

**BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO**

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|---|-------------|------------------------|
| In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates. |))) | Case No. 17-32-EL-AIR |
| In the Matter of the Application of Duke Energy Ohio, Inc., for Tariff Approval. |)) | Case No. 17-33-EL-ATA |
| In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods. |))) | Case No. 17-34-EL-AAM |
| In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Modify Rider PSR. |))) | Case No. 17-872-EL-RDR |
| In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Amend Rider PSR. |))) | Case No. 17-873-EL-ATA |
| In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods. |))) | Case No. 17-874-EL-AAM |

In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Establish a Standard Service Offer Pursuant to Section 4928.143, Revised Code, in the Form of an Electric Security Plan, Accounting Modifications and Tariffs for Generation Service.))))) Case No. 17-1263-EL-SSO)))))

In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Amend its Certified Supplier Tariff, P.U.C.O. No. 20.))))) Case No. 17-1264-EL-ATA)))))

In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Defer Vegetation Management Costs.))))) Case No. 17-1265-EL-AAM)))))

In the Matter of the Application of Duke Energy Ohio, Inc., to Establish Minimum Reliability Performance Standards Pursuant to Chapter 4901:1-10, Ohio Administrative Code.))))) Case No. 16-1602-EL-ESS)))))

DUKE ENERGY OHIO, INC.’S ANNUAL DISTRIBUTION CAPITAL INVESTMENT WORKPLAN

I. Introduction

On December 19, 2018, the Ohio Public Utilities Commission (Commission) approved an extension of Duke Energy Ohio Inc.’s (Duke Energy Ohio or the Company) Distribution Capital Investment (DCI) Rider through May 31, 2025.¹ The Opinion and Order provided:

Duke shall work with Staff to develop an annual plan to emphasize proactive distribution maintenance that will focus spending on where it will have the greatest impact on maintaining and improving reliability for customers. The plan shall specifically include identification of those expenditures that will help reduce customers’

¹ *In the Matter of the Application of Duke Energy Ohio, Inc. for An Increase in Electric Distribution Rates*, Case No. 17-32-EL-AIR, *et. al*, Opinion and Order, pg. 38 (December 19, 2018) (Opinion and Order).

minutes interrupted. The plan shall be submitted to Staff annually starting on December 1, 2019.²

Additionally, in a separate Duke Energy Ohio Rider DCI docket, the Commission has approved a stipulation requiring Duke Energy Ohio to “file an annual report with the Commission” describing its DCI programs.³

In accordance with the above-described orders, Duke Energy Ohio submitted its first Annual DCI Workplan for 2020 on December 1, 2019 and has continued to file annually. The attached report reflects the Annual DCI Workplan (Workplan) for 2022.

II. DCI Programs

The attached Workplan includes the capital programs that are currently budgeted for 2022 and is subject to change based on business needs. The Workplan includes a description of the program, measures for reliability improvements, estimated number of units, affected circuits, expected reliability improvements, equipment affected, unit of measure and estimated budget dollars. Depending on the nature of the work performed, the amounts for the programs listed will be recorded in one or both of two FERC accounts: 010700 Construction Work in Progress and/or 108600 Retirement Work in Progress. The Workplan demonstrates the Company’s proactive efforts to transform the state’s electric grid by making it more resilient and reliable to deliver more value to Duke Energy Ohio’s customers and enhance the overall electricity experience.

III. Reliability Spending

Paragraph 113 of the Opinion and Order provides:

(1) For 2018, the Rider DCI revenue cap will be \$32 million.

² Opinion and Order, pg. 41.

³ *In the Matter of the Review of Duke Energy Ohio, Inc.’s Distribution Capital Investment Rider*, Case No. 17-1118-EL-RDR, Stipulation and Recommendation, pg. 5-6 (June 22, 2018); *Id.*, Opinion and Order, pg. 6-7 (September 26, 2018).

