in 2018, AES tried to play catch-up by increasing the number of circuits it would trim from 85 to 108 distribution circuits per year. By trimming 108 circuits per year from 2018 through 2023, this would get AES caught up so that it could get back on a cycle of trimming 20% of its distribution circuits every year. But during 2018-2020, AES never completed this “catch-up” plan either. The chart below summarizes AES’s planned versus actual tree trimming for 2017-2020 as shown in Section 10 of Attachments F through I:

**Table 2 – Planned vs. Actual Circuits Trimmed**

|  |  |  |
| --- | --- | --- |
| **Year** | **Planned**  **Circuits**  **to Trim** | **Actual**  **Circuits**  **Trimmed** |
| 2017 | 85 | 45\* (53%) |
| 2018 | 108 | 71\* (66%) |
| 2019 | 108 | 91\* (84%) |
| 2020 | 108 | 89\* (82%) |
| \* denotes failure to meet plan | | |

***Q40. DID AES KNOW, OR SHOULD IT HAVE KNOWN, THAT NOT COMPLETING ITS TREE TRIMMING PROGRAM IN 2017-2020 WOULD SUBSTANTIALLY INCREASE THE RISK OF OUTAGES AND MAKE THE TREE PROBLEMS MORE DIFFICULT TO MITGATE IN FUTURE YEARS?***

***A40.*** Yes. AES stated this in a report provided at Attachment ART-M. AES states at page 11 of this report that its Distribution Vegetation Management Program calls for trimming the trees for its distribution circuits on a five-year cycle “with no circuit having a last trim date of greater than 5 calendar years.” AES then states: “The 5 year cycle interval has been determined to be *an optimal timeframe between circuit trims to limit tree outages* caused by Trees in ROW and also to meet state regulatory needs.” This shows that AES knew or should have known that not trimming the trees on a five-year cycle would likely cause outages.

In addition, Mr. Mark Vest, who is responsible for AES’s transmission and distribution operations, has testified about what happens when a utility fails to complete its tree-trimming program (Mr. Vest’s testimony from Case No. 20-1651-EL-AIR is at Attachment ART-N):

These cost increases and limited availability of crews over the past several years have caused cost escalation in AES Ohio’s program, thereby causing AES Ohio to defer routine circuit maintenance trimming on circuits with lower vegetation density and reliability risk. *This deferral of circuit maintenance work is not a sustainable solution. This deferral of work creates a condition known in the industry as "class jumping" whereby the additional growth allowed during the deferral timeframe causes vegetation to grow from one class size which is less expensive to mitigate to a larger class size that is more expensive to mitigate. This escalation across size classes not only makes the work more expensive but it makes it more complex and more hazardous.*

These statements in AES’ Distribution Vegetation Management Program and in Mr. Vest’s testimony show that AES knew or should have known full well that by deferring tree trimming work by about one-half in 2017 and by failing to complete the tree trimming plan during 2017-2020, it would make outages more likely to occur, more costly to mitigate and more hazardous, and increase the length of outage durations in 2017 and in subsequent years. Yet AES did it anyway. AES acted intentionally in deferring the tree trimming work with disregard for the known consequences described in Mr. Vest’s testimony.

***Q41. ARE THERE ANY INDUSTRY REPORTS WHICH EXPLAIN THE PROBLEMS CREATED WHEN UTILITIES FAIL TO COMPLETE THEIR TREE-TRIMMING PLANS?***

***A41.*** Yes. Attachment ART-O is a Federal Regulatory Energy Commission (“FERC”) Vegetation Management Report, which states at page 16: “It is generally accepted that the single largest cause of electric power outages occurs when trees, or portions of trees, grow or fall into overhead power lines.” The report also explains at page 16 why completing tree trimming plans on time and staying on schedule is critically important:

**THE URGENCY OF THE WORK**

The intent of any UVM [Utility Vegetation Management] program is to address the trees and vegetation before they become a problem. For example, when a tree is pruned for clearance, the intent on the part of the utility is to return to that tree right before it needs to be re-pruned. To prune it before it actually needs repruning can damage the tree and may waste money (if it really doesn’t need to be pruned for another year or so, it makes sense to devote the available resources to address other, more immediate work). This balancing act often means that a utility will not re-work the tree until it is either already a threat to the lines, or will be in a few short months.

The difficulty in this situation is as follows. If the utility companies wait to schedule a pruning target until it is on the verge of becoming a problem, there is only a short period of time between identifying the required work, and completing it before it can result in a potential outage or fire.

***Q42. DID AES’S FAILURE TO COMPLETE ITS TREE TRIMMING PROGRAM DURING 2017-2020 CONTRIBUTE TO AES’S RULE VIOLATION?***

***A42.*** Yes. AES’s Action Plans for 2018, 2020 and 2021 (Attachments ART-J, ART-K and ART-L) state that one of the main causes for AES’s rule violation in 2017, 2019 and 2020 was outages caused by trees outside of the right-of-way.

