**BEFORE**

**THE PUBLIC UTILITIES COMMISSION OF OHIO**

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| In the Matter of the Application of Ohio Power Company to Update its gridSMART Phase 2 Rider Rates. | )  )  ) | Case No. 19-1029-EL-RDR |

**CONSUMER PROTECTION REPLY TO AEP’S COMMENTS TO THE STAFF’S REVIEW AND RECOMMENDATIONS**

**BY**

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# I. INTRODUCTION

AEP Ohio has charged consumers $36.5 million during 2019 for gridSMART Phase 2.[[1]](#footnote-3) The financial audit of AEP Ohio’s expenditures is crucial to consumer protection. To protect consumers, the Office of the Ohio Consumers’ Counsel (“OCC”) appreciates the opportunity to provide the PUCO with these reply comments to make sure that consumers pay only just and reasonable rates and get the benefits promised them by AEP Ohio.

# II. BACKGROUND

Under gridSMART Phase 2, AEP Ohio is deploying approximately 894,000 so-called “Smart Meters,” distribution circuit automation (“DACR”) on approximately 250 distribution circuits, and Volt/VAR Optimization on 160 distribution circuits.[[2]](#footnote-4) It is required to file quarterly updates with the PUCO regarding its gridSMART Phase 2 spend.[[3]](#footnote-5)

AEP Ohio filed its fourth quarter 2019 update on January 28, 2020.[[4]](#footnote-6) The filing initiated a financial audit of the costs AEP Ohio incurred during 2019. The total AEP Ohio revenue requirement requested across the four quarters in 2019 is approximately $36.5 million, including both operations and maintenance (“O&M”) and capital costs for 2019.[[5]](#footnote-7)

In response to AEP Ohio’s filing, the PUCO Staff (“Staff”) filed a Review and Recommendation on December 2, 2020 (“Staff Review”). Staff recommended total capital adjustments of approximately $8,932,278 and O&M reductions of $681,831.[[6]](#footnote-8) AEP Ohio filed comments on the Staff Review on February 5, 2021. AEP Ohio recommended that the PUCO accept some Staff recommendations but not others.[[7]](#footnote-9) To protect consumers, the PUCO should accept all Staff’s recommendations and those of OCC, as described below.

# 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.

While Ohioans’ health and financial well-being is suffering in the wake of the coronavirus pandemic, AEP Ohio is looking to spend another billion dollars on so-called smart grid technologies as part of its proposed gridSMART Phase III.[[8]](#footnote-10) The PUCO should not allow AEP Ohio to move forward on gridSMART Phase III unless and until Phases I and II are completed, and the PUCO has completed its review to determine AEP’s investments are used and useful and the costs were prudently incurred.

AEP Ohio’s gridSMART Phase II was approved by the PUCO in February 2017.[[9]](#footnote-11) Costing consumers $516 million,[[10]](#footnote-12) 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.[[11]](#footnote-13) 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.[[12]](#footnote-14)

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.[[13]](#footnote-15)

### 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.[[14]](#footnote-16) Yet in August 2020 (41 months into the deployment), only 11 circuits (or 4.4% of the total circuits) had actually been completed.[[15]](#footnote-17) And there have been very few outage events where these 11 circuits were available to help customers avoid outages.[[16]](#footnote-18) 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[[17]](#footnote-19) and again in 2019.[[18]](#footnote-20) 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.[[19]](#footnote-21) The DACR technology operated successfully during 136 of the outage events.[[20]](#footnote-22) But the DACR technology failed to reconfigure the circuit as expected during 43 of the outage events.[[21]](#footnote-23) 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 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 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 as part of gridSMART Phase III 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.[[22]](#footnote-24) 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.[[23]](#footnote-25)

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.[[24]](#footnote-26) 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.[[25]](#footnote-27) 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.[[26]](#footnote-28) 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.[[27]](#footnote-29) 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.[[28]](#footnote-30)

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.[[29]](#footnote-31) 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.[[30]](#footnote-32)

## B. To protect consumers, the PUCO should require Staff to perform a review of AEP Ohio’s DACR technology to determine the underlying reasons for AEP Ohio’s lack of progress in expeditiously deploying this technology.

The gridSMART Phase 2 program includes deploying DACR technology on 250 circuits. DACR provides the capability to automatically reroute power around failure areas during certain outage events to reduce the number of customers who would otherwise be interrupted. AEP Ohio justified its gridSMART Phase 2 program based in part on over a billion dollars in estimated savings that were supposed to result from the DACR deployment.[[31]](#footnote-33)

While the gridSMART Phase 2 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 authorizing the program.[[32]](#footnote-34)Yet through December 2019, AEP Ohio had managed to install DACR only a total of nine circuits (or 3.6% of the total circuits).[[33]](#footnote-35) And there have been only three outage events where these nine circuits were available to help customers avoid outages.[[34]](#footnote-36) Until and unless AEP Ohio prioritizes deploying DACR on the remaining 241 circuits, customers will not realize the reliability improvements and the financial benefits that DACR is intended 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[[35]](#footnote-37)and again in 2019.[[36]](#footnote-38) Failing to meet the minimum reliability performance standards means that AEP Ohio customers are experiencing more interruptions and for longer durations of time despite the assurance of improved reliability through DACR.