- (2) For 2019, the Rider DCI revenue cap will be \$42.1 million. This amount may be increased to \$46.8 million if, in 2018, Duke achieves both reliability standards.
- (3) For 2020, the Rider DCI revenue cap will be increased an additional \$14 million, or up to \$18.7 million, depending on whether the Company achieves both reliability standards.
- (4) For years 2021 through 2024, the Rider DCI revenue cap will be increased by an additional \$18.7 million, each year.
- (5) For the period of January 1 through May 31, 2025, the Rider DCI revenue cap will be between the range of \$62.4 million and \$66.3 million depending on the Company's reliability performance in prior years.⁴

Additionally, the Opinion and Order provides:

The CAIDI and SAIFI standards for 2018 through 2025 shall be as follows:

| Reliability Standards | | |
|-----------------------|----------------|--------------------|
| Year | CAIDI | SAIFI |
| 2018 | 134.4 minutes | 1.12 interruptions |
| 2019 | 134.34 minutes | 1.00 interruptions |
| 2020 | 134.34 minutes | 0.91 interruptions |
| 2021 | 135.52 minutes | 0.83 interruptions |
| 2022-2025 | 137.00 minutes | 0.75 interruptions |

⁵

IV. Conclusion

The Company will continue to submit annual updates in compliance with the Commission-approved Stipulation.

⁴ Opinion and Order, pg. 39.

⁵ *Id.*, pg. 41.

Respectfully submitted,

DUKE ENERGY OHIO, INC.

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CERTIFICATE OF SERVICE

I certify that a copy of the foregoing Duke Energy Ohio’s Annual Distribution Capital Investment Workplan was served on the following parties this 1st day of December 2021 by regular U. S. Mail, overnight delivery or electronic delivery.

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| Duke Energy Ohio 2022 DCI Work Plan | | | | | | | | | |
|-------------------------------------|--|---|---|----------------------|------------------------|--|--|--|-----------------------------|
| Row | Capital Program | Program Description | Measures for Reliability Improvements | Estimated 2022 Units | Affected 2022 Circuits | Expected Reliability Improvements | Equipment Affected | Unit of Measure | Estimated 2022 Budget (\$M) |
| 1a | Self-Optimizing Grid (SOG) Automated Switching Devices | Coordinated installation of new electronic reclosers to create switchable segments that will isolate faults and automatically reroute power around trouble areas using "self healing teams". | SOG reduces the number of customers affected by a long-term outage event by automatically providing the means to reconfigure the distribution system and restore power to those areas not directly involved in the outage. | 200 | 51 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Per recloser | \$14.0 |
| 1b | Self-Optimizing Grid (SOG) Circuit Capacity & Connectivity | Increases the capacity of distribution lines or builds new ones to network the distribution system so that load can be transferred to other sources after an outage event. | SOG reduces the number of customers affected by a long-term outage event by automatically providing the means to reconfigure the distribution system and restore power to those areas not directly involved in the outage. | 31 | 18 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Per project | \$17.3 |
| 1c | Self-Optimizing Grid (SOG) Substation Capacity | Increases the capacity of distribution substation equipment so that load can be transferred to other sources after an outage event. | SOG reduces the number of customers affected by a long-term outage event by automatically providing the means to reconfigure the distribution system and restore power to those areas not directly involved in the outage. | 2 | 2 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Substation | \$3.5 |
| 1 | Self-Optimizing Grid (SOG) | Installation of electronic reclosers, increased line capacity/connectivity, and increased substation capacity to network the distribution system with self-healing teams. | SOG reduces the number of customers affected by a long-term outage event by automatically providing the means to reconfigure the distribution system and restore power to those areas not directly involved in the outage. | 233 | | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Various | \$34.8 |
| 2 | Convert 4kV System | This conversion program updates the system to current standards, eliminates equipment at the end of useful life, and provides back-up from the existing 12 kV systems. In addition, the conversion enables grid modernization, such as Self-Optimizing Grid and IVVC, that was not possible on the 4kV systems. | Proactive asset replacement/upgrade program. There is positive impact to the reliability related to the prevention of future outages as well as the time required for restoration. | 4 | 7 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Substation | \$5.0 |
| 3a | Circuit Sectionalization | Installation / upgrade of sectionalizing devices on circuits to minimize the number of customers affected by an outage. | Reduces the number of customers affected by an outage. Currently, a single set of fuses protect upstream customers from experiencing an outage, but with circuit sectionalization several additional protective devices are installed. This fuse coordinated approach keeps one circuit segment issue at the end of the circuit from affecting more customers upstream. This program also reduces outage duration because the length of the line that requires troubleshooting is reduced allowing for a more accurate and timely pinpointing of the outage and more efficient restoration. | 340 | 16 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Circuit protection devices (such as trip savers and fuses) | Location | \$1.4 |
| 3b | Targeted Overhead Underground Conversion | Strategic replacement of rear-lot overhead lines that experience numerous outages, with underground lines. | Outages should be reduced by the replacing of overhead lines that have experienced numerous outages. | 8.7 | 4.0 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Rear-lot overhead lines | Number of overhead primary miles removed | \$10.3 |
| 3c | Declared Protection Zone | Program involves a detailed visual inspection of the distribution line providing power to an area experiencing an above average number of temporary and permanent power outages. | Repair/replacement/upgrades to infrastructure to reduce outages. Probable outage causes identified by a pole-by-pole inspection. | 21 | 16 | Improves reliability by reducing customers impacted and customer minutes interrupted during an outage event. | Distribution feeders | Per Work Order | \$4.2 |
| 3d | Recloser Replacement | This includes recloser failures and the proactive program to replace 1/6 of our hydraulic reclosers annually. The recloser plays a key role in protecting the main line of the circuit to isolate the outage to a smaller group of customers. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages due to recloser failures. | 195 | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Reclosers | Per recloser | \$3.2 |