***Q43. DID AES GIVE ANY REASON FOR ONLY COMPLETING ABOUT ONE-HALF OF ITS TREE TRIMMING PLAN IN 2017 AND FAILING TO COMPLETE ITS TREE TRIMMING PLAN DURING 2017-2020?***

***A43.*** Yes. When AES failed to follow its tree trimming program, O.A.C. 4901:1-10-26 required AES to explain why it failed to do so. As I noted earlier, AES only trimmed 45 of the required 85 distribution circuits (53%) in 2017. At page 31 of Attachment F, AES gave this explanation for failing to perform tree trimming on the other circuits:

Challenging labor market conditions affecting the entire vegetation management industry have led to widespread price increases and schedule completion shortfalls for many utilities. Currently there is not enough qualified labor in the utility vegetation management industry to effectively meet the increasing needs of electricity providers. As a result, DP&L Ohio has faced significant challenges in trying to overcome the labor shortages and the related price increases. To the best of its ability, DP&L Ohio made strategic decisions to focus its vegetation management efforts in such a way as to maximize the potential benefit to [consumers] by prioritizing circuits based on safety, reliability and vegetation risk.

***Q44. IS THIS AN ACCEPTABLE REASON FOR AES TO ONLY COMPLETE ABOUT ONE-HALF OF ITS TREE TRIMMING PLAN IN 2017?***

***A44.*** No. This is not a valid excuse when AES’s performance is compared to the performance of the other Ohio utilities during the same period. I have provided their Rule 26 reports for 2017 at Attachments ART-P, ART-Q and ART-R. The other Ohio utilities substantially completed their tree trimming goals during 2017 despite facing similar cost pressures, as shown below:

**Table 3 – AES vs. Other EDUs’ Tree Trimming in 2017**

|  |  |  |
| --- | --- | --- |
| **Utility** | **Planned**  **Circuits/Miles**  **to Trim** | **Actual**  **Circuits/Miles**  **Trimmed** |
| AES | 85 circuits | 45 circuits (53%) |
| AEP | 8,218 miles | 8,112 miles (99%) |
| Duke | 25% of circuits | 21.8% of circuits (87%) |
| FirstEnergy | 614 circuits | 614 circuits (100%) |

AES uses some of the same national or regional tree trimming companies used by the other utilities such as Asplundh Tree Expert and Nelson Tree Service.[[14]](#footnote-14) The fact that the other utilities completed a much higher percentage of their tree trimming goal undermines AES’s claim that tree trimming services were too costly or unavailable during this time period. In its Rule 26 Reports for 2018-2020, AES continued to use the “high cost of tree trimming” excuse for failing to complete its tree trimming program during those years.

In Case No. 15-1830-EL-AIR, the PUCO authorized a substantial increase in AES’s collection of vegetation management costs, including deferral authority for upwards of $4.6 million annually.[[15]](#footnote-15) Despite these funding increases, AES chose not to follow its vegetation management plan and thus contributed to its failure to comply with the minimum Customer Average Interruption Duration Index standard in 2019 and 2020. This leaves little doubt that AES failed to meet the PUCO direction to “take all necessary steps” to comply with the Customer Average Interruption Duration Index standard that it approved in Case No. 12-1832-EL-ESS.[[16]](#footnote-16)

***Q45. DID THE FERC VEGETATION MANAGEMENT REPORT ADDRESS WHETHER UTILITIES COMMONLY REDUCE THEIR TREE TRIMMING BUDGETS TO SPEND THE MONEY FOR OTHER CORPORATE PURPOSES?***

***A45.*** Yes. The FERC Vegetation Management Report (Attachment ART-O) noted at page 25 that when utilities need to fund other operations, they commonly cut spending on tree trimming:

Perhaps the most common complaint we have heard over the last few decades has been that UVM budgets have been routinely reduced to fund other maintenance activities that are, in the opinion of the utility, more urgent in nature. It appears that whenever reductions in maintenance expenses are forthcoming at a utility company, it is often the UVM program that takes the first large hit. While it is appropriate to adjust UVM budgets based on a changing workload, UVM expenses should not be adjusted to balance budgets or fund other initiatives. The utility should perform UVM work when it is appropriate.

***Q46. DOES THE 2018 RULE 26 REPORT SHOW WHETHER AES MIGHT HAVE SHIFTED COSTS OUT OF ITS TREE TRIMMING BUDGET TO USE FOR OTHER PURPOSES DURING 2017?***

***A46.*** Yes. The Dayton area sustained heavy tornado damage on May 24, 2017. The Daily Dayton News reported:

The National Weather Service confirmed four EF0 (winds up to 75 miles per hour) and two EF1 (winds up to 110 miles per hour) tornadoes (sic) on May 24, 2017 with winds as high as 100 mph land in this part of Ohio. These twisters ripped through businesses and homes, but luckily sparring (sic) all in their path from injury or fatality.[[17]](#footnote-17)

The 2018 Rule 26 Report (Attachment ART-F at p. 22) shows that AES *increased* its spending for storm restoration during 2017 by $5,139,339 and *decreased* its spending for tree trimming of distribution circuits by $1,758,117. So it appears that AES might have shifted money out of its budget for tree trimming the distribution circuits in order to pay for the additional storm restoration costs driven by the six tornados on May 24, 2017.

