

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke)
Energy Ohio, Inc., for Approval of its 2021) Case No. 20-1013-EL-POR
Energy Efficiency and Demand Side)
Management Portfolio of Programs and Cost)
Recovery Mechanism.)

In the Matter of the Application of Duke) Case No. 20-1114-EL-ATA
Energy Ohio, Inc., for Approval of Tariff)
Amendments)

DIRECT TESTIMONY OF

JAMES E. ZIOLKOWSKI

ON BEHALF OF

DUKE ENERGY OHIO, INC.

June 3, 2020

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Attachment:

JEZ-1 Revenue Requirement Forecast

I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is James E. Ziolkowski, and my business address is 139 East Fourth
3 Street, Cincinnati, Ohio 45202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by the Duke Energy Business Services LLC (DEBS) as Director,
6 Rates and Regulatory Planning. DEBS provides various administrative and other
7 services to Duke Energy Ohio, Inc., (Duke Energy Ohio or the Company) and other
8 affiliated companies of Duke Energy Corporation (Duke Energy).

9 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL**
10 **EXPERIENCE.**

11 A. I received a Bachelor of Science degree in Mechanical Engineering from the U.S.
12 Naval Academy in 1979 and a Master of Business Administration degree from
13 Miami University in 1988. I am also a licensed Professional Engineer in the state
14 of Ohio.

15 After graduating from the Naval Academy, I attended the Naval Nuclear
16 Power School and other follow-on schools. I served as a nuclear-trained officer on
17 various ships in the U.S. Navy through 1986. From 1988 through 1990, I worked
18 for Mobil Oil Corporation as a Marine Marketing Representative in the New York
19 City area.

20 I joined The Cincinnati Gas & Electric Company (CG&E) in 1990 as a
21 Product Applications Engineer, in which capacity I designed and managed some of
22 CG&E's demand side management programs, including Energy Audits and

1 Interruptible Rates. From 1996 until 1998, I was an Account Engineer and worked
2 with large customers to resolve various service-related issues, particularly in the
3 areas of billing, metering, and demand management. In 1998, I joined Cinergy
4 Services, Inc.'s, Rate Department, where I focused on rate design and tariff
5 administration. I was significantly involved with the initial unbundling and design
6 of CG&E's retail electric rates. I was appointed to my current position in January
7 2014.

8 **Q. PLEASE DESCRIBE YOUR DUTIES AS DIRECTOR, RATES AND**
9 **REGULATORY PLANNING.**

10 A. I am responsible for various rider filings, tariff administration, billing, and revenue
11 reporting issues in Ohio and Kentucky. I also prepare filings to modify charges and
12 terms in retail tariffs of Duke Energy Ohio and Duke Energy Kentucky, Inc., (Duke
13 Energy Kentucky) and develop rates for new services. During rate cases, I prepare
14 cost of service studies and help with the design of the new base rates. I assisted in
15 the development of the retail electric tariffs in the Company's Case No. 03-93-EL-
16 ATA, which established the Company's market-based standard service offer.
17 Additionally, I frequently work with customer contact and billing personnel of
18 Duke Energy Ohio and Duke Energy Kentucky to answer rate-related questions and
19 to apply the retail tariffs to specific situations. Occasionally, I meet with customers
20 and Company representatives to explain rates or provide rate training. I also
21 prepare reports that are required by regulatory authorities.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC UTILITIES**
2 **COMMISSION OF OHIO?**

3 A. Yes, I have testified before the Public Utilities Commission of Ohio (Commission) in
4 many cases. For example, I provided testimony before the Commission in support of
5 Duke Energy Ohio's most recent electric distribution base rate case, Case Number 17-
6 32-EL-AIR. I was also a witness in the Company's Electric Security Plan case, filed
7 under Case Number 17-1263-EL-SSO and a number of energy efficiency cases, filed
8 under Case No. 13-753-EL-RDR, Case No. 14-457-EL-RDR, Case No. 15-534-EL-
9 RDR, Case No. 16-664-EL-RDR, 17-781-EL-RDR, 18-397-EL-RDR , 19-622-EL-
10 RDR, and 20-613-EL-RDR.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
12 **PROCEEDING?**

13 A. The purpose of my testimony in this proceeding is to discuss the rate recovery
14 mechanism proposed to be utilized for the portfolio of programs proposed in this
15 application.