| Duke Energy Ohio 2022 DCI Work Plan | | | | | | | | | |
|-------------------------------------|---|--|--|----------------------|------------------------|--|--------------------------------|-------------------|-----------------------------|
| Row | Capital Program | Program Description | Measures for Reliability Improvements | Estimated 2022 Units | Affected 2022 Circuits | Expected Reliability Improvements | Equipment Affected | Unit of Measure | Estimated 2022 Budget (\$M) |
| 3e | Recloser Control Replacement | Replacement of the controllers on recloser installations to improve physical security of the controller and provide better capability during service restoration activities. | Increased functionality will expedite the restoration of service to customers who have experienced a power outage. | 51 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Recloser controls | Per recloser | \$1.2 |
| 3f | Overhead Deteriorated Conductor Replace | Replacement of primary voltage conductors that are likely to fail due their deteriorated condition; a heavier gage wire is installed. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 77,419 | 6 | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Overhead primary conductor | Feet of conductor | \$2.4 |
| 3g | Capacitor Replacement | Replacement of failed capacitor banks. | Maintains the ability to adequately control voltage on a feeder. | 96 | TBD based on failures | Maintains system voltage | Capacitors | Per Work Order | \$1.9 |
| 3h | Modem Proactive Upgrade | Proactive program to replace smart device modems (in Line Sensors, Reclosers, Regulators, and Capacitor Banks) that are reaching end of useful life. (to be completed in 2021) | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future network outages. | 0 | 0 | Proactive efforts to maintain system reliability | Modems | Per modem | \$0.0 |
| 3i | Underground Cable Replacement | Replacement of primary underground cable due to repeated equipment failure. | Cable replacement is an asset renewal program and as such, there will be some positive impact to reliability, related to the prevention of future outages. | 115,000 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Underground cable | Feet of conductor | \$5.8 |
| 3j | Pole Replacement (Non Inspection Based) | Replacement of defective distribution poles identified during routine, non-inspection based activities. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 301 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Poles | Per pole | \$2.3 |
| 3k | Other Asset Replacements | Other, mainly reactive, capital replacements such as failed transformers, crossarms, etc. | Asset renewal program. There is positive impact to reliability related to the prevention of future outages. | N/A | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Various | Various | \$16.2 |
| 3 | Reliability & Integrity Programs | Instalation of new, and replacement of existing assets such as protective devices, conductor, capacitors, cable and transformers. | Asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 193,431 | | Improves/Maintains reliability by reducing/mitigating customers impacted and customer minutes interrupted. | Various | Various | \$48.8 |
| 4 | Advanced Metering Infrastructure (AMI) | Program replaces existing meters with smart meters that enable automated meter reading, remote connects/disconnects and quicker outage detection. | AMI meters have the capability to interrogate individual smart meters to determine if customers have power. This allows pinging during outages to determine specific customer impacts. The capability of interrogating individual meters can tell the Company when a customer's power has already been restored, saving a truck roll to confirm power has been restored. | 5,000 | system wide | Improved outage response reduces customer minutes interrupted during an outage event. | Meters | Per meter | \$0.6 |
| 5a | Pole Inspection Replacements | Replacement of defective distribution poles identified during annual pole inspections. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 342 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Poles | Per Pole | \$2.6 |
| 5b | Pole Reinforcement | Structural modification of distribution poles identified during annual pole inspections. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 538 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Poles | Per Pole | \$0.4 |
| 5c | Annual Line Patrol Inspection Replacement | Replacement of distribution equipment found during proactive line inspection. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 285 | TBD based on failures | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Poles and other capital assets | Per Work Order | \$1.5 |
| 5 | Inspection Programs | Replacement/reinforcement of poles and other equipment identified during inspections. | Proactive asset renewal program. There is positive impact to reliability related to the prevention of future outages. | 1,165 | | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Poles and other capital assets | Per Work Order | \$4.5 |