***Q47. DID AES’S COMPLETION OF ONLY ABOUT HALF OF ITS TREE TRIMMING PROGRAM IN 2017 COINCIDE WITH ANY CORPORATE-WIDE COST CUTTING INITIATIVE BY AES’S PARENT COMPANY?***

***A47.*** Yes. Attachment ART- S is a presentation by AES to the EEI Financial Conference in November 2017. At slide 3, the presentation states that AES is “accelerating asset sales & cost cuts.” The slide also states that AES is “aggressively evaluating cost structure for additional savings.”

***Q48. DO YOU HAVE AN OPINION AS TO WHETHER A $10,000 FORFEITURE IS APPROPRIATE IN LIGHT OF AES’S FAILURE TO COMPLETE ITS TREE TRIMMING PROGRAM DURING 2017-2020?***

***A48.*** In my opinion, the $10,000 forfeiture is too low in light of AES’s failure to complete its tree trimming program during 2017-2020. AES knew, or should have known, that failing to complete this tree trimming plan would substantially increase the risk of outages and make the conditions more difficult to mitigate during future years. Yet AES failed to complete the tree trimming plan anyway. AES’s actions were imprudent, unreasonable and inconsistent with good utility practice.

In fact, AES never completed its tree trimming plan during the 2017 through 2020 period. The Action Plans identified out of right-of-way trees as one of the main causes for the rule violation. AES’s completion of only about one-half of its tree trimming program in 2017 put it so far behind that it never caught up to its normal five-year cycle during this period. During 2018-2020, AES continued to fail to complete its tree trimming program.

AES’s excuse that tree trimming services were too costly or contractors were unavailable is unacceptable. The other Ohio utilities had to deal with the same conditions, and they used some of the same national/regional tree trimming contractors who were also available to provide service to AES. Yet the other utilities substantially completed their tree trimming programs during 2017, when AES only completed about one-half of its tree-trimming program.

In my opinion, the $10,000 forfeiture is too low in light of AES’s intentional choice to not complete its tree trimming plan during the 2017-2020 period. The $10,000 forfeiture does not adequately punish AES for its mismanagement of its tree trimming program over such a long time period and would not deter AES or other utilities from doing the same thing in the future. As a result, the Settlement does not benefit consumers or the public interest.

***Q49. ARE THERE ANY ADDITIONAL REASONS WHY THE LOW AMOUNT OF THE FORFEITURE DOES NOT BENEFIT CONSUMERS OR THE PUBLIC INTEREST?***

***A49.*** Yes. The Settlement also does not benefit consumers or the public interest because the low amount of the forfeiture is inconsistent with the PUCO’s existing practice of strict enforcement and substantial penalties for violation of O.A.C. Chapter 4901:1-10.

This case involves a persistent and recurring pattern of failing to meet the PUCO’s electric reliability standards by AES. In a similar case involving AEP’s recurring pattern of violation of O.A.C. 4901:1-10-10 and O.A.C. 4901:1-10-11(F) over several years, the PUCO approved a settlement where AEP performed $10 million of work to improve the reliability of the distribution system without collecting the costs from consumers.[[18]](#footnote-18) In both the present case involving AES and the prior cases involving AEP, the utility failed to meet the PUCO’s reliability standards over an ongoing period.

The AEP case shows that the PUCO’s past practice has been to vigorously enforce violation of O.A.C. Chapter 4901:1-10 by imposing substantial penalties. The Settlement in this case violates the PUCO’s existing practice calling for strict enforcement and substantial penalties for failing to meet the reliability standards over an extended period. Here AES violated the PUCO’s Customer Average Interruption Duration Index standard under O.A.C. 4901:1-10-10 during 2017, 2019 and 2020.

As the AEP case shows, the PUCO’s established practice has been to vigorously enforce violation of O.A.C. Chapter 4901:1-10 which occurs over extended time periods by imposing substantial penalties. Given AES’s poor track record of continuing Customer Average Interruption Duration Index violations over a long time period, the $10,000 forfeiture is too low. The Settlement therefore does not benefit consumers or the public interest.