II. DISCUSSION OF THE PROPOSED RATE RECOVERY MECHANISM

16 **Q. WHAT RATE RECOVERY MECHANISM DOES THE COMPANY**
17 **PROPOSE IN THIS APPLICATION?**

18 A. Duke Energy Ohio proposes to establish a demand-side management (DSM) rider
19 (Rider DSM) for the recovery of implementation of the Company's new energy
20 efficiency (EE) / DSM portfolio of programs for calendar year 2021. The core
21 elements of Rider DSM, as detailed on the tariff sheet attached to the Company's
22 Application in these proceedings, will be similar to those of the existing Rider EE-

1 PDR, which was approved in Case Nos. 11-4393-EL-RDR, 13-0431-EL-POR, and
2 16-576-EL-POR. Rider DSM will allow the Company to recover the costs of its
3 programs, as well as a shared savings performance incentive associated with its
4 portfolio of approved programs and lost distribution margins from certain non-
5 residential customers. The Company will continue to recover lost distribution
6 revenues from non-residential customers served under Rate DS, Rate DP, and Rate
7 TS because those customers are not subject to Rider DDR, Distribution Decoupling
8 Rider. Unlike the current Rider EE/PDR that has a performance-based shared
9 savings incentive targeted at addressing state mandates for EE, the shared savings
10 incentive proposed in Rider DSM is a fixed rate of 8%.

11 **Q. WHAT IS THE PURPOSE OF RIDER DSM AND RIDER DSMR?**

12 A. Rider DSM describes the mechanism through which the revenue requirement and
13 its true-up is recovered from residential and non-residential customers. Rider
14 DSMR contains the results of the calculations, *i.e.*, the retail recovery rates. Tariff
15 sheets for these proposed mechanisms are attached to the Company's Application
16 in these proceedings.

17 **Q. WHAT WILL BE THE TOTAL REVENUE REQUIREMENT FOR THE**
18 **2021 PROGRAM PORTFOLIO?**

19 A. As depicted on Page 1 of Attachment JEZ-1, the total revenue requirement for the
20 2021 program portfolio, not including lost distribution revenues, is projected to be
21 \$21,306,807. Although the Company is only seeking approval of its cost recovery
22 mechanism for 2021 in this proceeding, I have also provided the anticipated
23 revenue requirements for 2022 for informational purposes. The relevant data for

1 2021 and 2022 is provided in columns labeled as “1” and “2” respectively.

2 **Q. HOW WILL PROGRAM COSTS BE CALCULATED?**

3 A. As depicted on Page 2 of Attachment JEZ-1, the revenue requirement for program
4 costs will be calculated by beginning with the costs of each category of programs
5 (residential and non-residential) and adding a *credit* reflecting the cost and revenues
6 associated with offering portfolio EE and DSM resources into the PJM Capacity
7 Auctions.

8 **Q. HOW WILL THE RATE DESIGN OF RIDER DSM DIFFER FROM THE**
9 **EXISTING RIDER EE/PDR?**

10 A. Rider DSM will have a two-step per-kWh rate design. The first step will be for
11 usage up to 833,000 kWh, and the second step will be for kWh over 833,000. The
12 second step charge will be zero. This rate design is similar to Rider LGR, and it
13 provides cost protection for very large customers. The existing Rider EE-PDRR
14 contains a per-kWh charge that applies to all kWh on customers’ bills.

15 **Q. WHAT ARE THE ESTIMATED RIDER DSM RATES AND BILL**
16 **IMPACTS RESULTING FROM THIS RATE DESIGN?**

17 A. The following tables show the calculation of the residential and non-residential
18 rates using estimated annual kWh and the monthly DSM charges and various usage
19 levels. The annual non-residential kWh number used in the rate calculation includes
20 only monthly billed kWh up to 833,000. Because of this rate design, non-residential
21 DSM charges are effectively capped at about \$639 for 2021.

