

**BEFORE**

**THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke )  
Energy Ohio, Inc. to Adjust Rider DR-IM ) Case No. 16-1404-EL-RDR  
for 2015 SmartGrid Costs. )

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**DIRECT TESTIMONY OF**  
**DONALD L. SCHNEIDER, JR.**  
**ON BEHALF OF**  
**DUKE ENERGY OHIO, INC.**

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June 29, 2016

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Attachments:

DLS-1 Distribution System Loading Report

DLS-2 2015 Distribution System Efficiency Metrics (IVVC)

**I. INTRODUCTION**

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

2 A. My name is Donald L. Schneider, Jr., and my business address is 400 South  
3 Tryon Street, Charlotte, North Carolina, 28202.

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

5 A. I am employed by Duke Energy Business Services LLC, an affiliate of Duke  
6 Energy Ohio, Inc. (Duke Energy Ohio or Company), as Director, Advanced  
7 Metering.

8 **Q. WHAT ARE YOUR RESPONSIBILITIES AS DIRECTOR, ADVANCED  
9 METERING?**

10 A. As Director, Advanced Metering, my primary responsibility is managing the  
11 project execution of Advanced Metering Infrastructure (AMI) related projects for  
12 all Duke Energy Corp. (Duke Energy) jurisdictions. Prior to the merger between  
13 Duke Energy and Progress Energy, I was responsible for managing the project  
14 execution for both AMI and Distribution Automation (DA) deployments for all  
15 legacy Duke Energy jurisdictions.

16 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL  
17 BACKGROUND.**

18 A. I received a Bachelor of Science Degree in Electrical Engineering from the  
19 University of Evansville in 1986. After graduation, I was employed by Duke  
20 Energy Indiana (then known as Public Service Indiana) as an electrical engineer.  
21 Throughout my career, I have held various positions of increasing responsibility  
22 in the areas of engineering and operations, including distribution planning,

1 distribution design, field operations, and capital budgets. Prior to my current role,  
2 I was General Manager, Midwest Premise Services, responsible for managing all  
3 of Duke Energy's Midwest Premise Services and Meter Reading departments. I  
4 was promoted to my current position in 2008.

5 **Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER?**

6 A. Yes. I have been registered as a professional engineer with the State Board of  
7 Registration for Professional Engineers in the state of Indiana since 1995.

8 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC  
9 UTILITIES COMMISSION OF OHIO?**

10 A. Yes. I provided written testimony in several earlier Duke Energy Ohio SmartGrid  
11 Rider proceedings, including Case No. 09-543-GE-UNC, Case No. 10-867-GE-  
12 RDR, Case No. 10-2326-GE-RDR, Case No. 12-1811-GE-RDR, Case No. 13-  
13 1141-GE-RDR, Case No. 14-1051-GE-RDR, and Case No. 15-883-GE-RDR.

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

15 A. Through this testimony, I am sponsoring the 2015 Distribution System Loading  
16 Report and Distribution System Efficiency Metrics as Attachments DLS-1 and  
17 DLS-2, respectively. These are reports that the Company agreed to provide with  
18 its annual smart grid cost recovery rider applications.

**II. DUKE ENERGY OHIO'S CURRENT DEPLOYMENT**

19 **Q. PLEASE EXPLAIN THE SYSTEM AVERAGE INTERRUPTION  
20 FREQUENCY INDEX AND HOW DUKE ENERGY OHIO IS  
21 PERFORMING AGAINST TARGETS.**

1 A. The System Average Interruption Frequency Index (SAIFI) is a standard that the  
2 utility industry uses to report the average number of sustained (greater than five  
3 minutes) interruptions per customer per year. In Duke Energy Ohio's 2008  
4 Electric Security Plan (ESP), the Company agreed to a stipulation under which  
5 we committed to achieving specified SAIFI targets for each year of the smart grid  
6 deployment. The agreed upon and approved targets are:

Year	SAIFI Target	SAIFI Results
2009	1.50	1.30
2010	1.44	1.10
2011	1.38	1.38
2012	1.31	1.08
2013	1.24	0.98
2014	1.17	0.99
2015	1.10	1.04

7 Duke Energy Ohio is pleased to note that it has met or exceeded its SAIFI target  
8 for each of those years. The 2009 SAIFI result was 1.30, 2010 was 1.10, 2011  
9 was 1.38, 2012 was 1.08, 2013 was 0.98, 2014 was 0.99, and 2015 was 1.04.  
10 Duke Energy Ohio's performance against SAIFI targets represents just one of  
11 many benefits achieved to date through the smart grid deployment.

12 **Q. PLEASE DESCRIBE ANY SEPARATE REPORTS YOU ARE**  
13 **INCLUDING WITH YOUR TESTIMONY.**

14 **A.** I am including two separate annual reports with my testimony. The first report,  
15 titled Duke Energy Ohio Distribution System Loading Report - 2015, Attachment  
16 DLS-1, reflects the 2015 distribution system summer peak load details by circuit.  
17 This report shows distribution system summer peak loading, power factor, and  
18 losses on a circuit by circuit basis. The automation of distribution devices and

1 implementation of IVVC results in system load reduction, more favorable system  
2 power factor, and reduced system losses.

3 The second report, titled Duke Energy Ohio Distribution System  
4 Efficiency Metrics – IVVC, Attachment DLS-2, is a report of Duke Energy  
5 Ohio’s megawatt hour (MWH) reduction under IVVC based on the number of  
6 circuits under IVVC control for 2015. The report details the number of circuits  
7 that were commissioned for IVVC control by year-end 2015 and utilizes 2012 as  
8 the baseline year for the system average voltage from which the MWH reduction  
9 under IVVC is calculated. The Report shows that IVVC-enabled circuits  
10 operated with an average voltage of 120.95, equating to a 1.83 percent average  
11 voltage reduction with IVVC from the 2012 baseline. This voltage reduction led  
12 to a 209,513 MWh reduction assuming a Conservation Voltage Reduction (CVR)  
13 factor of 0.79. These IVVC results are within expectations of the IVVC system.