***Q50. ARE THERE ANY MORE REASONS WHY THE LOW AMOUNT OF THE FORFEITUREDOES NOT BENEFIT CONSUMERS OR THE PUBLIC INTEREST?***

***A50.*** Yes. The Settlement does not benefit consumers or the public interest because it does not require AES to pay restitution in addition to the forfeiture. O.A.C. 4901:1-10-30 authorizes the PUCO to enforce the rules under this chapter by imposing forfeitures and restitution. In cases involving O.A.C. Chapter 4901:1-10 violations where the amount of restitution can be reasonably calculated,

the PUCO has ordered restitution.[[19]](#footnote-19) In the present case, restitution can be reasonably calculated. The PUCO’s failure to require restitution for AES’s violation of O.A.C. Chapter 4901:1-10 does not benefit consumers or the public interest.

***Q51. DOES AES HAVE ANY TARIFF PROVISIONS THAT WOULD BAR A RESTITUTION CLAIM UNDER THE CIRCUMSTANCES OF THIS CASE?***

***A51.*** Not that I’m aware of. To my understanding, utility tariffs sometimes contain “force majeure” language. My understanding is that force majeure refers to an “Act of God” over which a party has no control, such as a hurricane or tornado. In the present case, AES’s rules violation resulted from actions within its control, such as failing to replace defective equipment and failing to complete its tree trimming program. The Action Plans attached to my testimony as Attachments ARJ-, ART-K and ART-L list equipment failure and tree-caused outages as two of the main causes for AES’s rule violation.

As I mentioned earlier, O.A.C. 4901:1-10-30 authorizes the PUCO to enforce the rules under this chapter by imposing forfeitures and restitution. In addition, O.A.C. 4901:1-10-02(E) states: “No tariff of an electric utility shall incorporate exculpatory clauses that purport to limit or eliminate liability on the part of the electric utility to its customers or others as a result of its own negligence when providing a regulated service.” In my opinion, consumers were harmed during 2019-2020 by the excessive amount of time it took AES to restore service after outages. This was caused by AES’s negligence or mismanagement in failing to replace defective equipment and failing to complete its tree trimming program in 2017. Therefore AES should not be able to rely on any tariff language to limit its liability to pay restitution.

***Q52. WHAT TEST DOES THE PUCO TRADITIONALLY APPLY IN DECIDING WHETHER A UTILITY IS LIABLE FOR RESTITUTION CAUSED BY AN OUTAGE?***

***A52.*** To my understanding based upon advice from counsel, the PUCO traditionally applies a four-part test in deciding whether to require a utility to pay restitution caused by an outage. The four factors considered by the PUCO are: (1) whether the outage was within the utility’s control; (2) whether the utility violated any statute or regulation regarding its distribution system which caused the outage; (3) whether the utility’s actions amounted to unreasonable service; and (4) whether the utility corrected the problem is a reasonable manner.[[20]](#footnote-20)

The PUCO should require AES to pay restitution, based on this four-factor test. First, the outages were largely within AES’s control. The Action Plans list equipment failure and lack of tree trimming as two of the main outage causes. The Action Plans list underground cable failures and cutout failures as the two leading causes of equipment failure. As I testified earlier, AES knew of the defective underground cable problem as early as 2003 and knew of the defective cutout problem as early as 2012 but failed to replace this defective equipment in a timely manner. In addition, AES’s decision in 2017 to only complete about one-half of its tree trimming program even though other utilities substantially completed their own tree trimming programs is another matter within AES’s control. The same is true for AES’s failure to complete its tree trimming program during 2017-2020.

Second, the outages arise from AES’s violation of the Customer Average Interruption Duration Index contained in O.A.C. 4901:1-10-10. By violating this rule, consumers had to wait a longer time for restoration of service following the outages which occurred during 2019 and 2020. It is this excess amount of time (*i.e.,* the amount of time above the Customer Average Interruption Duration Index) for which consumers should receive restitution under the circumstances of this case.

Third, AES’s actions amounted to unreasonable service – for all the same reasons I discussed under the first factor.

Fourth, AES failed to correct the problem in a reasonable manner. As stated above, AES knew of the defective underground cable problem as early as 2003 and knew of the defective cutout problem as early as 2012, but failed to replace this defective equipment in a timely manner. AES violated the PUCO’s Customer Average Interruption Duration Index standard in 2017, 2019 and 2020 AES did not act reasonably in addressing the problem.

Based on the PUCO’s four-factor test, the PUCO should require AES to pay restitution in addition to the forfeiture.

***Q53. WHAT METHODOLOGY DO YOU PROPOSE FOR CALCULATING THE AMOUNT OF RESTITUTION?***

***A53.*** Under the circumstances of this case, the PUCO should calculate the amount of restitution by using the work of the Ernest Orlando Berkeley National Laboratory study[[21]](#footnote-21) used for the Interruption Cost Estimate Calculator in determining the financial impact of outages on consumers. The Interruption Cost Estimate Calculator is a tool funded by the U.S. Department of Energy and developed by the Lawrence Berkeley National Laboratory. The tool measures the cost to consumers of interruptions in electric service and is commonly used in supporting cost benefit analysis used to evaluate reliability benefits associated with smart grid deployments. The Interruption Cost Estimate Calculator can be accessed here: <https://icecalculator.com/interruption-cost>.