	<u>Revenue Requirement</u>	<u>Estimated Billing kWh</u>	<u>Calculated DSM Rate</u>
			per kWh
Res from Portfolio	\$14,523,734	7,524,826,243	\$0.001930
NonRes from Portfolio	\$6,783,072	8,844,751,839	\$0.000767
Total	\$21,306,807		

<u>Monthly Usage</u>		
Residential kWh		<u>Rider DSM Charge</u>
500		\$0.97
1,000		\$1.93
1,500		\$2.90
2,000		\$3.86
Non-Residential kWh		<u>Rider DSM Charge</u>
1,000		\$0.77
2,000		\$1.53
5,000		\$3.83
10,000		\$7.67
50,000		\$38.35
100,000		\$76.69
200,000		\$153.38
500,000		\$383.45
833,000		\$638.83
Greater than 833,000		\$638.83

1 **Q. WHAT MAKES A RIDER AN APPROPRIATE AND NECESSARY COST**
2 **RECOVERY MECHANISM FOR EE AND DSM PROGRAMS?**

3 A. First, rider recovery will allow annual adjustment and reconciliation. Annual
4 reconciliations ensure that customers are paying no more and no less than the
5 Company's approved Rider DSM revenue requirement. Also, as described in Ms.
6 Haemmerle's testimony, this is particularly important for EE and DSM programs
7 because the recently revised EE rules require a portfolio and cost recovery
8 mechanism to be filed annually.

9 Second, rider recovery will be consistent with what customers have
10 previously experienced. The Company has operated energy efficiency programs
11 for many years. Cost recovery for the programs had been through riders with names

1 such as Rider DSM, Rider SAW, and Rider EE-PDRR. Thus, a separate Rider
2 DSM will be in line with the Company's Commission-approved past practices.

3 Third, a rider will permit separate charges for residential and non-residential
4 customers and avoid cross-subsidy from one class to the other or vice versa. If
5 DSM costs were to be included in base rates, the costs could be allocated to the
6 various rate schedules through the cost of service study in the initial rate case filing.
7 Upon approval of the new base rates by the Commission, there would be no
8 opportunity to adjust the costs and allocations of the costs until the Company's
9 subsequent distribution base rate case filing. Base rate recovery would make the
10 implementation of new EE/DSM programs or elimination of such programs out of
11 sync with the actual recovery of costs of operating the programs. Successive base
12 rate cases filings might be many years apart.

13 Finally, a rider will permit the Company to avoid a disproportionate rate
14 impact to the largest-usage customers. The proposed two-step rate, with the second
15 step set to zero, acts as a cap to non-residential customer bills, particularly large
16 industrials. This type of rate design is not compatible with base rate recovery.

III. RIDER DSM UPDATES

17 **Q. WHEN AND HOW WILL RIDER DSM BE UPDATED?**

18 A. First, Duke Energy Ohio proposes to file an updated tariff with an updated Rider
19 DSM as soon as the cost recovery mechanism proposed in this Application is
20 approved. Second, Duke Energy Ohio would begin recovering the associated rate
21 in bills rendered after January 1, 2021. Duke Energy Ohio will submit the
22 performance verification materials required by Rule 4901:1-39-05 for its 2021

1 programs by May 15, 2022 and file an annual update filing, including an annual
2 true-up of the prior year to reconcile any differences between the rates collected in
3 2021 and the actual revenue requirement based on program implementation. The
4 Rider DSM will then be updated based on the Commission's decision issued in that
5 update filing (which would incorporate any changes based on the outcomes of the
6 performance verification process, pursuant to Rule 4901:1-39-06(B)).

IV. CONCLUSION

7 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

8 **A. Yes.**

OHIO REVENUE REQUIREMENT (excluding Lost Revenues) WORKPAPER

in \$

Discount Rate	7.53%
Shared Savings (Pre-tax)	10.28%
Shared Savings (After tax)	8.00%
Tax	22.16%

	1	2	Total
Summary Revenue Requirement			
Res from Portfolio	\$14,523,734	\$14,537,774	\$29,061,508
NonRes from Portfolio	\$6,783,072	\$6,678,754	\$13,461,826
Total	\$21,306,807	\$21,216,530	\$42,523,334

	1	2	Total
Total Portfolio			
Total Avoided Costs	\$56,157,032	\$56,387,774	\$112,544,806
- Program Costs & Overhead & PJM Credits	\$17,313,713	\$17,186,653	\$34,500,366
- M&V Costs	\$0	\$0	\$0
Shared Savings	\$38,843,319	\$39,201,121	\$78,044,440
x Utility Sharing Rate	10.28%	10.28%	10.28%
Utility Share	\$3,993,093	\$4,029,875	\$8,022,968
+ Program Costs & Overhead & PJM Credits	\$17,313,713	\$17,186,653	\$34,500,366
+ M&V Cost Recovery	\$0	\$0	\$0
Total Revenue Requirement	\$21,306,806	\$21,216,528	\$42,523,334