| Duke Energy Ohio 2022 DCI Work Plan | | | | | | | | | |
|-------------------------------------|---|--|--|--------------------------------|------------------------|--|----------------------|--------------------------------|-----------------------------|
| Row | Capital Program | Program Description | Measures for Reliability Improvements | Estimated 2022 Units | Affected 2022 Circuits | Expected Reliability Improvements | Equipment Affected | Unit of Measure | Estimated 2022 Budget (\$M) |
| 6 | Vegetation Management | This program includes all capital vegetation management work performed in Duke Energy Ohio. | There is positive impact to reliability related to the prevention of future outages. | Tracked by dollars (not units) | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | N/A | Tracked by dollars (not units) | \$8.2 |
| 7 | System / Retail Capacity | New and / or rebuilt distribution substation and line capacity to serve customer load and maintain substation equipment integrity. | Required to maintain reliable service. | Tracked by dollars (not units) | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from an outage event by increasing the capacity of adjacent circuits to pick-up load during an outage. | Distribution feeders | Tracked by dollars (not units) | \$67.7 |
| 8 | Distribution Circuit Improvement with Transmission Work | Duke Energy Ohio will rebuild transmission lines, many of which have a Distribution underbuild. This provides the opportunity to upgrade the Distribution equipment to improve reliability rather than simply transfer or rebuild to the same standards as existing Distribution facilities. | Proactive asset renewal program. Rebuilding to a newer standard can provide a positive impact to reliability related to the prevention of future outages. | Tracked by dollars (not units) | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from an outage event by increasing the capacity of adjacent circuits to pick-up load during an outage. | Distribution feeders | Tracked by dollars (not units) | \$17.0 |
| 9 | Service Restoration | This capital program includes day-to-day work for service restorations which are excluded from the major event category of outages. This would include capital dollars for such things as equipment replacement from an outage and capital dollars associated with minor storm events. | Restores customers during an outage | Tracked by dollars (not units) | system wide | Maintains reliability by restoring customers during an outage. | Various | Tracked by dollars (not units) | \$12.4 |
| 10 | Customer Service Work | This capital program is for work necessary for providing customers electric service in Duke Energy Ohio. It includes capital dollars for providing service to new customers, as well as upgrades to existing commercial, industrial and residential customers. | New/upgraded equipment is typically more reliable than older equipment built to older standards. | Tracked by dollars (not units) | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Customer services | Tracked by dollars (not units) | \$30.3 |
| 11 | Distribution Equipment Relocation | This capital program involves the relocation of existing facilities in support of road improvements. | New/upgraded equipment is typically more reliable than older equipment built to older standards. | Tracked by dollars (not units) | system wide | Maintains reliability by mitigating customers impacted and customer minutes interrupted from a potential outage event. | Various | Tracked by dollars (not units) | \$9.0 |
| 12 | Customer Operations | This capital program is for the purchase of customer meters for providing customers electric service in Duke Energy Ohio. | AMI meters have the capability to interrogate individual smart meters to determine if customers have power. This allows pinging during outages to determine specific customer impacts. The capability of interrogating individual meters can tell the Company when a customer's power has already been restored, saving a truck roll to confirm power has been restored. | Tracked by dollars (not units) | system wide | Improved outage response reduces customer minutes interrupted during an outage event. | Meters | Tracked by dollars (not units) | \$5.2 |
| 13 | Lighting | Capital replacements / additions of lighting not recovered under the OLE tariff. | Maintains reliability of Lighting assets. | Tracked by dollars (not units) | system wide | Maintains reliability of Lighting assets. | Lighting assets | Tracked by dollars (not units) | \$1.6 |
| 14 | TOTAL | | | | | | | | \$245.1 |