Using the Interruption Cost Estimate Calculator and data from the Rule 10 Reports, the amount of restitution can be calculated as follows:

**Table 4: Calculation of Restitution Amount**

|  |  |  |
| --- | --- | --- |
|  | **2019** | **2020** |
| **# of consumers** | 591,607 | 594,965 |
| **# of events** | 11,089 | 10,315 |
| **# of individual**  **customer interruptions** | 522,991 | 500,588 |
| **Total Actual Customer Minutes**  **Interrupted** | 69,711,769 | 66,162,526 |
| **Total Expected Customer Minutes**  **Interrupted (using CAIDI of 125.04)** | 65,394,795 | 62,593,524 |
| **Excess Outage Customer Minutes** | 4,316,974 | 3,568,902 |

The “Total Expected Customer Minutes Interrupted” is the total maximum duration (in minutes) for which consumers should have remained out of service if AES had complied with the Customer Average Interruption Duration Index. The “Total Actual Customer Minutes Interrupted” is the total duration (in minutes) for which customers actually did remain out of service during the year. Subtracting the “Total Expected” from the “Total Actual” produces the “Excess Outage Customer Minutes.” This represents the total number of outage minutes attributable to AES’s violation of the Customer Average Interruption Duration Index. Adding the “Excess Outage Customer Minutes” for 2019 and 2020 results in a total of 7,885,876 Excess Outage Customer Minutes for the two-year period.

Per the Interruption Cost Estimate Calculator, the weighted average cost of a residential outage in 2024 is $6.81 per hour, or $0.114 per minute. Applying this cost $0.114 per minute to the 7,885,876 Excess Outage Customer Minutes during 2019-2020 results in a restitution amount of $898,990.

***Q54. HAS AES ADVOCATED FOR USING THE INTERRUPTION COST ESTIMATE CALCULATOR TO MEASURE THE VALUE OF RELIABLE SERVICE IN OTHER CASES?***

***A54.*** Yes. In Case No. 24-112-EL-GRD, AES witness William H. Ludlow testified at pages 14-15 (provided at Attachment ART-T):

**Q. Is the ICE Calculator a reasonable method for quantifying service reliability benefits?**

A. Yes. Researchers at the Lawrence Berkeley National Laboratory ("LBNL") created the ICE Calculator for the Department of Energy ("DOE") to estimate the value of service reliability improvements for electricity customers in the United States. The ICE Calculator estimates the economic value of improvements in system average interruption duration index ("SAIDI") and system average interruption frequency index ("SAIFI") for utilities based on their region. The ICE Calculator is well respected and used in the U.S. electric industry as a reasonable source of service reliability valuation estimates. The ICE Calculator provides a means to estimate the value of electric system reliability improvements for each of the 50 states in the U.S., including the State of Ohio. The ICE Calculator uses as its basis the results of 34 cost interruption studies from ten different utilities, which were conducted between 1989 and 2012. The ICE Calculator is built based on the information from these studies; the model’s algorithm estimates the value of service reliability by customer class, region, and mix of different types and sizes of commercial and industrial customers based on an analysis of the business standard industrial classification codes. The model’s algorithm also factors in the specific state’s gross domestic product. All these factors influence the value that customers place on service reliability improvements. The researchers have also improved it through several iterations since being introduced about a decade ago; the last major update occurred in 2020.

***Q55. YOU ALSO STATED THAT THE SETTLEMENT DOES NOT BENEFIT CONSUMERS OR THE PUBLIC INTEREST DUE TO THE MANNER IN WHICH THE SETTLEMENT WAS PAID. PLEASE EXPLAIN.***

***A55.*** The Settlement also fails to benefit consumers or the public interest because it failed to provide for payment of the forfeiture amount in a manner that benefit consumers. The PUCO has, at times, requested that the utility develop a plan to pay the forfeiture amount in a manner that benefits consumers, instead of simply paying the forfeiture amount to the State of Ohio general revenue fund. For example, in an Ameritech case, the PUCO stated:

While such amounts could be paid to the state, the Commission believes a more appropriate action would be for Ameritech to use the amount to provide a benefit to its customers. \* \* \* Therefore, by August 17, 2000, Ameritech shall file a report in this docket in which it suggests one or more plans for an alternative use of [the forfeiture amount] to benefit its customers.[[22]](#footnote-22)

In the present case, AES violated the PUCO’s Customer Average Interruption Duration Index standard during 2017, 2019 and 2020. Consumers have received inadequate service from AES over a lengthy period. It would therefore be reasonable and appropriate for AES to pay the forfeiture amount in a manner that benefits consumers, like what occurred in the *Ameritech* case. This could occur in the form of bill credits, bill payment assistance for low-income consumers or requiring AES to perform reliability-related work at shareholder cost. The Settlement’s failure to provide that the forfeiture amount be used in a manner to benefit consumers, where they have incurred direct harm from AES’s inadequate service, is unfair. The Settlement therefore does not benefit consumers or the public interest.