	1	2	Total
Res EE			
Avoided Costs: T&D	\$7,492,687	\$7,300,556	\$14,793,243
Avoided Costs: Energy	\$13,096,817	\$13,888,815	\$26,985,632
Avoided Costs: Capacity	\$6,256,130	\$6,135,594	\$12,391,724
Total Avoided Costs	\$26,845,635	\$27,324,966	\$54,170,602
- Program Costs & Overhead & PJM Credits	\$10,741,503	\$10,772,178	\$21,513,680
- M&V Costs	\$0	\$0	\$0
Shared Savings	\$16,104,132	\$16,552,787	\$32,656,918
x Utility Sharing Rate	10.28%	10.28%	10.28%
Utility Share	\$1,655,505	\$1,701,626	\$3,357,131
+ Program Cost & Overhead Recovery & PJM Credits	\$10,741,503	\$10,772,178	\$21,513,680
+ M&V Cost Recovery	\$0	\$0	\$0
Total Revenue Requirement	\$12,397,007	\$12,473,804	\$24,870,811

	1	2	Total
NonRes EE			
Avoided Costs: T&D	\$3,516,707	\$3,399,853	\$6,916,561
Avoided Costs: Energy	\$5,707,446	\$5,685,182	\$11,392,628
Avoided Costs: Capacity	\$2,990,491	\$2,863,105	\$5,853,596
Total Avoided Costs	\$12,214,646	\$11,948,142	\$24,162,788
- Program Costs & Overhead & PJM Credits	\$3,208,428	\$3,153,781	\$6,362,209
- M&V Costs	\$0	\$0	\$0
Shared Savings	\$9,006,217	\$8,794,361	\$17,800,579
x Utility Sharing Rate	10.28%	10.28%	10.28%
Utility Share	\$925,839	\$904,060	\$1,829,900
+ Program Cost & Overhead Recovery & PJM Credits	\$3,208,428	\$3,153,781	\$6,362,209
+ M&V Cost Recovery	\$0	\$0	\$0
Total Revenue Requirement	\$4,134,267	\$4,057,841	\$8,192,109

	1	2	Total
Res DR			
Avoided Costs: T&D	\$5,081,665	\$5,090,463	\$10,172,128
Avoided Costs: Capacity	\$4,781,987	\$4,744,674	\$9,526,661
Total Avoided Costs	\$9,863,653	\$9,835,139	\$19,698,792
Program Costs & Overhead & PJM Credits	\$1,240,240	\$1,173,560	\$2,413,800
- M&V Costs	\$0	\$0	\$0
Shared Savings	\$8,623,413	\$8,661,578	\$17,284,991
x Utility Sharing Rate	10.28%	10.28%	10.28%
Utility Share	\$886,487	\$890,410	\$1,776,897
+ Program Cost & Overhead Recovery	\$1,240,240	\$1,173,560	\$2,413,800
+ M&V Cost Recovery	\$0	\$0	\$0
Total Revenue Requirement	\$2,126,727	\$2,063,970	\$4,190,697

	1	2	Total
NonRes DR			
Avoided Costs: T&D	\$3,726,429	\$3,767,735	\$7,494,164
Avoided Costs: Energy	\$0	\$0	\$0
Avoided Costs: Capacity	\$3,506,672	\$3,511,798	\$7,018,470
Total Avoided Costs	\$7,233,101	\$7,279,533	\$14,512,634
Program Costs & Overhead & PJM Credits	\$2,123,542	\$2,087,134	\$4,210,677
- M&V Cost	\$0	\$0	\$0
Shared Savings	\$5,109,559	\$5,192,399	\$10,301,958
x Utility Sharing Rate	10.28%	10.28%	10.28%
Utility Share	\$525,263	\$533,779	\$1,059,041
+ Program Cost & Overhead Recovery	\$2,123,542	\$2,087,134	\$4,210,677
+ M&V Cost Recovery	\$0	\$0	\$0
Total Revenue Requirement	\$2,648,805	\$2,620,913	\$5,269,718

