## BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

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	) ) ) Case No. 17-1263-EL-SSO
Plan, Accounting Modifications and Tariffs for Generation Service.	) )
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.<sup>1</sup> 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'

<sup>1</sup> 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.<sup>2</sup>

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.<sup>3</sup>

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.

<sup>&</sup>lt;sup>2</sup> Opinion and Order, pg. 41.

<sup>&</sup>lt;sup>3</sup> 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.<sup>4</sup>

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					

#### IV. Conclusion

The Company will continue to submit annual updates in compliance with the Commissionapproved Stipulation.

<sup>&</sup>lt;sup>4</sup> Opinion and Order, pg. 39.

<sup>&</sup>lt;sup>5</sup> *Id.*, pg. 41.

### Respectfully submitted,

### DUKE ENERGY OHIO, INC.

### /s/ Larisa M. Vaysman

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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.

/s/ Larisa M. Vaysman Larisa M. Vaysman

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Duke	Energy Ohio 2022 D	CI Work Plan							
Row	Capital Program	Program Description	Measures for Reliability Improvements	Estimated 2022 Units	Affected 2022 Circuits	Expected Reliablility 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		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 D	CI Work Plan							
Row	Capital Program	Program Description	Measures for Reliability Improvements	Estimated 2022 Units	Affected 2022 Circuits	Expected Reliablility 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	Reliabiility & Integrity Programs	Instalaltion 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

	J.								
Row	Capital Program	Program Description	Measures for Reliability Improvements	Estimated 2022 Units	Affected 2022 Circuits	Expected Reliablility 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

Self-Optimizing Grid	Self-Optimizing Grid	Self-Optimizing Grid			Targeted Overhead	Declared Protection	Overhead Deteriorated
(SOG) - Automated	(SOG) - Circuit Capacity	(SOG) - Substation	Convert 4kV System	Circuit Sectionalization	Underground Conversion		Conductor Replace
Switching Devices	& Connectivity	Capacity			Oliderground Conversion	Zone	Conductor Replace
AICHOLTZ 42	Blairville 41	Vera Cruz	Williamsburg A	BROWN (58) 5841	DEER PARK 45	Tobasco 42	Blairville 41
BLAIRVILLE 41	Cumminsville 41	Newtown	Williamsburg B	CARLISLE (37) 3742	FAIRFIELD 42	Lake Waynoka 41	Deer Park 45
DEER PARK 45	Cumminsville 42		Ryan A	CEDARVILLE (29) 2955	FAIRFIELD 44	Queensgate 44	Deer Park 46
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		Willey 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							
MARKLEY 44							
MILLIKIN 41							
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MONTGOMERY 44							
MORGAN 53							
MT HEALTHY 41							
MT HEALTHY 42							
MT HEALTHY 43							
MT HEALTHY 44							
MULHAUSER 43							
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NEW BURLINGTON 42							
NORTHGREEN 41							
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OLIVE BRANCH 42							
REMINGTON 43							
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TWENTY MILE 41							
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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.