**BEFORE**

**THE PUBLIC UTILITIES COMMISSION OF OHIO**

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| In the Matter of the Application of Ohio Power Company to Initiate its gridSMART Phase 3 Project. | )  )  ) | Case No. 19-1475-EL-RDR |

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**COMMENTS**

**BY**

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**COMMENTS**

**BY**

**THE OFFICE OF THE OHIO CONSUMERS’ COUNSEL**

# I. INTRODUCTION

While Ohioans’ health and financial well-being is suffering due to the coronavirus pandemic, AEP Ohio is looking to spend another billion dollars on so-called smart grid technologies.[[1]](#footnote-2) That is too much money to charge Ohioans, especially during the pandemic. Further, AEP Ohio’s historical spending on smart grid technologies – approximately $700 million -- has not delivered the benefits and technological innovations that AEP Ohio has promised. Unfortunately, AEP Ohio’s customers have and are paying all of that money for smart grid technologies that were touted to improve system reliability, but instead AEP Ohio’s reliability has gone down. It is time to put the brakes on AEP Ohio’s out-of-control spending on smart grid. To protect consumers, the PUCO should reject AEP Ohio’s smart grid plans.

# II. BACKGROUND

In its application for gridSMART Phase III, AEP Ohio seeks to continue and expand smart grid technologies started as part of gridSMART Phases I and II. AEP Ohio proposes to expand Distribution Automation Circuit Reconfiguration (“DACR”) technology to an additional 416 distribution circuits.[[2]](#footnote-3) AEP Ohio also proposes completing the deployment of Advanced Metering Infrastructure (so-called “smart meters”) to an additional 475,000 customers.[[3]](#footnote-4) AEP Ohio further proposes to expand, by an additional 492 circuits, the number of distribution circuits with Volt-Var Optimization (“VVO”) technology.[[4]](#footnote-5)

But AEP Ohio is also looking to go beyond the bounds of these “traditional” smart grid technologies. AEP Ohio is proposing to install under Phase III Distribution Supervisory Control and Data Acquisition (“D-SCADA”) on 160 circuits.[[5]](#footnote-6) AEP Ohio also proposes installing fiber optics communications infrastructure to portions of its service territory without readily available broadband access.[[6]](#footnote-7) The proposal would result in deploying 3,100 distribution line sensors on select circuits as part of a demonstration reliability program.[[7]](#footnote-8) AEP Ohio is further proposing to install, as part of a pilot program, 340 Dynamic Voltage Controllers (“DVCs”) on 20 distribution circuits to analyze future energy savings options and peak demand reductions.[[8]](#footnote-9) And AEP Ohio proposes expanding on the functionality of customer usage information provided to Competitive Retail Electric Service (“Marketers”) providers for time of use (“TOU”) programs and expanding the *It’s Your Power* application to facilitate customer access to smart meter usage information.[[9]](#footnote-10)

The price tag for Phase III of approximately $938 Million is staggering.[[10]](#footnote-11) While the potential customer benefits from smart grid technologies can be significant on paper, customers have yet to realize many of the benefits from the earlier Phase I and Phase II deployments in the form of lower bills and better reliability. OCC appreciates the opportunity to provide consumer protection comments on AEP Ohio’s application. OCC encourages the PUCO to adopt the recommendations made herein, for consumer protection.

# III. COMMENTS

## A. To protect consumers, the PUCO should reject AEP Ohio’s gridSMART Phase III application until and unless it demonstrates that customers are obtaining the smart grid benefits promised under gridSMART Phase I and gridSMART Phase II.

AEP Ohio’s gridSMART Phase II was approved by the PUCO in February 2017.[[11]](#footnote-12) Costing consumers $516 million,[[12]](#footnote-13) Phase II expanded the deployment of smart grid technologies first started with the approximate $150 million gridSMART Phase I project that was funded by the Department of Energy (DOE) and customers.[[13]](#footnote-14) Under Phase II, AEP Ohio’s cost benefit analysis showed that the $516 million costs over 15 years was expected to provide well over a billion dollars in savings to customers.[[14]](#footnote-15) The Phase II project included installing an additional 894,000 smart meters following the 132,000 installed under Phase I. Volt-Var optimization technology was to be installed on 160 distribution circuits in addition to the 17 circuits previously deployed under Phase I. Distribution Automation Circuit Reconfiguration technology was to be expanded from the 70 circuits that were installed under Phase I to an additional 250 circuits under Phase II.