	Program			Annual KWH Gross FR @ Plant, Annualized			Annual KW Gross FR @ Plant, Annualized			Avoided Costs NPV			Non-M&V Costs			M&V Costs			Total Program Costs			Shared Savings Pool			AC Total Cost			Shared Savings 10.28%			Revenue Requirement with Shared Savings			Revenue Requirement																		
	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total																			
Savings Recovery																																																				
Residential																																																				
Energy Efficiency																																																				
Energy Efficiency Education Program for Schools	3,585,549	3,585,549	7,171,098	963	963	1,926	2,082,259	2,151,227	\$	4,233,485	\$	627,202	\$	624,217	\$	1,251,419	\$	-	\$	-	\$	627,202	\$	624,217	\$	1,251,419	\$	1,455,057	\$	1,527,010	\$	2,982,067	\$	149,580	\$	156,977	\$	306,556	\$	776,782	\$	781,393	\$	1,557,975	\$	627,202	\$	624,217	\$	1,251,419		
Home Energy Comparison Report	92,415,498	92,646,645	185,062,142	23,716	23,776	47,492	7,413,347	7,637,849	\$	15,051,196	\$	3,711,135	\$	3,701,590	\$	7,412,725	\$	-	\$	-	\$	3,711,135	\$	3,701,590	\$	7,412,725	\$	3,702,211	\$	3,936,259	\$	7,638,471	\$	380,587	\$	404,647	\$	785,235	\$	4,091,723	\$	4,106,238	\$	8,197,960	\$	3,711,135	\$	3,701,590	\$	7,412,725		
Low Income Neighborhood Program	443,352	443,352	886,704	137	137	274	287,259	296,480	\$	583,739	\$	447,242	\$	451,531	\$	898,772	\$	-	\$	-	\$	447,242	\$	451,531	\$	898,772	\$	(159,983)	\$	(155,051)	\$	(315,033)	\$	(16,446)	\$	(15,939)	\$	(32,385)	\$	430,795	\$	435,592	\$	866,387	\$	447,242	\$	451,531	\$	898,772		
Residential Energy Assessments	2,893,936	2,853,728	5,747,664	264	260	524	1,544,236	1,506,556	\$	3,040,792	\$	1,252,459	\$	1,247,033	\$	2,499,492	\$	-	\$	-	\$	1,252,459	\$	1,247,033	\$	2,499,492	\$	291,777	\$	346,522	\$	641,299	\$	20,995	\$	33,931	\$	65,926	\$	1,282,454	\$	1,282,864	\$	2,566,418	\$	1,252,459	\$	1,247,033	\$	2,499,492		
Smart Saver® Residential	31,564,908	32,049,579	63,614,487	3,736	3,451	7,187	15,049,788	15,156,546	\$	30,206,334	\$	4,556,393	\$	4,582,006	\$	9,138,399	\$	-	\$	-	\$	4,556,393	\$	4,582,006	\$	9,138,399	\$	10,493,395	\$	10,574,540	\$	21,067,935	\$	1,078,721	\$	1,087,063	\$	2,165,784	\$	5,635,114	\$	5,669,069	\$	11,304,183	\$	4,556,393	\$	4,582,006	\$	9,138,399		
Low Income Weatherization - Pay for Performance	1,446,919	1,446,919	2,893,838	218	218	437	468,746	486,306	\$	955,053	\$	267,072	\$	265,801	\$	532,872	\$	-	\$	-	\$	267,072	\$	265,801	\$	532,872	\$	-	\$	203,674	\$	220,506	\$	422,180	\$	20,732	\$	22,668	\$	43,400	\$	287,804	\$	288,469	\$	576,273	\$	267,072	\$	265,801	\$	532,872
PJM Pilot Program - Residential	1	-	-	-	-	-	-	-	\$	-	\$	(120,000)	\$	(100,000)	\$	(220,000)	\$	-	\$	-	\$	(120,000)	\$	(100,000)	\$	(220,000)	\$	-	\$	120,000	\$	100,000	\$	220,000	\$	12,336	\$	10,380	\$	22,616	\$	(107,644)	\$	(89,720)	\$	(187,364)	\$	(120,000)	\$	(100,000)	\$	(220,000)
Total	132,350,162	133,025,772	265,375,934	29,035	28,805	57,840	\$	26,845,634	\$	27,324,964	\$	54,170,599	\$	10,741,503	\$	10,772,178	\$	21,513,680	\$	-	\$	-	\$	10,741,503	\$	10,772,178	\$	21,513,680	\$	16,104,132	\$	16,552,787	\$	32,656,918	\$	1,655,505	\$	1,701,626	\$	3,357,131	\$	12,397,007	\$	12,473,804	\$	24,870,811	\$	10,741,503	\$	10,772,178	\$	21,513,680
Demand Response																																																				
Power Manager®	-	-	-	48,588	47,576	96,164	9,863,602	9,835,137	\$	19,698,789	\$	1,240,240	\$	1,173,560	\$	2,413,800	\$	-	\$	-	\$	1,240,240	\$	1,173,560	\$	2,413,800	\$	8,623,412	\$	8,661,576	\$	17,284,988	\$	886,487	\$	890,410	\$	1,776,897	\$	2,126,727	\$	2,063,970	\$	4,190,697	\$	1,240,240	\$	1,173,560	\$	2,413,800		