***Q56. WHY DOES THE SETTLEMENT NOT SATISFY THE THIRD PRONG OF THE THREE-PRONG TEST. IN OTHER WORDS, HOW DOES THE SETTLEMENT VIOLATE ANY IMPORTANT REGULATORY PRINCIPLE OR PRACTICE?***

***A56.*** The Settlement violates the following important regulatory principles and practices: (1) the low amount of the forfeiture and failure to enforce certain rules is inconsistent with the established regulatory principle and practice of strict enforcement and substantial penalties for violations of O.A.C. Chapter 4901:1-10-10; (2) the PUCO failed to require AES to pay restitution even though the PUCO has required restitution in other similar cases; and (3) the PUCO failed to evaluate the Interruption Cost Estimator in determining the amount of the forfeiture, even though it is used to measure the benefit of reliable service when reviewing cost/benefit analyses in grid modernization cases.

***Q57. YOU STATED THAT THE SETTLEMENT VIOLATES AN IMPORTANT REGULATORY PRINCIPLE OR PRACTICE BECAUSE THE LOW AMOUNT OF THE FORFEITURE AND FAILURE TO ENFORCE CERTAIN RULES IS INCONSISTENT WITH THE ESTABLISHED REGULATORY PRINCIPLE AND PRACTICE OF STRICT ENFORCEMENT AND SUBSTANTIAL PENALTIES FOR VIOLATIONS OF O.A.C. CHAPTER 4901:1-10-10. PLEASE EXPLAIN.***

***A57.*** This case involves a persistent and recurring pattern of electric reliability rules violations by AES. In a case involving AEP’s recurring pattern of violations of electric reliability rules violations under O.A.C. Chapter 4901:1-10 by AEP, the PUCO approved a settlement where AEP performed $10 million to improve the reliability of the distribution system without collecting the costs from consumers.[[23]](#footnote-23) Both the present case involving AES and the prior cases involving AEP, the utility engaged in violations of O.A.C. Chapter 4901:1-10-10 over an ongoing period. The AEP case shows that the PUCO’s past practice has been to vigorously enforce violations of O.A.C. Chapter 4901:1-10 by imposing substantial penalties.

The Settlement in this case violates the important regulatory principle and practice calling for strict enforcement and substantial penalties for violating O.A.C. Chapter 4901:1-10 over an extended period. Here AES violated the PUCO’s Customer Average Interruption Duration Index standard under O.A.C. 4901:1-10-10 during 2017, 2019 and 2020. The PUCO’s lax enforcement of the electric reliability rules in this case is inconsistent with the established regulatory principle and practice of vigorous enforcement of these same standards in the AEP cases. The Settlement therefore violates the third prong of the three-prong test.

***Q58. YOU STATED THAT THE SETTLEMENT VIOLATES AN IMPORTANT REGULATORY PRINCIPLE OR PRACTICE BECAUSE THE PUCO FAILED TO REQUIRE AES TO PAY RESTITUTION EVEN THOUGH THE PUCO HAS REQUIRED RESTITUTION IN OTHER CASES. PLEASE EXPLAIN.***

***A58***. O.A.C. 4901:1-10-30 authorizes the PUCO to enforce the rules under this chapter by imposing forfeitures and restitution. In cases involving O.A.C. Chapter 4901:1-10 violations where the amount of restitution can be calculated, the PUCO has ordered restitution.[[24]](#footnote-24) In the present case, AES should maintain records which would enable it to determine which consumers were affected by extended outages. Yet this was not addressed in the Settlement. The PUCO’s failure to require restitution violates an important regulatory practice and principle that the PUCO will order restitution for violation of O.A.C. Chapter 4901:1-10 when the amount of restitution can be reasonably calculated.

***Q59. YOU STATED THAT THE SETTLEMENT VIOLATES AN IMPORTANT REGULATORY PRINCIPLE OR PRACTICE BECAUSE THE PUCO FAILED TO USE THE INTERRUPTION COST ESTIMATOR TO EVALUATE THE VALUE OF RELIABLE SERVICE IN DETERMINING THE AMOUNT OF THE FORFEITURE, EVEN THOUGH THIS METHOD IS USED IN REVIEWING COST/BENEFIT ANALYSES IN GRID MODERNIZATION CASES. PLEASE EXPLAIN.***

***A59.*** The PUCO should have decided an appropriate amount for the forfeiture by using the Interruption Cost Estimate Calculator to determine the impact of the outages on consumers. The Interruption Cost Estimate Calculator is a tool funded by the U.S. Department of Energy and developed by the Lawrence Berkeley National Laboratory. The tool measures the cost to consumers of interruptions in electric service. The Interruption Cost Estimate Calculator can be accessed here: <https://icecalculator.com/interruption-cost>. As I discussed earlier in my testimony, AES advocates for using the Interruption Cost Estimator to measure the value of reliability for the cost/benefit analysis in its smart grid case.