Had AEP Ohio prioritized installing DACR when the PUCO first approved the program in February 2017, almost half of the DACR deployments could have been completed by December 2019. And more importantly, had DACR been deployed on 125 circuits, customers would have incurred fewer customer interruptions and customer minutes interrupted in 2018 and 2019. As illustration, for the three outage events that occurred in 2019 where DACR was used to reroute power during outages, over 400,000 customer minutes interrupted were avoided.[[37]](#footnote-39) If AEP Ohio had completed the DACR deployment on 125 circuits and there was an opportunity for DACR to be used on a third of those circuits, approximately 5.5 million customer minutes interrupted could have been avoided.

As part of the 2020 review of the gridSMART Phase 2 charge, the PUCO should require Staff to perform a review of the AEP Ohio’s gridSMART Phase 2 DACR deployment and determine the underlying causes for AEP Ohio’s lack of progress in deploying DACR. Additionally, Staff should assess the impact of AEP Ohio’s delay in deploying DACR on the billion dollars in reliability savings that AEP Ohio projected in its cost benefit analysis.[[38]](#footnote-40) If the projected reliability savings are not being realized due to delay, the PUCO should protect consumers by deferring any charges for DACR until reliability savings are proven.

## C. To protect consumers, the PUCO should accept Staff’s recommendation to remove $115,412 in O&M expense and $546,225 in capital expense from the gridSMART Phase 2 charge related to employee financial incentives.

PUCO Staff identified $115,412 in O&M expense and $546,225 in capital costs related to financial incentives that AEP Ohio has incorrectly included in the gridSMART Phase 2 charge.[[39]](#footnote-41) Staff explained that it does not support the collection of financial incentives based upon a utility company’s financial goals because it passes the costs associated with investor financial goals directly onto customers.[[40]](#footnote-42) In a recent PUCO Order, the PUCO found that Staff appropriately excluded costs associated with financial incentives from being passed onto customers of another electric utility.[[41]](#footnote-43)

AEP Ohio says that its employee compensation package includes base wages and short and long-term compensation as part of its incentive plan.[[42]](#footnote-44) AEP Ohio criticizes PUCO Staff’s analysis of its incentive plan and lack of review of the financial metrics embedded in its incentive plan.[[43]](#footnote-45) AEP Ohio claims that it is not in customers’ best interest to eliminate these financial incentives from the gridSMART Phase 2 charge because it may impede its ability to attract and retain employees with the skills and experience needed to provide efficient and effective service to customers.[[44]](#footnote-46)

OCC supports Staff’s recommendation to remove the financial incentives from AEP Ohio’s gridSMART Phase 2 charge. Including financial incentives would result in customers paying unjust and unreasonable charges under the gridSMART Phase 2 charge, contrary to law[[45]](#footnote-47) and precedent.[[46]](#footnote-48) Further, the gridSMART Phase 2 charge provides AEP Ohio with the authority to greatly accelerate collecting a return on and of its capital investments with updates that are performed on a quarterly basis. But it does *not* provide AEP Ohio with the authority to charge consumers for financial incentives earned by its employees.[[47]](#footnote-49)

The PUCO should require AEP Ohio to exclude the $155,412 in O&M expense and to remove $546,225 in capital costs from the 2019 gridSMART Phase 2 charge as recommended by Staff. As additional protection of consumes, OCC recommends that the PUCO should require Staff to examine the gridSMART Phase 2 charge since its inception to verify that financial incentives were not charged to consumers. If they were, the PUCO should adjust AEP Ohio’s gridSMART Phase 2 revenue requirement in an equal amount to protect consumers.

## D. To protect consumers, the PUCO should accept Staff’s recommendation to reduce the Smart Meter capital cost account by $8,222,874 to account for Smart Meters that AEP Ohio is holding in inventory for longer than three-months.