**III. CONCLUSION**

14 **Q. WERE ATTACHMENTS DLS-1 AND DLS-2 PREPARED BY YOU OR**  
15 **UNDER YOUR SUPERVISION?**

16 A. Yes.

17 **Q. IS THE INFORMATION CONTAINED IN ATTACHMENTS DLS-1 AND**  
18 **DLS-2 TRUE AND ACCURATE TO THE BEST OF YOUR KNOWLEDGE**  
19 **AND BELIEF?**

20 A. Yes.

21 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

22 A. Yes.

Station Number	Substation Name	Circuit Name	Voltage (kV)	2015 Sum Peak Load (kW)	2015 Sum Losses (kW)	2015 Sum Peak Demand (kW)	PF (%)	Losses (%)
362	Aicholtz	41	12.47	9137	72	9209	99.08%	0.78%
362	Aicholtz	42	12.47	7751	190	7941	99.94%	2.39%
211	ALLEN	41	12.47	11160	209	11369	98.00%	1.84%
211	ALLEN	42	12.47	9164	129	9293	99.00%	1.39%
141	Amelia	41	12.47	7680	65	7745	99.94%	0.84%
141	Amelia	42	12.47	7570	83	7653	98.14%	1.08%
11	ASHLAND	41	12.47	4267	56	4323	100.00%	1.30%
11	ASHLAND	42	12.47	8448	182	8629	99.00%	2.11%
11	ASHLAND	43	12.47	4034	23	4057	100.00%	0.57%
11	ASHLAND	44	12.47	8417	91	8508	100.00%	1.07%
11	ASHLAND	45	12.47	300	0	300	100.00%	0.00%
11	ASHLAND	46	12.47	6370	90	6460	99.00%	1.39%
11	ASHLAND	46	12.47	6370	90	6460	99.00%	1.39%
11	ASHLAND	47	12.47	7969	128	8098	100.00%	1.58%
11	ASHLAND	48	12.47	5873	294	6167	99.00%	4.77%
11	ASHLAND	49	12.47	4947	35	4982	94.00%	0.70%
272	Banning	41	12.47	6029	21	6050	99.00%	0.35%
272	Banning	42	12.47	7562	88	7650	100.00%	1.15%
156	Barnesburg	41	12.47	7923	10	7880	98.00%	0.13%
139	Batavia	41	12.47	7478	103	7581	99.96%	1.36%
139	Batavia	42	12.47	4084	17	4101	94.91%	0.41%
87	BECKETT	41	12.47	6712	75	6787	99.00%	1.11%
87	BECKETT	42	12.47	11568	295	11863	98.00%	2.49%
318	Berkshire	41	12.47	5934	42	5976	98.62%	0.70%
318	Berkshire	42	12.47	7251	69	7320	93.19%	0.94%
40	BETHANY	41	12.47	6846	79	6925	99.00%	1.14%
40	BETHANY	42	12.47	6240	112	6352	100.00%	1.76%
40	BETHANY	43	12.47	7880	323	8203	97.00%	3.94%
40	BETHANY	44	12.47	8087	214	8303	99.00%	2.58%
40	BETHANY	45	12.47	4023	103	4127	87.00%	2.50%
40	BETHANY	46	12.47	9812	203	10015	86.00%	2.03%
40	BETHANY	47	12.47	8882	314	9200	99.00%	3.41%
40	BETHANY	48	12.47	8288	246	8535	99.00%	2.88%
310	Blairville	41	12.47	5716	65	5781	94.08%	1.12%
105	Branch Hill	41	12.47	6120	76	6196	99.95%	1.23%
105	Branch Hill	42	12.47	4948	37	4985	98.14%	0.74%
21	BRIGHTON	41	12.47	394	0	394	94.00%	0.50%
21	BRIGHTON	42	12.47	965	2	967	99.00%	0.19%
21	BRIGHTON	43	12.47	4551	101	4652	98.00%	2.30%
21	BRIGHTON	44	12.47	3719	36	3755	95.00%	0.90%
21	BRIGHTON	45	12.47	2791	7	2798	100.00%	0.14%
21	BRIGHTON	46	12.47	3511	27	3538	97.00%	1.20%
21	BRIGHTON	47	12.47	2499	4	2503	95.00%	0.19%
21	BRIGHTON	48	12.47	4656	20	4676	100.00%	0.25%
21	BRIGHTON	49	12.47	7682	72	7754	99.00%	0.95%
21	BRIGHTON	2123	12.47	0	0	0	0.00%	0.23%