For all of the different gridSMART deployment phases, DACR is the primary smart grid benefit that is intended to provide significant improvements in reliability through less frequent and shorter duration outages. In Phase II alone, DACR was purportedly expected to provide over a billion dollars in savings associated with avoided outages.[[15]](#footnote-16)

### 1. AEP Ohio’s progress (or lack thereof) on timely installing Distribution Automation Circuit Reconfiguration is hurting consumers.

While the gridSMART Phase II program went into effect over 3.5 years ago, AEP Ohio has made very little progress in deploying DACR. It was supposed to be fully deployed within 72 months of the PUCO’s approval of the Settlement.[[16]](#footnote-17) Yet in August 2020 (41 months into the deployment), only 11 circuits (or 4.4% of the total circuits) had actually been completed.[[17]](#footnote-18) And there have been very few outage events where these 11 circuits were available to help customers avoid outages.[[18]](#footnote-19) The deployment of DACR involves the installation of automated reclosures and other technologies at strategic locations on select circuits throughout the distribution system. Based on the location where a fault occurs that would result in customer outages, DACR will reroute electricity around the fault location to reduce the number of customers who experience an interruption.

But until and unless AEP Ohio prioritizes the deployment of DACR on the remaining 239 circuits, customers will not realize these reliability improvements and the financial benefits that DACR is supposed to provide. AEP Ohio’s lack of progress in deploying DACR is a contributing factor to why it failed to meet its minimum reliability performance standards in 2018[[19]](#footnote-20) and again in 2019.[[20]](#footnote-21) Had AEP Ohio prioritized the installation of DACR when the PUCO first approved the program in February 2017, far fewer customer interruptions and customer minutes interrupted would have occurred in 2018 and 2019.

Given that the lions-share of the customer benefits from gridSMART Phase II are supposed to result from DACR, the PUCO should not approve a gridSMART Phase III deployment. It should not do so, if ever, until the Phase II deployment is completed and a benefits assessment can be performed to evaluate if customers actually are obtaining all the reliability benefits that they were promised through DACR.

A benefits assessment is extremely important. The DACR equipped circuits that were deployed under gridSMART Phase I are not performing as well as they were expected. Between 2015 and 2019, the DACR on Phase I circuits have had 179 opportunities to operate to help avoid customer interruptions and customer minutes interrupted during outage events.[[21]](#footnote-22) The DACR technology operated successfully during 136 of the outage events.[[22]](#footnote-23) But the DACR technology failed to reconfigure the circuit as expected during 43 of the outage events.[[23]](#footnote-24) A 76% success rate for the DACR Phase I circuits is well below what the PUCO should consider as an acceptable performance level. And the Phase II DACR deployment is not far enough long to determine if AEP Ohio has improved the performance.

PUCO approval for DACR as part of gridSMART Phase III should not occur until the deployment of Phase II technologies are completed and the touted benefits are proven on most (if not all) of the DACR Phase II installations. Additionally, before the PUCO approves a DACR deployment under Phase III, AEP Ohio should be required to prove that the DACR technology is able to operate at a much higher performance level. Finally, approval of additional DACR equipped circuits now could serve to distract AEP Ohio from the work it needs to do to improve and prioritize deploying the Phase II circuits.