The Staff Review found that AEP Ohio purchased and stored Smart Meters in inventory for a much longer period than permitted by the PUCO Order that approved the gridSMART Phase 2 charge.[[48]](#footnote-50) In that Order, the PUCO established clear guidelines regarding the amount of time that the new Smart Meters could be retained in inventory because they are capitalized at the time they are purchased. It states: “Because meters are capitalized at the time of purchase, the value of uninstalled gridSMART meters authorized for recovery through this Rider shall, on average, include only the aggregate supply necessary for approximately three months of meter deployment activity. Uninstalled meters in excess of this limitation will not be eligible for recovery through any other rider.”[[49]](#footnote-51) PUCO Staff found here that AEP Ohio is holding Smart Meters in inventory for an average duration of 128.62 days – nearly 30 days longer than permissible.[[50]](#footnote-52)

AEP Ohio claims that there are exceptions to the requirement that Smart Meters can be held in inventory for only 90 days.[[51]](#footnote-53) AEP Ohio asserts that the meters are installed by contractors and that due to access and opt-out issues, and routine maintenance, Smart Meter inventory stock can be held for longer periods of time.[[52]](#footnote-54) AEP Ohio further clams that it would be difficult and expensive to track on a meter-to-meter basis the duration of time that meters are held in the inventory.[[53]](#footnote-55)

Consumers should not be required to pay AEP Ohio for Smart Meters that are not used and useful, but merely sitting in a warehouse. Further, AEP Ohio has complete control over the timing of procuring Smart Meters, the quantity of Smart Meters purchased, and the contracting activities involved in installing Smart Meters. It can track inventory. OCC recommends that the PUCO adopt Staff’s recommendation and require AEP Ohio to reduce the Smart Meter capital account by $8,222,874.

## E. To protect consumers, the PUCO should order Staff to examine AEP Ohio Smart Meter failures to determine if failure rates are within acceptable standards and recommend ways to mitigate the cost on of premature failures.

Approximately 6,251 of the approximate one million Smart Meters installed by AEP Ohio failed between 2017 and 2019 and required replacement.[[54]](#footnote-56) Smart Meters are expensive. At a cost of $180 per meter as estimated under the gridSMART Phase 2 program,[[55]](#footnote-57) over $1.1 million has been spent solely for the purpose of replacing meters that failed prematurely. A failure rate of approximately 0.63 percent for Smart Meters seems excessive (and it *is* costly to consumers) and suggests that even higher premature failure rates may occur in the coming years.[[56]](#footnote-58)

The accounting life of AEP Ohio’s Smart Meters is 15 years. Earlier generations of Smart Meter’s accounting life was projected based on failure rates of 0.5 percent.[[57]](#footnote-59) But as noted above, AEP Ohio Smart Meters’ *actual* failure rates exceed the earlier projections. This indicates that despite technological and manufacturing improvements in the design of Smart Meters, a 15 year accounting life could be a unlikely.[[58]](#footnote-60)

The PUCO should require Staff to examine Smart Meters’ failure rate to determine what (if any) alternatives exist to reduce it. Additionally, Staff should examine AEP Ohio’s policies regarding replacing prematurely failing Smart Meters to establish a failure rate standard, determine who is responsible for replacing prematurely failing meters, and verify that consumers are protected from paying for prematurely failing meters by determining if AEP Ohio has charged consumers for such meters (and adjust AEP Ohio’s revenue requirement downward if AEP Ohio has).

# Iv. CONCLUSION

To protect consumers, the PUCO should adopt the recommendations made by Staff and OCC regarding AEP Ohio’s gridSMART Phase 2 Charge.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that a copy of this Reply was served on the persons stated below viaelectric transmission this 15th day of June 2021.