186	Brower	51	34.5	2109	1	2110	84.00%	0.05%
58	Brown	41	12.47	4734	185	4919	98.18%	3.76%
58	Brown	51	34.5	10832	273	11105	99.45%	2.46%
58	Brown	52	34.5	7718	152	7870	92.52%	1.93%
172	Buckwheat	41	12.47	5508	34	5542	96.45%	0.61%
37	CARLISLE	41	12.47	19460	1319	20779	95.00%	6.35%
37	CARLISLE	42	12.47	12167	253	12420	94.00%	2.04%
29	Cedarville	51	34.5	13931	219	14150	99.92%	1.55%
29	Cedarville	52	34.5	15433	349	15782	99.11%	2.21%
29	Cedarville	53	34.5	5646	56	5702	99.72%	0.98%
29	Cedarville	54	34.5	13595	179	13774	91.87%	1.30%
29	Cedarville	55	34.5	6006	54	6060	97.20%	0.89%
39	CENTRAL	41	12.47	4888	56	4944	100.00%	1.13%
39	CENTRAL	42	12.47	3557	35	3592	97.00%	0.97%
39	CENTRAL	43	12.47	4585	56	4641	99.00%	1.21%
39	CENTRAL	44	12.47	8005	112	8117	100.00%	1.38%
39	CENTRAL	45	12.47	3106	21	3127	100.00%	0.67%
39	CENTRAL	46	12.47	1974	15	1989	81.00%	0.75%
13	CHARLES	41	12.47	5077	33	5110	87.00%	0.65%
13	CHARLES	42	12.47	4479	20	4499	89.00%	0.44%
13	CHARLES	43	12.47	8096	97	8193	98.00%	1.18%
13	CHARLES	44	12.47	8809	58	8867	99.00%	0.65%
13	CHARLES	45	12.47	4305	21	4326	92.00%	0.49%
13	CHARLES	46	12.47	6650	80	6730	96.00%	1.19%
91	CHESTER	41	12.47	8395	54	8449	98.00%	0.64%
91	CHESTER	42	12.47	8662	113	8775	100.00%	1.29%
91	CHESTER	43	12.47	6155	68	6223	90.00%	1.09%
91	CHESTER	44	12.47	3331	13	3344	91.00%	0.39%
178	Clertoma	41	12.47	1662	3	1665	98.44%	0.18%
23	Clinton County	51	34.5	12764	67	12831	97.10%	0.52%
23	Clinton County	52	34.5	6821	137	6958	98.23%	1.97%
23	Clinton County	53	34.5	5538	71	5609	97.22%	1.27%
44	COOPER	41	12.47	10353	375	10728	95.00%	3.50%
44	COOPER	42	12.47	16152	270	16422	95.00%	1.64%
204	CORNELL	41	12.47	8800	178	8978	85.00%	1.98%
204	CORNELL	42	12.47	15395	372	15766	98.00%	2.36%
204	CORNELL	43	12.47	8971	144	9115	92.00%	1.58%
204	CORNELL	44	12.47	8491	51	8542	87.00%	0.60%
204	CORNELL	51	34.5	45969	323	46293	91.00%	0.70%
204	CORNELL	52	34.5	24182	222	24404	85.00%	0.91%
64	CUMMINSVILLE	41	12.47	3751	30	3781	100.00%	0.79%
64	CUMMINSVILLE	42	12.47	8744	140	8884	92.00%	1.58%
64	CUMMINSVILLE	43	12.47	6610	84	6694	100.00%	1.25%
64	CUMMINSVILLE	44	12.47	1471	7	1478	100.00%	0.47%
64	CUMMINSVILLE	45	12.47	3646	14	3660	100.00%	0.38%
64	CUMMINSVILLE	46	12.47	4105	45	4150	98.00%	1.08%
64	CUMMINSVILLE	47	12.47	4680	22	4702	99.00%	0.47%
26	DEER PARK	41	12.47	11483	274	11757	99.72%	2.33%
26	DEER PARK	42	12.47	7848	105	7953	97.38%	1.32%



26	DEER PARK	43	12.47	6501	86	6587	99.97%	1.31%
26	DEER PARK	44	12.47	8784	246	9030	97.03%	2.72%
26	DEER PARK	45	12.47	10085	143	10228	99.48%	1.40%
26	DEER PARK	46	12.47	7621	169	7790	98.12%	2.17%
26	DEER PARK	47	12.47	7765	115	7880	93.30%	1.46%
26	DEER PARK	48	12.47	6884	42	6926	97.93%	0.61%
267	Delhi	41	12.47	8243	106	8349	99.00%	1.27%
267	Delhi	42	12.47	10154	236	10390	100.00%	2.27%
267	Delhi	43	12.47	7485	55	7540	99.00%	0.73%
267	Delhi	44	12.47	5793	58	5850	95.00%	0.99%
133	DIMMICK	41	12.47	4036	51	4087	95.00%	1.25%
133	DIMMICK	42	12.47	9675	195	9870	99.00%	1.98%
133	DIMMICK	43	12.47	7381	75	7456	98.00%	1.01%
133	DIMMICK	44	12.47	9321	245	9566	100.00%	2.56%
84	Eastwood	51	34.5	19158	230	19388	98.53%	1.19%
84	Eastwood	52	34.5	8687	58	8745	99.48%	0.66%
68	Ebenezer	41	12.47	1927	10	1937	88.00%	0.52%
68	Ebenezer	42	12.47	6588	94	6682	88.00%	1.41%
68	Ebenezer	43	12.47	8317	150	8467	99.00%	1.77%
68	Ebenezer	44	12.47	8902	162	9064	100.00%	1.79%
68	Ebenezer	58	35	23170	578	23748	93.00%	2.43%
68	Ebenezer	6859	35	3488	11	3499	83.00%	0.31%
6	Elmwood	41	12.47	9807	73	9880	98.00%	0.74%
6	Elmwood	42	12.47	6618	162	6780	99.00%	2.39%
6	Elmwood	43	12.47	4139	61	4200	99.00%	1.45%
6	Elmwood	44	12.47	2376	14	2390	91.00%	0.59%
6	Elmwood	45	12.47	6277	63	6340	100.00%	0.99%
6	Elmwood	46	12.47	7475	86	7560	97.00%	1.14%
6	Elmwood	47	12.47	5943	127	6070	100.00%	2.09%
6	Elmwood	48	12.47	7070	60	7130	95.00%	0.84%
46	EVENDALE	51	34.5	7463	40	7503	89.00%	0.53%
46	EVENDALE	55	34.5	18114	270	18383	90.00%	1.47%
46	EVENDALE	58	34.5	5101	24	5126	100.00%	0.47%
46	EVENDALE	4652	34.5	2091	4	2095	88.00%	0.19%
283	Fairfax	41	12.47	6481	42	6523	99.07%	0.64%
283	Fairfax	42	12.47	8228	164	8392	99.54%	1.95%
283	Fairfax	43	12.47	7593	99	7692	99.97%	1.29%
283	Fairfax	44	12.47	6971	54	7025	98.48%	0.77%
57	FAIRFIELD	41	12.47	6027	146	6173	99.00%	2.37%
57	FAIRFIELD	42	12.47	8994	149	9143	100.00%	1.63%
57	FAIRFIELD	43	12.47	6103	50	6153	94.00%	0.81%
57	FAIRFIELD	44	12.47	9315	175	9490	99.00%	1.84%
57	FAIRFIELD	45	12.47	3698	29	3727	96.00%	0.78%
57	FAIRFIELD	46	12.47	4657	108	4765	83.00%	2.27%
57	FAIRFIELD	56	34.5	11120	139	11259	99.00%	1.23%
57	FAIRFIELD	51	34.5	705	1	706	96.00%	0.14%
57	FAIRFIELD	58	34.5	23303	483	23786	100.00%	2.03%
265	Feldman	41	12.47	6582	127	6709	98.26%	1.89%
265	Feldman	42	12.47	5483	76	5559	99.96%	1.37%