# VI. **RECOMMENDED FORFEITURE AMOUNT**

***Q60. WHAT IS YOUR RECOMMENDATION IN THIS CASE?***

***A60.*** I recommend that the PUCO impose a forfeiture of $1 million dollars and restitution in the amount of $898,990. I further recommend that these amounts both be paid in a way that would benefit consumers, such as bill credits, bill payment assistance or requiring AES to perform reliability improvements without collecting the costs from consumers.

My recommendation is based on all the same reasons I discussed earlier as to why the Settlement violates the PUCO’s three-prong test for approving settlements. Quite clearly, AES knew for many years that defective underground cable and cutouts were the main cause for outages but AES failed to replace this defective equipment in a timely manner. In addition, AES made a conscious decision in 2017 to only complete about one-half of its tree trimming program even though the other Ohio utilities substantially completed their own tree trimming programs. It appears that AES shifted money from its tree trimming budget in 2017 to use for the storm restoration costs from the six tornados on May 24, 2017. In fact, AES never completed its tree trimming program during 2017-2020. These actions were major factors in the rule violation in 2019 and 2020.

A $10,000 forfeiture sends the wrong kind of message. AES executives could decide that their decisions to not fully replace the defective underground cable and defective cutouts, and their 2017 spending cut for tree trimming were good business decisions. This saved AES money by avoiding the spending needed to replace the defective equipment and to complete the tree trimming program. This reduced AES’s operating expenses and therefore increased shareholder profits. AES executives might view the $10,000 forfeiture as a small price to pay for this opportunity to increase shareholder profits.

It is important for the PUCO to vigorously enforce its reliability rules. Otherwise, consumers will continue to receive inadequate service. In addition, utility executives will be tempted to cut tree trimming and maintenance costs so as to benefit shareholders. The PUCO should follow its established practice and policy of strong enforcement of these rules.

# VII. **ADDITIONAL RECOMMENDATIONS**

***Q61. DO YOU HAVE ANY ADDITIONAL RECOMMENDATIONS?***

***a61.*** Yes. I recommend that the PUCO either open an Investigation case or, in the alternative, issue a notice of probable noncompliance, based on AES’s apparent violations of O.A.C. 4901:1-10-11(F). As background, I provide the following reports:

* Attachment ART-U - AES’s Annual Report Pursuant to Rule 4901:1-10-11(C) covering the year 2018-2019;
* Attachment ART-V - AES’s Annual Report Pursuant to Rule 4901:1-10-11(C) covering the year 2019-2020;
* Attachment ART-W - AES’s Annual Report Pursuant to Rule 4901:1-10-11(C) covering the year 2020-2021; and
* Attachment ART-X - AES’s Annual Report Pursuant to Rule 4901:1-10-11(C) covering the year 2021-2022.

O.A.C. 4901:1-10-11(F) prohibits a distribution circuit from being listed on the list of lowest-performing circuits for three consecutive years.  These reports listed above show four apparent Rule 11 violations during 2017-2022 as listed below:

|  |  |
| --- | --- |
| **Circuit**  **Number** | **Years on Lowest**  **Performing List** |
| GH1201 | 2019, 2020, 2021 |
| MB1201 | 2017, 2018, 2019 |
| HD1201 | 2018, 2019, 2020, 2021, 2022 |
| JH1201 | 2018, 2019, 2020, 2021 |

The PUCO should open an Investigation case or issue notices of probable non-compliance to address this.

# VIII. **CONCLUSION**

***Q62. DOES THIS CONCLUDE YOUR TESTIMONY?***

***A62****.*Yes. However, I reserve the right to incorporate new information that may subsequently become available.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing Direct Testimony of Andrew R.

Tinkham on behalf of Office of the Ohio Consumers’ Counsel has been served upon those persons listed below via electronic service this 16th day of May 2026.

/s/ John Finnigan

John Finnigan

Assistant Consumers’ Counsel

The PUCO’s e-filing system will electronically serve notice of the filing of this document on the following parties:

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1. Stipulation and Recommendation (Dec. 9, 2021). [↑](#footnote-ref-1)
2. R.C. 4928.02(A) (emphasis added). [↑](#footnote-ref-2)
3. PUCO web page/About Us/PUCO Mission and Commitments, available at: <https://puco.ohio.gov/about-us/resources/mission-and-commitments> (last accessed Apr. 6, 2024). [↑](#footnote-ref-3)
4. R.C. 4928.02(A). [↑](#footnote-ref-4)
5. *In the Matter of the Application of The Dayton Power and Light Company for Establishing New Reliability Standards*, Case 12-1832-EL-ESS, Opinion and Order (Oct. 2, 2013). [↑](#footnote-ref-5)
6. *Id*. at 5. [↑](#footnote-ref-6)
7. Ohio Adm. Code 4901:1-10-27(D). [↑](#footnote-ref-7)
8. Stipulation and Recommendation (Dec. 9, 2021). [↑](#footnote-ref-8)
9. Memorandum to Open Case (Dec. 9, 2021). [↑](#footnote-ref-9)
10. Stipulation and Recommendation (Dec. 9, 2021). [↑](#footnote-ref-10)
11. *See, e.g.,* R.C. 4901.12. [↑](#footnote-ref-11)
12. *What’s that? Cutout,* Jefferson County Public Utility District web page, available at: <https://www.jeffpud.org/whats-that-cutout-fuse/> (last accessed April 2, 2024).