*/s/ William J. Michael*

William J. Michael  
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1. AEP Ohio’s gridSMART Phase 2 Update for the Fourth Quarter (January 28, 2020). [↑](#footnote-ref-3)
2. *See, e.g.,* Case No. 13-1939-EL-RDR, Stipulation and Recommendation (April 7, 2016) at 6. [↑](#footnote-ref-4)
3. *See, e.g.,* Case No. 13-1939-EL-RDR, Opinion and Order (February 1, 2017). [↑](#footnote-ref-5)
4. *See id.* [↑](#footnote-ref-6)
5. *See* footnote 1, *supra*. [↑](#footnote-ref-7)
6. *See* Staff Review at 3-6. [↑](#footnote-ref-8)
7. *See* AEP Ohio’s Comments (February 5, 2021). [↑](#footnote-ref-9)
8. *See* Case No. 19-1475-EL-RDR, Application; Direct Testimony of Scott S. Osterholt, Exhibit SSO-3 (July 26, 2019) at 20 (“Osterholt Direct”). [↑](#footnote-ref-10)
9. *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 No. 13-1939-EL-RDR*,* Opinion and Order (February 1, 2017)*.*  [↑](#footnote-ref-11)
10. Case No. 13-1939-EL-RDR, Direct Testimony of Scott Osterholt, Exhibit SSO-1 (April 20, 2016) at 9 (“Osterholt Testimony”). [↑](#footnote-ref-12)
11. *Id.* [↑](#footnote-ref-13)
12. *Id*. [↑](#footnote-ref-14)
13. Osterholt Testimony at 9. [↑](#footnote-ref-15)
14. Case No. 13-1939-EL-RDR, Opinion and Order at 8. [↑](#footnote-ref-16)
15. Smart Grid Phase 2 Collaborative (August 6, 2020). [↑](#footnote-ref-17)
16. *Id*. [↑](#footnote-ref-18)
17. Case No. 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-19)
18. Case No. 20-0992-EL-ESS, Annual Distribution Reliability Report (March 31, 2020) at 2 (AEP Ohio failed to meet the SAIFI standard). [↑](#footnote-ref-20)
19. Case No. 20-1111-EL-ESS, OCC INT-01-007. [↑](#footnote-ref-21)
20. *Id*. [↑](#footnote-ref-22)
21. *Id*. [↑](#footnote-ref-23)
22. Osterholt Direct at 24. [↑](#footnote-ref-24)
23. Osterholt Testimony, Exhibit SSO-1 at 9. [↑](#footnote-ref-25)
24. Case No. 18-1618-EL-RDR, Finding and Order (November 21, 2019) at 7. [↑](#footnote-ref-26)
25. Osterholt Testimony, Exhibit SSO-3, at 19. [↑](#footnote-ref-27)
26. *Id.* at 22. [↑](#footnote-ref-28)
27. Grid Smart Collaborative Presentation (August 6, 2020). [↑](#footnote-ref-29)
28. Osterholt Direct, Exhibit 3 at 16. [↑](#footnote-ref-30)
29. Case No. 13-1939-EL-RDR, Application, Attachment 1 at 6 (September 13, 2013). [↑](#footnote-ref-31)
30. https://www.power-grid.com/2015/08/20/determining-the-impacts-of-volt-var-optimization-a-tale-of-two-approaches/#gref. [↑](#footnote-ref-32)
31. Case No. 13-1939-EL-RDR, Application Attachment C (September 13, 2013). [↑](#footnote-ref-33)
32. Case No. 13-1939-EL-RDR, Opinion and Order (February 1, 2017) at 8. [↑](#footnote-ref-34)
33. GridSMART Phase 2 Fourth Quarter Update, Attachment 3 Non-financial Metrics (January 28, 2020). [↑](#footnote-ref-35)
34. *Id*. [↑](#footnote-ref-36)
35. *See* Case No. 19-992-EL-ESS (March 29, 2019). [↑](#footnote-ref-37)
36. *See* Case No. 20-992-EL-ESS (March 30, 2020). [↑](#footnote-ref-38)
37. GridSMART Phase 2 Fourth Quarter Update, Attachment 3 Non-financial Metrics (January 28, 2020). [↑](#footnote-ref-39)
38. Case No. 13-1939-EL-RDR, Application, Attachment C (September 13, 2013). [↑](#footnote-ref-40)
39. *See* Staff Review at 4. [↑](#footnote-ref-41)
40. *See id.* [↑](#footnote-ref-42)
41. Case No. 16-664-EL-RDR, Finding and Order (May 15, 2019) at 6. [↑](#footnote-ref-43)
42. *See* AEP Ohio’s Comments at 2-3. [↑](#footnote-ref-44)
43. *See id.* [↑](#footnote-ref-45)
44. *See id.* [↑](#footnote-ref-46)
45. R.C. 4905.22. [↑](#footnote-ref-47)
46. *See* footnote 9, *supra*. [↑](#footnote-ref-48)
47. *See* footnote 2, *supra*. [↑](#footnote-ref-49)
48. Case No. 13-1939-EL-RDR, Opinion and Order (February 1, 2017) at 13. [↑](#footnote-ref-50)
49. *Id*. [↑](#footnote-ref-51)
50. *See* Staff Review at 5. [↑](#footnote-ref-52)
51. *See* AEP Ohio’s Comments at 6-9. [↑](#footnote-ref-53)
52. *See id.* [↑](#footnote-ref-54)
53. *See id.* [↑](#footnote-ref-55)
54. *See id*. Attachment 3, Certified Smart Meter Failures. [↑](#footnote-ref-56)
55. Case No. 13-1939-EL-RDR, Application, Attachment A (September 13, 2013) at 8. [↑](#footnote-ref-57)
56. [Security Risks and Technology Obsolescence Reduce Smart Meter Expected Lifetimes | Smart Grid Awareness](https://smartgridawareness.org/2018/09/25/technology-obsolescence-reduces-smart-meter-lifetimes/) [↑](#footnote-ref-58)
57. https://www.elstersolutions.com/assets/downloads/20-Questions.pdf [↑](#footnote-ref-59)
58. *See* footnote 25. [↑](#footnote-ref-60)