265	Feldman	43	12.47	6210	115	6325	92.72%	1.82%
265	Feldman	44	12.47	7145	103	7248	99.06%	1.42%
265	Feldman	45	12.47	4472	62	4534	98.67%	1.37%
265	Feldman	46	12.47	5617	65	5682	99.96%	1.14%
359	Felicity	41	12.47	4766	90	4856	99.30%	1.85%
285	Ferguson	41	12.47	6773	47	6820	98.00%	0.69%
285	Ferguson	42	12.47	7555	95	7650	96.00%	1.24%
285	Ferguson	43	12.47	6216	104	6321	96.00%	1.65%
285	Ferguson	44	12.47	7767	53	7820	100.00%	0.68%
47	Finneytown	41	12.47	4360	40	4400	98.00%	0.91%
47	Finneytown	42	12.47	9565	346	9911	97.00%	3.49%
47	Finneytown	43	12.47	7814	226	8040	99.00%	2.81%
47	Finneytown	44	12.47	9132	219	9351	100.00%	2.34%
47	Finneytown	45	12.47	7623	77	7700	99.00%	1.00%
47	Finneytown	46	12.47	8632	98	8730	98.00%	1.12%
34	FRANKLIN	41	12.47	7326	178	7505	96.00%	2.37%
34	FRANKLIN	42	12.47	6311	212	6523	53.00%	3.25%
34	FRANKLIN	43	12.47	3095	25	3125	93.00%	0.80%
34	FRANKLIN	44	12.47	6347	79	6426	84.00%	1.23%
296	GASTON	41	12.47	4315	73	4388	97.00%	1.66%
353	GILMORE	41	12.47	8515	68	8583	97.00%	0.79%
353	GILMORE	42	12.47	9299	60	9359	99.00%	0.64%
192	Glen Este	41	12.47	6542	38	6580	95.03%	0.58%
357	GLENDALE	41	12.47	3368	6	3374	90.00%	0.18%
357	GLENDALE	42	12.47	1701	1	1702	85.00%	0.06%
357	GLENDALE	43	12.47	9494	62	9556	98.00%	0.65%
357	GLENDALE	44	12.47	5638	65	5703	92.00%	1.14%
72	Glenview	41	12.47	7162	88	7250	97.00%	1.21%
72	Glenview	42	12.47	8151	259	8410	99.00%	3.08%
72	Glenview	43	12.47	6118	62	6180	100.00%	1.00%
72	Glenview	44	12.47	4971	39	5010	97.00%	0.78%
72	Glenview	55	34.5	13366	104	13470	100.00%	0.77%
72	Glenview	56	34.5	13949	82	14031	100.00%	0.58%
130	GOLF MANOR	41	12.47	8297	163	8460	97.00%	1.93%
130	GOLF MANOR	42	12.47	7782	68	7850	100.00%	0.87%
166	HALL	41	12.47	7433	97	7530	98.00%	1.29%
166	HALL	42	12.47	9296	100	9396	99.00%	1.06%
166	HALL	43	12.47	7497	142	7639	97.00%	1.86%
166	HALL	44	12.47	6304	119	6423	95.00%	1.85%
71	Hamlet	41	12.47	5315	62	5377	98.17%	1.15%
208	HENSLEY	41	12.47	11668	419	12087	100.00%	3.47%
88	Hillcrest	51	34.5	6642	43	6685	93.81%	0.64%
88	Hillcrest	52	34.5	10966	199	11165	96.69%	1.78%
146	Hillside	41	12.47	7400	200	7600	100.00%	2.63%
180	HOPEWELL	41	12.47	5577	49	5626	95.84%	0.87%
180	HOPEWELL	42	12.47	7971	30	8001	100.00%	0.37%
237	HUNTER	42	12.47	281	0	281	91.00%	0.00%
237	HUNTER	41	12.47	5973	99	6072	86.00%	1.63%
237	HUNTER	43	12.47	6058	112	6170	65.00%	1.82%

48	IVORYDALE	41	12.47	4454	70	4525	99.00%	1.55%
48	IVORYDALE	42	12.47	3419	17	3436	98.00%	0.49%
48	IVORYDALE	43	12.47	2225	7	2232	98.00%	0.31%
48	IVORYDALE	44	12.47	5742	37	5779	86.00%	0.64%
65	JACKSON	41	12.47	7324	178	7502	95.00%	2.37%
65	JACKSON	42	12.47	3029	20	3049	91.00%	0.66%
65	JACKSON	43	12.47	7128	67	7195	98.00%	0.93%
65	JACKSON	44	12.47	5545	91	5636	89.00%	1.61%
99	KEMPER	41	12.47	4468	40	4508	99.00%	0.89%
99	KEMPER	42	12.47	5175	68	5243	96.00%	1.30%
99	KEMPER	43	12.47	7067	66	7133	86.00%	0.93%
99	KEMPER	44	12.47	11468	170	11638	100.00%	1.46%
99	KEMPER	45	12.47	5575	87	5662	89.00%	1.54%
99	KEMPER	46	12.47	8595	166	8761	99.00%	1.89%
85	KINGS MILLS	41	12.47	7563	267	7830	99.00%	3.41%
85	KINGS MILLS	52	34.5	9817	150	9967	86.00%	1.50%
85	KINGS MILLS	53	34.5	7353	189	7542	81.00%	2.51%
85	KINGS MILLS	54	34.5	387	14	401	98.00%	3.49%
61	Kleeman	41	12.47	8427	243	8670	99.00%	2.80%
61	Kleeman	42	12.47	11785	205	11990	99.00%	1.71%
61	Kleeman	43	12.47	8805	275	9080	96.00%	3.03%
61	Kleeman	44	12.47	10812	428	11240	100.00%	3.81%
61	Kleeman	45	12.47	8241	139	8380	100.00%	1.66%
61	Kleeman	46	12.47	7831	119	7950	96.00%	1.50%
159	Lake Waynoka	41	12.47	2916	38	2954	86.33%	1.29%
41	LATERAL	41	12.47	5615	35	5650	100.00%	0.62%
41	LATERAL	42	12.47	11226	233	11459	79.00%	2.03%
41	LATERAL	43	12.47	3409	18	3427	97.00%	0.53%
41	LATERAL	44	12.47	2458	3	2461	100.00%	0.12%
41	LATERAL	45	12.47	3350	12	3362	97.00%	0.36%
41	LATERAL	46	12.47	5200	48	5248	92.00%	0.91%
41	LATERAL	48	12.47	261	1	262	88.00%	0.38%
41	LATERAL	49	12.47	9528	104	9632	88.00%	1.08%
108	LESOURDSVILLE	41	12.47	6995	113	7108	97.00%	1.59%
108	LESOURDSVILLE	42	12.47	4304	50	4354	95.00%	1.15%
108	LESOURDSVILLE	43	12.47	3995	39	4034	96.00%	0.97%
31	LIBERTY	41	12.47	8386	249	8635	100.00%	2.88%
31	LIBERTY	42	12.47	8877	164	9041	98.00%	1.81%
31	LIBERTY	43	12.47	4741	66	4807	99.00%	1.37%
95	Lincoln	41	12.47	6614	86	6700	99.00%	1.28%
95	Lincoln	42	12.47	5870	70	5940	98.00%	1.18%
95	Lincoln	43	12.47	6607	83	6690	100.00%	1.24%
95	Lincoln	44	12.47	7407	84	7490	99.00%	1.12%
95	Lincoln	45	12.47	4075	65	4140	88.00%	1.57%
95	Lincoln	46	12.47	1131	9	1140	49.00%	0.79%
95	Lincoln	47	12.47	3462	48	3510	82.00%	1.37%
95	Lincoln	48	12.47	6100	124	6224	99.00%	1.99%
27	Linwood	41	12.47	6601	88	6689	96.45%	1.32%
27	Linwood	42	12.47	5514	56	5570	93.33%	1.01%