### 2. It is not in consumers’ interest to rush to install smart meters as part of gridSMART Phase III.

Smart meters and the communications infrastructure that accompanies the meters allow for communications between AEP Ohio and its customers, reducing operating expenses, and additional customer rate alternatives.[[24]](#footnote-25) In the AEP Ohio gridSMART II cost benefit analysis, benefits associated with smart meters (such as reducing meter readings) was supposed to result in approximately $200 million in operational savings over 15 years.[[25]](#footnote-26)

AEP Ohio has substantially completed deploying smart meters under gridSMART Phase II. Well over a million smart meters are now fully deployed. Until the operational savings from smart meters are reflected in new distribution bases rates, AEP Ohio is crediting a portion of the savings on an annual basis back to consumers through the gridSMART rider. The level of operational savings for gridSMART II in 2021 (and until new base rates are established) is approximately $8.4 million annually.[[26]](#footnote-27) This is well below the $200 million in benefits that AEP Ohio projected for smart meters in its cost benefit analysis and demonstrates why additional quantifiable benefits for consumers are needed.

The level of operational savings in replacing the remaining non-smart meters under Phase III are expected to be much lower because there are not substantial meter reading and meter operations savings to be realized. According to AEP Ohio’s application, Phase III smart meter costs are projected at approximately $118 million and benefits are expected to be slightly above $40 million.[[27]](#footnote-28) For this reason, deploying additional smart meters under Phase III is unnecessary. Many of the non-smart meters deployed in the Phase III service area use Automated Meter Reading (“AMR”) technology that allows meter reads to be automatically performed on a monthly basis.[[28]](#footnote-29) Replacing these AMR meters with smart meters will not be as beneficial for Phase III customers until more applications are developed that take advantage of the capabilities of the Phase I and Phase II smart meters.

### 3. While AEP Ohio has made substantial progress in deploying Volt-VAR technology as part of Phase II, consumer protection requires that a benefits assessment is necessary before continuing with deploying Volt-VAR as part of Phase III.

Between 2018 and 2020, AEP Ohio has installed VVO on 137 of the 160 circuits that it committed to install.[[29]](#footnote-30) VVO is an energy efficiency tool where voltages can be more accurately maintained and lowered across distribution circuits. This reduced energy consumption can help lower customers’ bills. AEP Ohio claims that customers stand to benefit by approximately $414 million from the approximately $323 million in costs associated with installing VVO on an additional 492 distribution circuits.[[30]](#footnote-31)

Based on the gridSMART Phase II cost benefit analysis, VVO deployment on 160 circuits was intended to reduce energy consumption by approximately three percent and save customers $210 million over 15 years.[[31]](#footnote-32) But until and unless AEP Ohio completes the deployment of VVO on Phase II circuits and assesses the actual benefits customers are receiving, the PUCO should not approve an expansion of the number of circuits that are equipped with VVO technology as part of Phase III. As evidenced in the complexity in designing Phase II circuits, energy reductions in the 3-4% range may not be sustainable or cost effective as VVO is deployed across more applications and more circuits.[[32]](#footnote-33)

## B. If the PUCO were to approve the gridSMART III application (which it should not until AEP completes Phase II), the non-gridSMART projects that were included in the application should be rejected to protect consumers.

AEP Ohio is proposing to install under Phase III Distribution Supervisory Control and Data Acquisition (“D-SCADA”) on 160 circuits. AEP Ohio also proposes installing fiber optics communications infrastructure in portions of its service territory without readily available broadband access. The proposal would involve deploying 3,100 distribution line sensors on select circuits as part of a demonstration reliability program. AEP Ohio is proposing to install as part of a pilot program 340 Dynamic Voltage Controllers (“DVCs”) on 20 distribution circuits to analyze future energy savings options and peak demand reductions. AEP Ohio further proposes expanding on the functionality of customer usage information provided to Marketers for time of use (“TOU”) programs and expanding the *It’s Your Power* application to facilitate customer access to AMI usage information. [[33]](#footnote-34) To protect consumers, these non-gridSMART projects should not be approved by the PUCO.

### 1. To protect consumers, the PUCO should not allow AEP Ohio to charge consumers for additional D-SCADA.

AEP Ohio has proposed deploying Distribution Supervisory Control and Data Acquisition on 160 circuits as part of gridSMART Phase III.[[34]](#footnote-35) The proposal includes deploying D-SCADA on circuits in rural locations to potentially provide connectivity with other circuits that are in close proximity to help reliability.[[35]](#footnote-36) The total projected costs are $45 million over 5 years.[[36]](#footnote-37)

While D-SCADA may help AEP Ohio obtain better and more accurate outage information and contribute to better reliability, this is not a new technology that should be funded under gridSMART III. AEP Ohio claims that the D-SCADA will support the rural broadband initiatives.[[37]](#footnote-38) SCADA capabilities have been around for decades. AEP Ohio can and should fund and install D-SCADA capabilities as part of its normal capital budgeting process if it can be implemented in a cost effective manner that is needed to provide safe and reliable electric services.