Total	0	0	0	48,588	47,576	96,164	\$	9,863,602	\$	9,835,137	\$	19,698,789	\$	1,240,240	\$	1,173,560	\$	2,413,800	\$	-	\$	-	\$	1,240,240	\$	1,173,560	\$	2,413,800	\$	8,623,412	\$	8,661,576	\$	17,284,988	\$	886,487	\$	890,410	\$	1,776,897	\$	2,126,727	\$	2,063,970	\$	4,190,697	\$	1,240,240	\$	1,173,560	\$	2,413,800
Non-Residential																																																				
Energy Efficiency																																																				
Business Energy Saver	19,931,259	18,839,135	38,770,393	3,631	3,432	7,063	12,214,645	11,948,140	\$	24,162,785	\$	4,908,428	\$	4,653,781	\$	9,562,209	\$	-	\$	-	\$	4,908,428	\$	4,653,781	\$	9,562,209	\$	7,306,216	\$	7,294,359	\$	14,600,576	\$	751,079	\$	749,860	\$	1,500,939	\$	5,659,507	\$	5,403,641	\$	11,063,148	\$	4,908,428	\$	4,653,781	\$	9,562,209		
Smart Saver® Non Residential Custom	-	-	0	-	-	0	-	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	\$	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-				
Smart Saver® Non Residential Prescriptive	-	-	0	-	-	0	-	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	\$	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-	-	\$	-				
PJM Pilot Program - NonResidential	1	-	-	-	-	0	-	-	\$	-	\$	(1,700,000)	\$	(1,500,000)	\$	(3,200,000)	\$	-	\$	-	\$	(1,700,000)	\$	(1,500,000)	\$	(3,200,000)	\$	-	\$	1,700,000	\$	1,500,000	\$	3,200,000	\$	174,760	\$	154,200	\$	328,960	\$	(1,525,240)	\$	(1,345,800)	\$	(2,871,040)	\$	(1,700,000)	\$	(1,500,000)	\$	(3,200,000)
Total	19,931,259	18,839,135	38,770,393	3,631	3,432	7,063	\$	12,214,645	\$	11,948,140	\$	24,162,785	\$	3,208,428	\$	3,153,781	\$	6,362,209	\$	-	\$	-	\$	3,208,428	\$	3,153,781	\$	6,362,209	\$	5,006,210	\$	8,794,359	\$	17,800,576	\$	925,839	\$	904,060	\$	1,829,899	\$	4,134,267	\$	4,057,841	\$	8,192,108	\$	3,208,428	\$	3,153,781	\$	6,362,209
Demand Response																																																				
Power Manager® for Business	1	-	-	8,883	8,484	17,367	1,786,955	1,736,917	\$	3,523,872	\$	773,132	\$	748,270	\$	1,521,402	\$	-	\$	-	\$	773,132	\$	748,270	\$	1,521,402	\$	1,013,823	\$	988,647	\$	2,002,470	\$	104,221	\$	101,633	\$	205,854	\$	877,353	\$	849,903	\$	1,727,256	\$	773,132	\$	748,270	\$	1,521,402		
PowerShare®	-	-	-	26,065	26,065	52,130	5,446,146	5,542,616	\$	10,988,763	\$	1,350,410	\$	1,338,864	\$	2,689,275	\$	-	\$	-	\$	1,350,410	\$	1,338,864	\$	2,689,275	\$	4,095,736	\$	4,203,752	\$	8,299,488	\$	421,042	\$	432,146	\$	853,187	\$	1,771,452	\$	1,771,010	\$	3,542,462	\$	1,350,410	\$	1,338,864	\$	2,689,275		
Total	0	0	0	34,948	34,549	69,496	\$	7,233,101	\$	7,279,533	\$	14,512,634	\$	2,123,542	\$	2,087,134	\$	4,210,677	\$	-	\$	-	\$	2,123,542	\$	2,087,134	\$	4,210,677	\$	5,109,559	\$	5,192,399	\$	10,301,958	\$	525,263	\$	533,779	\$	1,059,041	\$	2,648,805	\$	2,620,913	\$	5,269,718	\$	2,123,542	\$	2,087,134	\$	4,210,677
Total	152,281,421	151,864,906	304,146,327	116,202	114,362	230,564	\$	56,157,032	\$	56,387,774	\$	112,544,806	\$	17,313,713	\$	17,186,653	\$	34,500,366	\$	-	\$	-	\$	17,313,713	\$	17,186,653	\$	34,500,366	\$	38,843,319	\$	39,201,121	\$	78,044,440	\$	3,993,093	\$	4,029,875	\$	8,022,968	\$	21,306,806	\$	21,216,528	\$	42,523,334	\$	17,313,713	\$	17,186,653	\$	34,500,366
Total	152,281,421	151,864,906	304,146,327	116,202	114,362	230,564	\$	56,157,032	\$	56,387,774	\$	112,544,806	\$	17,313,713	\$	17,186,653	\$	34,500,366	\$	-	\$	-	\$	17,313,713	\$	17,186,653	\$	34,500,366	\$	38,843,319	\$	39,201,121	\$	78,044,440	\$	3,993,093	\$	4,029,875	\$	8,022,968	\$	21,306,806	\$	21,216,528	\$	42,523,334	\$	17,313,713	\$	17,186,653	\$	34,500,366