| Duke Energy Ohio 2022 DCI Work Plan - Affected Circuits | | | | | | | |
|--|--|--|--------------------|----------------------------|--|--------------------------|---|
| Self-Optimizing Grid (SOG) - Automated Switching Devices | Self-Optimizing Grid (SOG) - Circuit Capacity & Connectivity | Self-Optimizing Grid (SOG) - Substation Capacity | Convert 4kV System | Circuit Sectionalization | Targeted Overhead Underground Conversion | Declared Protection Zone | Overhead Deteriorated Conductor Replace |
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| BLAIRVILLE 41 | Cumminsville 41 | Newtown | Williamsburg B | CARLISLE (37) 3742 | FAIRFIELD 42 | Lake Waynoka 41 | Deer Park 45 |
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| DEER PARK 46 | Deer Park 46 | | Charles A | CUMMINSVILLE (64) 6447 | MILLIKIN 44 | Terminal 58 | Neumann 42 |
| ENYART 41 | Elmwood 44 | | Charles B | DEER PARK (26) 2644 | | Locust 41 | Mt Healthy 41 |
| EVENDALE 52 | Fairfield 41 | | Owensville A | DEER PARK (26) 2647 | | Obannonville 51 | Mt Healthy 44 |
| FAIRFIELD 41 | Fairfield 42 | | Owensville B | EASTWOOD (84) 8452 | | Obannonville 52 | |
| FAIRFIELD 42 | Fairfield 43 | | | FAIRFAX (283) 28341 | | Newtown 41 | |
| FAIRFIELD 43 | Fairfield 46 | | | FAIRFAX (283) 28342 | | Morgan 52 | |
| FAIRFIELD 44 | Markley 42 | | | FELICITY (359) 35941 | | Morgan 53 | |
| FINNEYTOWN 41 | Mt Healthy 44 | | | MOSCOW (301) 30141 | | Cedarville 51 | |
| FINNEYTOWN 44 | Newtown 41 | | | MOSCOW (301) 30142 | | Cedarville 52 | |
| HALL 42 | Newtown 44 | | | NICHOLSVILLE (341) 34142 | | Wiley 51 | |
| KEMPER 41 | Northgreen 43 | | | PLEASANT PLAIN (198) 19831 | | Summerside 57 | |
| KEMPER 42 | Terminal 41 | | | POAST TOWN (352) 35241 | | Port Union 43 | |
| KEMPER 43 | Terminal 43 | | | SOUTH BETHEL (81) 8151 | | Woodlawn 41 | |
| KEMPER 44 | Terminal 44 | | | | | | |
| KEMPER 45 | Twenty Mile 44 | | | | | | |
| KEMPER 46 | | | | | | | |
| MACK 42 | | | | | | | |
| MACK 43 | | | | | | | |
| MAPLEKNOLL 41 | | | | | | | |
| MARKLEY 42 | | | | | | | |
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| MORGAN 53 | | | | | | | |
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| NEW BURLINGTON 42 | | | | | | | |
| NORTHGREEN 41 | | | | | | | |
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| OLIVE BRANCH 42 | | | | | | | |
| REMYNGTON 43 | | | | | | | |
| SOCIALVILLE 44 | | | | | | | |
| SPRINGDALE 42 | | | | | | | |
| TERMINAL 41 | | | | | | | |
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**Case No(s). 17-0032-EL-AIR, 17-0033-EL-ATA, 17-0034-EL-AAM, 17-0872-EL-
RDR, 17-0873-EL-ATA, 17-0874-EL-AAM, 17-1263-EL-SSO, 17-1264-EL-ATA,
17-1265-EL-AAM, 16-1602-EL-ESS**

Summary: Report Duke Energy Ohio Inc.'s Annual Distribution Capital Investment
Workplan electronically filed by Mrs. Tammy M. Meyer on behalf of Duke Energy
Ohio Inc. and D'Ascenzo, Rocco and Vaysman, Larisa and Kingery, Jeanne W.