    [↑](#footnote-ref-12)
13. *In the Matter of the Application to Amend the Company’s Transmission and Distribution Inspection, Maintenance, Repair and Replacement Programs*, Case No. 18-1837-EL-ESS at 11 (Dec. 17, 2018).  [↑](#footnote-ref-13)
14. *See DP&L Vegetation Management for Safety and Reliability/Line Clearance Contractors,* available at: <https://www.aes-ohio.com/line-clearance-contractors>. *AEP Ohio Tree Trimming and Clearing, Frequently Asked Questions,* available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.aepohio.com/lib/docs/community/projects/AEPOhioTreeFAQREV3-2016.pdf. [↑](#footnote-ref-14)
15. In the Matter of the Application of The Dayton Power and Light Company for an Increase in its Electric Distribution Rates, Opinion and Order (Sept. 26, 2018) at 29. [↑](#footnote-ref-15)
16. See footnote 6. [↑](#footnote-ref-16)
17. M. Vrydaghs, *Six tornadoes ripped through Ohio last year on this date,* Dayton Daily News (May 21, 2018). [↑](#footnote-ref-17)
18. *In the Matter of a Settlement Agreement Between the Staff of the Public Utilities Commission of Ohio and Columbus Southern Power Company and Ohio Power Company,* Case No. 03-2570-EL-UNC, Finding and Order (Jan. 21, 2004); *In the Matter of the Self Complaint of Columbus Southern Power Company and Ohio Power Company Regarding the completion of the Incremental Vegetation Plan,* Case No. 06-222-EL-SLF, Entry (May 16, 2007). [↑](#footnote-ref-18)
19. *See, e.g., In the Matter of the Commission’s Investigation into Verde Energy USA Ohio, LLC’s Compliance with the Ohio Administrative Code and Potential Remedial Actions for Non-Compliance,* Case No. 19-958-GE-COI, Opinion and Order (Feb. 26, 2020); *In the Matter of the Commission’s Investigation into PALMco Power OH, LLC, d/b/a Indra Energy and PALMco Energy OH, LLC d/b/a Indra Energy’s Compliance with the Ohio Administrative Code and Potential Remedial Action,* Case No. 19-2153-GE-COI, Finding and Order (Oct. 20, 2021). [↑](#footnote-ref-19)
20. *Santos v. The Dayton Power and Light Co.,* Case No. 03-1965-EL-CSS, Opinion and Order (March 2, 2005). [↑](#footnote-ref-20)
21. Updated Value of Service Reliability Estimates for Electric Utility Customers in the United States, Ernest Orlando Berkeley National Laboratory (Jan. 2015). [↑](#footnote-ref-21)
22. *In the Matter of the Commission-Ordered Investigation of Ameritech Ohio Relative to its Compliance with Certain Provisions of the Minimum Telephone Service Standards Set Forth in Chapter 4901:1-5, Ohio Administrative Code,* Case No. 99-938-TP-COI, Opinion and Order at 46 (July 20, 2000). [↑](#footnote-ref-22)
23. *In the Matter of a Settlement Agreement Between the Staff of the Public Utilities Commission of Ohio and Columbus Southern Power Company and Ohio Power Company,* Case No. 03-2570-EL-UNC, Finding and Order (Jan. 21, 2004); *In the Matter of the Self Complaint of Columbus Southern Power Company and Ohio Power Company Regarding the completion of the Incremental Vegetation Plan,* Case No. 06-222-EL-SLF, Entry (May 16, 2007). [↑](#footnote-ref-23)
24. *See, e.g., In the Matter of the Commission’s Investigation into Verde Energy USA Ohio, LLC’s Compliance with the Ohio Administrative Code and Potential Remedial Actions for Non-Compliance,* Case No. 19-958-GE-COI, Opinion and Order (Feb. 26, 2020); *In the Matter of the Commission’s Investigation into PALMco Power OH, LLC, d/b/a Indra Energy and PALMco Energy OH, LLC d/b/a Indra Energy’s Compliance with the Ohio Administrative Code and Potential Remedial Action,* Case No. 19-2153-GE-COI, Finding and Order (Oct. 20, 2021). [↑](#footnote-ref-24)