Total costs for PJM EMV are as follows. Costs have been allocated to Residential and NonResidential based on forecasted KW.
Year 1 \$0
Year 2 \$0

OHIO LOST REVENUE ESTIMATE WORKPAPER

in \$

Line Losses 5.6%

		<u>1</u>	<u>2</u>	<u>Total</u>
SUMMARY	Res	0	0	0
	NonRes	138,820	437,001	575,821
	Total	138,820	437,001	575,821

Res EE	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	1 Lost Revenues	0	0	0
	2 Lost Revenues	0	0	0
	Lost Revenues	0	0	0

	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	2021 1 KWH at Meter, Net FR	105,211,483	32,866,111	138,077,594
	2022 2 KWH at Meter, Net FR	0	105,702,361	105,702,361
	KWH at Meter, Net FR	105,211,483	138,568,472	243,779,955

	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	1 Calculated \$/KWH	\$0.000000	\$0.000000	\$0.000000
	2 Calculated \$/KWH	\$0.000000	\$0.000000	\$0.000000
	Calculated \$/KWH	\$0.000000	\$0.000000	\$0.000000

NonRes EE	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	1 Lost Revenues	138,820	305,885	444,705
	2 Lost Revenues	0	131,116	131,116
	Lost Revenues	138,820	437,001	575,821

	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	2021 1 KWH at Meter, Net FR	8,720,474	19,215,279	27,935,753
	2022 2 KWH at Meter, Net FR	0	8,236,492	8,236,492
	KWH at Meter, Net FR	8,720,474	27,451,771	36,172,246

	Vintage	<u>1</u>	<u>2</u>	<u>Total</u>
	1 Calculated \$/KWH	\$0.015919	\$0.015919	\$0.015919
	2 Calculated \$/KWH	\$0.015919	\$0.015919	\$0.015919
	Calculated \$/KWH	\$0.015919	\$0.015919	\$0.015919