27	Linwood	43	12.47	5823	117	5940	92.56%	1.97%
27	Linwood	44	12.47	7860	79	7939	98.64%	1.00%
232	LOCUST	41	12.47	8943	96	9039	100.00%	1.06%
232	LOCUST	42	12.47	9390	64	9454	100.00%	0.68%
230	Mack	41	12.47	8564	157	8720	96.00%	1.80%
230	Mack	42	12.47	7085	115	7200	97.00%	1.60%
230	Mack	43	12.47	8420	120	8540	100.00%	1.41%
230	Mack	44	12.47	4639	71	4710	82.00%	1.51%
257	Madeira	41	12.47	7756	171	7927	99.96%	2.16%
257	Madeira	42	12.47	7461	84	7545	99.71%	1.11%
169	MAINEVILLE	41	12.47	9026	267	9293	98.00%	2.87%
169	MAINEVILLE	42	12.47	4216	86	4301	74.00%	2.00%
169	MAINEVILLE	43	12.47	5439	60	5499	92.00%	1.09%
83	MANCHESTER	41	12.47	4454	59	4513	91.00%	1.31%
83	MANCHESTER	42	12.47	4934	70	5004	99.00%	1.40%
83	MANCHESTER	43	12.47	2321	27	2348	82.00%	1.15%
83	MANCHESTER	44	12.47	8236	154	8390	100.00%	1.84%
83	MANCHESTER	45	12.47	5532	80	5612	97.00%	1.43%
83	MANCHESTER	46	12.47	5391	199	5590	96.00%	3.56%
36	Mapleknoll	41	12.47	5032	28	5060	99.00%	0.55%
36	Mapleknoll	42	12.47	5228	22	5250	100.00%	0.42%
36	Mapleknoll	43	12.47	2565	5	2570	92.00%	0.19%
36	Mapleknoll	44	12.47	7140	90	7230	95.00%	1.24%
36	Mapleknoll	45	12.47	9110	170	9280	99.00%	1.83%
51	Markley	41	12.47	6536	59	6595	99.18%	0.89%
51	Markley	42	12.47	5189	110	5299	94.41%	2.08%
51	Markley	43	12.47	6224	48	6272	97.02%	0.77%
51	Markley	44	12.47	5170	32	5202	99.29%	0.62%
51	Markley	45	12.47	5713	56	5769	99.11%	0.97%
51	Markley	46	12.47	9119	84	9203	95.90%	0.91%
155	MASON	41	12.47	6198	72	6278	80.00%	1.15%
187	MAUD	41	12.47	8388	74	8462	99.00%	0.87%
287	MAUD	42	12.47	8645	121	8766	93.00%	1.38%
206	McMann	41	12.47	8397	64	8461	98.99%	0.76%
123	Miamitown	41	12.47	6697	142	6840	94.00%	2.08%
140	MICA	41	12.47	9544	60	9603	94.00%	0.62%
33	MIDDLETOWN	42	12.47	1197	37	1234	33.00%	3.00%
33	MIDDLETOWN	43	12.47	4422	108	4530	93.00%	2.38%
33	MIDDLETOWN	41	12.47	1683	26	1709	93.00%	1.52%
96	Midway	51	35	7546	29	7576	97.00%	0.38%
96	Midway	9653	35	9592	211	9803	95.00%	2.15%
96	Midway	9654	35	7131	87	7218	99.00%	1.21%
24	MILLIKIN	41	12.47	6628	124	6752	99.00%	1.84%
24	MILLIKIN	42	12.47	12816	330	13146	99.00%	2.51%
24	MILLIKIN	43	12.47	10843	402	11245	97.00%	3.57%
24	MILLIKIN	44	12.47	4905	206	5111	95.00%	4.03%
103	MILLVILLE	41	12.47	7040	139	7179	95.00%	1.94%
103	MILLVILLE	42	12.47	5956	328	6284	87.00%	5.22%
12	MITCHELL	41	12.47	7927	107	8034	88.00%	1.33%