### 2. To protect consumers, the PUCO should not allow AEP Ohio to charge consumers for the installation of fiber optics that are not necessary for AEP Ohio to provide safe and reliable service.

AEP Ohio has proposed installing fiber optical cable (rather than traditional wireless communications) to select access points outside of distribution substations as it installs DACR and VVOs.[[38]](#footnote-39) AEP Ohio claims that the fiber optics will provide operational benefits such as better cybersecurity and reduced dependency on third-party cellular providers.[[39]](#footnote-40)

The incremental costs of AEP Ohio’s proposal over a 15-year period is $52.6 million.[[40]](#footnote-41) AEP Ohio claims that dark fiber leases on these segments and other AEP Ohio fiber installations could equal or be greater than the $52.6 million cost. Dark fiber is the portion of the communications capacity available on the fiber that is not needed for AEP Ohio operational reasons. AEP Ohio is not guaranteeing that the additional capacity will be leased by third-party communication providers.[[41]](#footnote-42) AEP Ohio is not guaranteeing that such leases would generate the $52.6 million cost of the proposal, or (even if it does) that consumers would not therefore be charged for the proposal. And there is no rationale for why captive electric customers who receive no benefits from the fiber optics should pay for the fiber optic deployment. AEP Ohio believes that the fiber optics will help make broadband communications more readily available in rural Ohio. But while the incremental amount of fiber optics that would be deployed under the proposal increases customer electric bills, there is no indication that it will be used by Internet Service Providers (ISP’s) to actually bring broadband access into customer homes.[[42]](#footnote-43)

AEP Ohio’s plan to install fiber optics contradicts R.C. 4928.02(A). The fiber optics are not needed for AEP Ohio to provide safe and reliable distribution service. Additionally, spending $52.6 million in unneeded fiber optics contributes to unreasonably priced retail electric service. The deployment of fiber optics is not cost effective given other, less costly options. The projected costs for using cellular service (rather than fiber optics) to communicate is approximately $5.5 million over 10 years.[[43]](#footnote-44) The cellular capabilities are more than sufficient for the communications that is needed between distribution infrastructure. The PUCO should reject AEP Ohio’s plan to include costs for fiber optics communications in gridSMART Phase III.

### 3. To protect consumers, the PUCO should not allow AEP Ohio to charge consumers for a Distribution Line Sensors Demonstration.

AEP Ohio is proposing to install intelligent distribution line sensors on select circuits to determine the value of the technology in collecting data that monitors the status of the grid, identifies and locates faults.[[44]](#footnote-45) The cost of the project is approximately $9.9 million in capital and $1.8 million in operation and maintenance costs. [[45]](#footnote-46)

While OCC recognizes that there may be additional reliability benefits associated with deploying line sensors, this is not a new technology that should be funded under gridSMART Phase III.[[46]](#footnote-47) AEP Ohio can and should install line sensors as part of its normal budgeting process and collected from customers under traditional ratemaking if it determines that the technology has sufficient benefits to be deployed on a more permanent and widescale basis.

### 4. To protect consumers, the PUCO should not allow AEP Ohio to charge consumers for an Enhanced VVO Pilot Program.

AEP Ohio has proposed a pilot program under gridSMART Phase III for evaluating newer generation VVO technologies on 20 circuits with a cost of approximately $1.2 million.[[47]](#footnote-48) These evaluations may be helpful in planning future generations of VVO deployments. But gridSMART Phase III should be limited to deploying existing proven technologies that can provide used and useful benefits for consumers. AEP Ohio can and should evaluate the effectiveness of newer generation VVO technology with corporate funding.