OHIO LOST REVENUE ESTIMATE WORKPAPER
in \$

Line Losses	5.6%
Res LR\$/KWH	-
Non- Res LR\$/KWH	0.015919

SUMMARY			1	2	Total
NonRes EE Lost Revenues			\$138,820	\$437,001	\$575,821

NonRes EE	Vintage		1	2	Total
	1	Lost Revenues	\$138,820	\$305,885	\$444,705
	2	Lost Revenues	\$0	\$131,116	\$131,116
	Lost Revenues		\$138,820	\$437,001	\$575,821
	Vintage		1	2	Total
	1	KWH at Meter, Net FR	8,720,474	19,215,279	27,935,753
2	KWH at Meter, Net FR	0	8,236,492	8,236,492	
KWH at Meter, Net FR		8,720,474	27,451,771	36,172,246	

NonRes EE Business Energy Saver					
Vintage		1	2	Total	
1		Lost Revenues	\$138,820	\$305,885	\$444,705
2		Lost Revenues	\$0	\$131,116	\$131,116
Lost Revenues		\$138,820	\$437,001	\$575,821	
Vintage		1	2	Total	
2021	1	KWH at Meter, Net FR	8,720,474	19,215,279	27,935,753
2022	2	KWH at Meter, Net FR	0	8,236,492	8,236,492
KWH at Meter, Net FR		8,720,474	27,451,771	36,172,246	

Smart Saver® Non Residential Custom					
Vintage		1	2	Total	
1		Lost Revenues	\$0	\$0	\$0
2		Lost Revenues	\$0	\$0	\$0
Lost Revenues		\$0	\$0	\$0	
Vintage		1	2	Total	
2021	1	KWH at Meter, Net FR	0	0	0
2022	2	KWH at Meter, Net FR	0	0	0
KWH at Meter, Net FR		0	0	0	

Smart Saver® Non Residential Prescriptive					
Vintage		1	2	Total	
1		Lost Revenues	\$0	\$0	\$0
2		Lost Revenues	\$0	\$0	\$0
Lost Revenues		\$0	\$0	\$0	
Vintage		1	2	Total	
2021	1	KWH at Meter, Net FR	0	0	0
2022	2	KWH at Meter, Net FR	0	0	0
KWH at Meter, Net FR		0	0	0	

Power Manager® for Business					
Vintage		1	2	Total	
1		Lost Revenues	\$0	\$0	\$0
2		Lost Revenues	\$0	\$0	\$0
Lost Revenues		\$0	\$0	\$0	
Vintage		1	2	Total	
2021	1	KWH at Meter, Net FR	0	0	0
2022	2	KWH at Meter, Net FR	0	0	0
KWH at Meter, Net FR		0	0	0	

Smart Saver® Non Residential Performance Incentive Program					
Vintage		1	2	Total	
1		Lost Revenues	\$0	\$0	\$0
2		Lost Revenues	\$0	\$0	\$0
Lost Revenues		\$0	\$0	\$0	
Vintage		1	2	Total	
2021	1	KWH at Meter, Net FR	0	0	0
2022	2	KWH at Meter, Net FR	0	0	0
KWH at Meter, Net FR		0	0	0	

Program/Portfolio Cost Effectiveness - 2021

Program	1	UCT	TRC	RIM	PCT
Residential Programs - EE					
Energy Efficiency Education Program for Schools		3.32	3.20	1.54	16.35
Home Energy Comparison Report		2.00	2.00	1.15	
Low Income Neighborhood Program		0.64	0.64	0.54	2.21
Power Manager®		7.95	16.85	7.95	
Residential Energy Assessments		1.23	1.24	0.73	52.49
Smart Saver® Residential		3.30	1.93	1.27	4.77
Low Income Weatherization - Pay for Performance		1.76	8.16	0.93	
Total		3.03	2.53	1.53	6.80
Non-Residential Programs					
Power Manager® for Business		2.31	3.42	2.31	
PowerShare®		2.63	11.80	2.63	
Business Energy Saver		2.49	1.71	1.41	3.42
Total		2.51	2.39	1.69	3.75
Overall Portfolio Total		2.83	2.48	1.58	5.51

1 - Expected PJM credits have not been included in cost effectiveness.

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Case No(s). 20-1013-EL-POR, 20-1114-EL-ATA

Summary: Testimony Direct Testimony of James E. Ziolkowski on Behalf of Duke Energy Ohio, Inc. electronically filed by Carys Cochern on behalf of Duke Energy