12	MITCHELL	43	12.47	7944	176	8120	89.00%	2.17%
12	MITCHELL	44	12.47	7555	95	7650	93.00%	1.24%
583	M-M DOW	43	12.47	15308	46	15354	98.00%	0.30%
292	Monfort Heights	41	12.47	7429	61	7490	99.00%	0.81%
158	MONROE	41	12.47	12009	42	12051	100.00%	0.35%
158	MONROE	42	12.47	7127	201	7328	100.00%	2.74%
158	MONROE	43	12.47	10496	193	10689	98.00%	1.81%
137	MONTGOMERY	41	12.47	3983	53	4036	62.00%	1.31%
137	MONTGOMERY	42	12.47	10689	179	10868	92.00%	1.65%
137	MONTGOMERY	43	12.47	7629	92	7721	97.00%	1.19%
137	MONTGOMERY	44	12.47	5403	35	5438	97.00%	0.64%
137	MONTGOMERY	45	12.47	6856	114	6970	99.00%	1.64%
137	MONTGOMERY	46	12.47	6932	63	6995	95.00%	0.90%
49	Morgan	51	34.5	11262	73	11340	100.00%	0.64%
49	Morgan	52	34.5	11042	62	11110	91.00%	0.56%
49	Morgan	53	34.5	10301	91	10400	93.00%	0.88%
49	Morgan	54	34.5	22983	351	23340	95.00%	1.50%
301	Moscow	41	12.47	1438	27	1465	72.81%	1.84%
301	Moscow	42	12.47	1385	22	1407	99.84%	1.56%
79	Mt Healthy	41	12.47	6820	150	6970	99.00%	2.15%
79	Mt Healthy	42	12.47	7481	242	7722	100.00%	3.13%
79	Mt Healthy	43	12.47	6716	65	6780	93.00%	0.96%
79	Mt Healthy	44	12.47	10189	191	10380	94.00%	1.84%
195	Mt Repose	41	12.47	6540	35	6575	99.99%	0.53%
195	Mt Repose	42	12.47	5451	58	5509	99.61%	1.05%
206	Mt Washington	41	12.47	5827	39	5866	98.97%	0.66%
25	MULHAUSER	41	12.47	11066	145	11211	100.00%	1.29%
25	MULHAUSER	42	12.47	8849	80	8929	99.00%	0.90%
25	MULHAUSER	43	12.47	8469	174	8643	98.00%	2.01%
25	MULHAUSER	44	12.47	9736	237	9973	98.00%	2.38%
25	MULHAUSER	45	12.47	7084	31	7115	90.00%	0.44%
25	MULHAUSER	46	12.47	12350	191	12541	100.00%	1.52%
181	Neumann	41	12.47	8769	202	8971	99.00%	2.25%
181	Neumann	42	12.47	9463	157	9620	99.00%	1.63%
119	New Burlington	41	12.47	6959	52	7011	100.00%	0.74%
119	New Burlington	42	12.47	11582	264	11846	99.00%	2.23%
129	New Hope	31	12.47	2646	159	2805	95.13%	5.67%
143	New Richmond	41	12.47	6129	107	6236	100.00%	1.72%
92	Newtown	41	12.47	7139	102	7241	99.59%	1.41%
92	Newtown	42	12.47	5673	125	5798	98.08%	2.16%
92	Newtown	43	12.47	8270	116	8386	99.65%	1.38%
92	Newtown	44	12.47	8440	163	8603	98.41%	1.89%
341	Nicholsville	41	12.47	1686	38	1724	92.07%	2.20%
341	Nicholsville	42	12.47	1825	23	1848	95.33%	1.24%
341	Nicholsville	43	12.47	2966	45	3011	96.23%	1.49%
332	NICKEL	41	12.47	5565	183	5748	100.00%	3.18%
332	NICKEL	42	12.47	6472	102	6574	98.00%	1.55%
332	NICKEL	43	12.47	4537	27	4564	95.00%	0.59%
363	NILLES	41	12.47	6822	29	6851	93.00%	0.42%

363	NILLES	42	12.47	4886	20	4906	92.00%	0.41%
106	North Pole	41	12.47	1763	44	1807	98.54%	2.43%
52	NORTHGREEN	41	12.47	5550	55	5605	97.00%	0.98%
52	NORTHGREEN	42	12.47	5939	49	5988	98.00%	0.82%
52	NORTHGREEN	43	12.47	8900	64	8964	100.00%	0.71%
52	NORTHGREEN	44	12.47	8464	70	8534	98.00%	0.82%
8	OAKLEY	37	12.47	675	1	676	98.00%	0.15%
8	OAKLEY	38	12.47	5756	86	5842	100.00%	1.47%
8	OAKLEY	39	12.47	5252	56	5308	99.00%	1.06%
8	OAKLEY	40	12.47	8245	208	8453	100.00%	2.46%
8	OAKLEY	41	12.47	9006	140	9146	98.00%	1.53%
8	OAKLEY	42	12.47	5920	69	5989	100.00%	1.15%
8	OAKLEY	43	12.47	5492	36	5528	100.00%	0.65%
8	OAKLEY	44	12.47	8108	106	8214	100.00%	1.29%
8	OAKLEY	45	12.47	7876	86	7962	100.00%	1.08%
8	OAKLEY	46	12.47	6136	156	6292	98.00%	2.48%
8	OAKLEY	47	12.47	2641	11	2652	95.00%	0.41%
8	OAKLEY	48	12.47	3477	27	3504	100.00%	0.77%
8	OAKLEY	49	12.47	4060	30	4090	96.00%	0.73%
8	OAKLEY	52	34.5	6505	93	6598	93.00%	1.41%
8	OAKLEY	853	34.5	8791	18	8810	88.00%	0.20%
8	OAKLEY	854	34.5	3005	58	3063	93.00%	1.89%
200	OBannonville	51	34.5	12461	107	12568	95.65%	0.85%
200	OBannonville	52	34.5	9957	89	10046	97.32%	0.89%
212	Olive Branch	41	12.47	4906	74	4980	100.00%	1.49%
212	Olive Branch	42	12.47	3131	68	3199	100.00%	2.13%
322	OTTERBEIN	41	12.47	7166	318	7485	94.00%	4.25%
322	OTTERBEIN	42	12.47	6652	227	6879	82.00%	3.30%
320	PARK	41	12.47	4930	53	4983	64.00%	1.06%
320	PARK	42	12.47	6592	132	6724	94.00%	1.96%
320	PARK	43	12.47	41	0	41	4.00%	0.00%
320	PARK	44	12.47	8103	398	8501	99.00%	4.68%
320	PARK	45	12.47	1177	5	1182	97.00%	0.42%
320	PARK	46	12.47	3057	53	3110	100.00%	1.70%
320	PARK	47	12.47	9007	102	9109	99.00%	1.12%
190	Pippin	41	12.47	5690	100	5790	99.00%	1.73%
164	PISGAH	41	12.47	3647	46	3693	61.00%	1.25%
164	PISGAH	42	12.47	5762	115	5877	75.00%	1.96%
164	PISGAH	43	12.47	4460	43	4502	79.00%	0.96%
164	PISGAH	44	12.47	7506	72	7578	100.00%	0.95%
198	Pleasant Plain	31	12.47	1151	24	1175	90.01%	2.04%
198	Pleasant Plain	32	12.47	1860	20	1880	95.12%	1.06%
121	PLEASANT VALLEY	41	12.47	6345	97	6443	93.00%	1.51%
121	PLEASANT VALLEY	42	12.47	8125	51	8176	96.00%	0.62%
121	PLEASANT VALLEY	43	12.47	7968	59	8026	95.00%	0.74%
352	POAST TOWN	41	12.47	6860	299	7159	94.00%	4.18%
38	PORT UNION	41	12.47	10835	201	11036	93.00%	1.82%
38	PORT UNION	42	12.47	5067	61	5128	86.00%	1.19%
38	PORT UNION	43	12.47	8844	208	9052	95.00%	2.30%