### 5. To protect consumers, the PUCO should reject AEP Ohio’s “It’s Your Power” proposal.

AEP Ohio has proposed expanding the existing “It’s Your Power” application and the energy bridge so that customers can obtain real-time access to smart meter interval usage information.[[48]](#footnote-49) The energy bridge connects to a customer’s smart meter and serves as the interface between the meter and the application.[[49]](#footnote-50) Both projects were previously funded through the AEP Ohio energy efficiency rider. But AEP Ohio’s energy efficiency programs are ending between now and the end of the year. AEP Ohio has projected a $1.275 million per year costs to continue the Its Your Power application. [[50]](#footnote-51)

Given that fewer than eight percent of the customers who receive smart meters also download the application, it is unreasonable to continue funding the application under the gridSMART rider. If customers want near real-time access to their energy usage, then the market should provide such access. AEP, through an unregulated affiliate, can compete with other competitive entities to provide an app that can connect to AEP’s smart meters. Captive customers should not be required to subsidize the It’s Your Power app, thus giving AEP Ohio a competitive advantage in what should be a competitive market.

### 6. To protect consumers, the PUCO should reject AEP Ohio’s proposal for expanding the functionality of customer usage information given to Marketers.

AEP Ohio has proposed streamlining the existing capabilities that it provides Marketers for obtaining access to smart meter interval usage information. This includes additional electronic data access and more automation in gathering usage information.[[51]](#footnote-52) The total costs for the additional functionality are projected at $700,000.[[52]](#footnote-53)

The costs associated with streamlining data sharing between AEP Ohio and Marketers should be paid by the Marketers, not customers through the gridSMART rider. Marketers are the ones that purportedly benefit from the data.

### 7. To protect consumers, the PUCO should reject AEP Ohio’s proposal to approve gridSMART Phase III without a hearing.

AEP Ohio claims that there is no reason for a hearing given the level of detail of the equipment and technology in the application and supporting testimony.[[53]](#footnote-54) But AEP Ohio seeks to expand gridSMART to include additional technologies beyond those previous deployed. Further, AEP has not yet fully deployed its Phase II technologies. There should not be an approval to move forward into Phase III without a full deployment of Phase II technologies and demonstration that the touted consumer benefits are being achieved. Additionally, as evidenced in these comments, the cost effectiveness of the gridSMART program overall is in question. A hearing is necessary to develop a robust record to allow the PUCO to decide if AEP Ohio’s out-of-control spending on so-called smart grid should continue.

# IV. CONCLUSION

AEP Ohio has charged consumers hundreds of millions of dollars for smart grid technologies. It is far from certain whether this staggering amount has been worth it for consumers. Unless and until AEP Ohio shows that it has been, it should not be allowed to spend an additional billion dollars on more smart grid. AEP Ohio’s application should be rejected.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that a copy of these Comments were served on the persons stated below viaelectric transmission this 9th day of September 2020.