38	PORT UNION	44	12.47	9719	100	9819	99.00%	1.02%
38	PORT UNION	45	12.47	10574	224	10798	90.00%	2.07%
38	PORT UNION	56	34.5	19003	442	19445	99.00%	2.27%
38	PORT UNION	57	34.5	10171	88	10259	88.00%	0.86%
5	Price Hill	41	12.47	6016	27	6043	99.00%	0.45%
5	Price Hill	42	12.47	7085	144	7228	98.00%	1.99%
5	Price Hill	43	12.47	7397	96	7493	98.00%	1.28%
355	PRINCETON	41	12.47	8555	198	8753	98.00%	2.26%
355	PRINCETON	42	12.47	9423	247	9670	100.00%	2.55%
355	PRINCETON	43	12.47	8292	198	8490	98.00%	2.33%
355	PRINCETON	44	12.47	9092	284	9376	99.00%	3.03%
293	QUEENSGATE	41	12.47	7036	63	7099	96.00%	0.89%
293	QUEENSGATE	42	12.47	6856	41	6897	100.00%	0.59%
293	QUEENSGATE	43	12.47	8267	110	8377	99.00%	1.31%
293	QUEENSGATE	44	12.47	3602	70	3672	98.00%	1.91%
352	RED LION	41	12.47	7054	445	7499	100.00%	5.93%
352	RED LION	42	12.47	5382	112	5494	100.00%	2.04%
352	RED LION	43	12.47	6583	447	7030	100.00%	6.36%
94	Remington	41	12.47	4308	92	4400	95.38%	2.09%
94	Remington	42	12.47	4462	82	4544	98.26%	1.80%
94	Remington	43	12.47	7896	139	8035	99.87%	1.73%
94	Remington	44	12.47	6079	155	6234	94.97%	2.49%
94	Remington	51	34.5	13184	212	13396	100.00%	1.58%
94	Remington	52	34.5	12006	65	12071	99.99%	0.54%
94	Remington	53	34.5	17656	247	17903	97.05%	1.38%
94	Remington	59	34.5	21557	273	21830	99.66%	1.25%
207	RIVER CIRCLE	41	12.47	5551	56	5607	94.00%	1.00%
82	ROCHELLE	42	12.47	8072	60	8132	98.00%	0.74%
82	ROCHELLE	43	12.47	3409	32	3441	86.00%	0.93%
82	ROCHELLE	45	12.47	4916	43	4959	99.00%	0.87%
82	ROCHELLE	48	12.47	3620	15	3635	93.00%	0.41%
82	ROCHELLE	8222	12.47	4989	29	5018	86.00%	0.58%
82	ROCHELLE	8223	12.47	6300	34	6334	99.00%	0.54%
117	Russellville	41	12.47	2710	53	2763	76.56%	1.92%
185	Rybolt	41	12.47	10111	209	10320	95.00%	2.03%
185	Rybolt	42	12.47	9847	213	10060	98.00%	2.12%
223	Sayler Park	41	12.47	9741	349	10090	99.00%	3.46%
115	SEVEN MILE	41	12.47	1522	39	1561	82.00%	2.50%
115	SEVEN MILE	42	12.47	9276	319	9595	100.00%	3.32%
330	SEWARD	41	12.47	6622	124	6746	93.00%	1.84%
330	SEWARD	42	12.47	8647	110	8757	87.00%	1.26%
330	SEWARD	43	12.47	2151	4	2155	93.00%	0.19%
330	SEWARD	44	12.47	4679	166	4845	95.00%	3.43%
330	SEWARD	45	12.47	2821	30	2851	89.00%	1.05%
330	SEWARD	46	12.47	7306	122	7428	89.00%	1.64%
191	SIMPSON	41	12.47	4711	11	4722	86.00%	0.23%
191	SIMPSON	42	12.47	6168	53	6221	87.00%	0.85%
191	SIMPSON	43	12.47	5883	72	5955	73.00%	1.21%
191	SIMPSON	44	12.47	8774	104	8877	97.00%	1.17%