*/s/ William J. Michael*

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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. Case No. 19-1475-EL-RDR, Direct Testimony of Scott S. Osterholt, Exhibit SSO-3 (July 26, 2019) at 20 (“Osterholt Direct”). [↑](#footnote-ref-2)
2. Application (July 26, 2019) at 3; *see also* Osterholt Direct at 5 (The DACR is intended to automatically reroute electricity during outages to reduce the number of customers interrupted). [↑](#footnote-ref-3)
3. Application at 4; *see also* Osterholt Direct at 22. [↑](#footnote-ref-4)
4. Application at 4; *see also* Osterholt Direct at 19. [↑](#footnote-ref-5)
5. Application at 3; *see also* Osterholt Direct at 15 (SCADA is intended to provide more accurate and detailed information to AEP Ohio about outages). [↑](#footnote-ref-6)
6. Application at 4; *see also* Osterholt Direct at 24. [↑](#footnote-ref-7)
7. Application at 4; *see also* Osterholt Direct at 35. [↑](#footnote-ref-8)
8. Application at 4; *see also* Osterholt Direct at 39. [↑](#footnote-ref-9)
9. Application at 4; *see also* Osterholt Direct at 44; 46. [↑](#footnote-ref-10)
10. Osterholt Direct at 5. [↑](#footnote-ref-11)
11. *In the Matter of the Application of Ohio Power Company to Initiate Phase 2 of its GridSmart Project and to Establish the GridSmart Phase 2 Rider,* Case 13-1939-EL-RDR*,* Opinion and Order (February 1, 2017)*.*  [↑](#footnote-ref-12)
12. Case 13-1939-EL-RDR, Direct Testimony of Scott Osterholt, Exhibit SSO-1 (April 20, 2016) at 9 (“Osterholt Testimony”). [↑](#footnote-ref-13)
13. *Id.*; Application. [↑](#footnote-ref-14)
14. *Id*. [↑](#footnote-ref-15)
15. Osterholt Testimony at 9. [↑](#footnote-ref-16)
16. Case 13-1939-EL-RDR, Opinion and Order at 8. [↑](#footnote-ref-17)
17. Smart Grid Phase 2 Collaborative (August 6, 2020). [↑](#footnote-ref-18)
18. *Id*. [↑](#footnote-ref-19)
19. Case 19-0992-EL-ESS, Annual Distribution Reliability Report (March 29, 2019) at 2 (AEP Ohio failed to meet both the System Average Interruption Frequency Index (“SAIFI”) and the Customer Average Interruption Duration Index (“CAIDI”)). [↑](#footnote-ref-20)
20. Case 20-0992-EL-ESS, Annual Distribution Reliability Report (March 31, 2020) at 2 (AEP Ohio failed to meet the SAIFI standard). [↑](#footnote-ref-21)
21. Case 20-1111-EL-ESS, OCC INT-01-007. [↑](#footnote-ref-22)
22. *Id*. [↑](#footnote-ref-23)
23. *Id*. [↑](#footnote-ref-24)
24. Osterholt Direct at 24. [↑](#footnote-ref-25)
25. Osterholt Testimony, Exhibit SSO-1 at 9. [↑](#footnote-ref-26)
26. Case 18-1618-EL-RDR, Finding and Order (November 21, 2019) at 7. [↑](#footnote-ref-27)
27. Osterholt Testimony, Exhibit SSO-3, at 19. [↑](#footnote-ref-28)
28. *Id.* at 22. [↑](#footnote-ref-29)
29. Grid Smart Collaborative Presentation (August 6, 2020). [↑](#footnote-ref-30)
30. Osterholt Direct, Exhibit 3 at 16. [↑](#footnote-ref-31)
31. Case No. 13-1939-EL-RDR, Application, Attachment 1 at 6 (September 13, 2013). [↑](#footnote-ref-32)
32. https://www.power-grid.com/2015/08/20/determining-the-impacts-of-volt-var-optimization-a-tale-of-two-approaches/#gref. [↑](#footnote-ref-33)
33. Application at 3-5. [↑](#footnote-ref-34)
34. *Id.* at 3. [↑](#footnote-ref-35)
35. Osterholt Direct at 17. [↑](#footnote-ref-36)
36. Lawson Testimony at 6. [↑](#footnote-ref-37)
37. Osterholt Direct at 17. [↑](#footnote-ref-38)
38. *Id.* at 24. [↑](#footnote-ref-39)
39. *Id.* at 25. [↑](#footnote-ref-40)
40. *Id.* at 26. [↑](#footnote-ref-41)
41. *Id.* at 31. [↑](#footnote-ref-42)
42. *Id.* at 33. [↑](#footnote-ref-43)
43. *Id.*at 26. [↑](#footnote-ref-44)
44. *Id.*at 35. [↑](#footnote-ref-45)
45. *Id.*at 39. [↑](#footnote-ref-46)
46. *Id.*at 36. [↑](#footnote-ref-47)
47. *Id.*at 42. [↑](#footnote-ref-48)
48. *Id.*at 44. [↑](#footnote-ref-49)
49. *Id.*at 45. [↑](#footnote-ref-50)
50. *Id*. [↑](#footnote-ref-51)
51. *Id.*at 46. [↑](#footnote-ref-52)
52. *Id.*at 47. [↑](#footnote-ref-53)
53. Application at 5. [↑](#footnote-ref-54)