191	SIMPSON	45	12.47	6357	213	6570	68.00%	3.24%
191	SIMPSON	46	12.47	6243	42	6285	82.00%	0.67%
191	SIMPSON	47	12.47	3177	22	3199	64.00%	0.69%
191	SIMPSON	48	12.47	3415	11	3426	90.00%	0.32%
175	SOCIALVILLE	41	12.47	10900	237	11137	97.00%	2.13%
175	SOCIALVILLE	42	12.47	5148	63	5211	83.00%	1.21%
175	SOCIALVILLE	43	12.47	8475	132	8608	96.00%	1.53%
175	SOCIALVILLE	44	12.47	9057	104	9161	97.00%	1.14%
81	South Bethel	41	12.47	4740	108	4848	98.13%	2.23%
81	South Bethel	51	34.5	3938	53	3991	90.22%	1.33%
81	South Bethel	52	34.5	10505	101	10606	99.83%	0.95%
179	SPRINGBORO	41	12.47	8884	392	9275	98.00%	4.23%
179	SPRINGBORO	42	12.47	19212	1072	20286	98.00%	5.28%
179	SPRINGBORO	43	12.47	22388	1655	24043	95.00%	6.88%
179	SPRINGBORO	44	12.47	24059	1733	25792	95.00%	6.72%
165	SPRINGDALE	41	12.47	6736	33	6769	98.00%	0.49%
165	SPRINGDALE	42	12.47	8111	136	8247	97.00%	1.65%
327	STILLWELL	41	12.47	5064	99	5163	95.00%	1.92%
69	Summerside	41	12.47	7870	178	8048	96.34%	2.21%
69	Summerside	42	12.47	5828	58	5886	97.00%	0.99%
69	Summerside	43	12.47	9524	149	9673	99.89%	1.54%
69	Summerside	55	34.5	23144	182	23326	99.90%	0.78%
69	Summerside	56	34.5	11575	276	11851	99.97%	2.33%
69	Summerside	6957	34.5	4322	33	4355	99.48%	0.76%
69	Summerside	59	34.5	11049	78	11127	99.56%	0.70%
126	Sutton	41	12.47	7044	50	7094	98.84%	0.70%
183	SYMMES	41	12.47	7498	83	7581	97.00%	1.09%
183	SYMMES	42	12.47	4460	28	4488	100.00%	0.62%
183	SYMMES	43	12.47	6447	165	6612	95.00%	2.50%
17	Terminal	41	12.47	6905	76	6980	100.00%	1.09%
17	Terminal	42	12.47	8713	128	8840	100.00%	1.45%
17	Terminal	43	12.47	10323	317	10641	100.00%	2.98%
17	Terminal	44	12.47	10233	397	10630	100.00%	3.73%
17	Terminal	58	34.5	6101	69	6170	96.00%	1.12%
17	Terminal	59	34.5	8296	46	8341	94.00%	0.55%
63	Tobasco	41	12.47	7685	164	7849	97.36%	2.09%
60	Tobasco	42	12.47	7874	94	7968	98.24%	1.18%
61	Tobasco	43	12.47	8164	166	8330	96.79%	1.99%
62	Tobasco	44	12.47	7649	75	7724	99.75%	0.97%
63	Tobasco	45	12.47	6832	89	6921	99.08%	1.29%
63	Tobasco	46	12.47	6137	140	6277	99.92%	2.23%
32	TRENTON	41	12.47	8888	261	9149	98.00%	2.85%
32	TRENTON	42	12.47	8150	461	8611	99.00%	5.35%
32	TRENTON	43	12.47	8192	232	8424	99.00%	2.75%
32	TRENTON	44	12.47	9420	165	9585	96.00%	1.72%
32	TRENTON	45	12.47	3541	126	3667	95.00%	3.44%
32	TRENTON	46	12.47	1514	30	1544	64.00%	1.94%
176	TWENTY MILE	41	12.47	10168	175	10343	87.00%	1.69%
176	TWENTY MILE	42	12.47	10508	315	10823	74.00%	2.91%



176	TWENTY MILE	43	12.47	5390	28	5232	64.00%	0.54%
176	TWENTY MILE	44	12.47	8002	193	8195	77.00%	2.36%
150	TYLERSVILLE	41	12.47	5161	35	5196	95.00%	0.67%
150	TYLERSVILLE	42	12.47	8108	93	8201	100.00%	1.13%
162	UNION	41	12.47	8148	110	8258	100.00%	1.33%
162	UNION	4	12.47	9790	124	9914	99.00%	1.25%
162	UNION	49	12.47	6613	76	6689	87.00%	1.14%
122	Vera Cruz	41	12.47	2493	35	2528	66.25%	1.38%
3	WALNUT HILLS	41	12.47	2578	13	2591	86.00%	0.50%
3	WALNUT HILLS	42	12.47	5671	34	5705	100.00%	0.60%
3	WALNUT HILLS	43	12.47	7064	37	7101	100.00%	0.52%
3	WALNUT HILLS	45	12.47	1783	17	1800	79.00%	0.94%
3	WALNUT HILLS	46	12.47	7030	54	7084	97.00%	0.76%
3	WALNUT HILLS	335	12.47	8030	46	8076	100.00%	0.57%
214	Wards Corner	41	12.47	3550	49	3599	98.69%	1.36%
214	Wards Corner	42	12.47	4905	21	4926	96.43%	0.43%
214	Wards Corner	43	12.47	5661	117	5778	99.67%	2.02%
196	WARREN	41	12.47	7527	374	7901	93.00%	4.73%
196	WARREN	42	12.47	6737	561	7298	99.00%	7.69%
15	WEST END	42	12.47	6810	114	6924	97.00%	1.65%
15	WEST END	43	12.47	3318	27	3345	92.00%	0.81%
15	WEST END	44	12.47	1467	3	1470	88.00%	0.20%
15	WEST END	45	12.47	1040	4	1044	88.00%	0.38%
15	WEST END	47	12.47	3325	37	3362	89.00%	1.10%
15	WEST END	48	12.47	2390	25	2415	88.00%	1.04%
277	White Oak	41	12.47	8942	208	9150	100.00%	2.27%
277	White Oak	42	12.47	5475	35	5510	94.00%	0.64%
218	WHITTIER	43	12.47	1076	1	1077	89.00%	0.09%
218	WHITTIER	47	12.47	1519	2	1521	93.00%	0.13%
97	Wiley	51	34.5	11296	202	11501	100.00%	1.76%
97	Wiley	52	34.5	11043	22	11170	97.00%	0.20%
97	Wiley	53	34.5	15932	1	16471	100.00%	0.01%
97	Wiley	54	34.5	9599	7	9730	100.00%	0.07%
145	Withamsville	41	12.47	3983	25	4008	95.83%	0.62%
145	Withamsville	42	12.47	6190	129	6319	99.93%	2.04%
145	Withamsville	43	12.47	6339	47	6386	99.86%	0.74%
145	Withamsville	44	12.47	6350	23	6373	98.47%	0.36%
288	WOODLAWN	41	12.47	17018	182	17200	97.00%	1.06%
268	WYSCARVER	41	12.47	11796	145	11937	90.00%	1.21%
268	WYSCARVER	42	12.47	7221	52	7269	94.00%	0.72%

## Duke Energy Ohio Distribution System Efficiency Metrics – IVVC 2015 Report

The attached report is being filed annually along with Duke Energy Ohio's Smart Grid Cost Recovery filing as agreed to by parties on February 6, 2013 when parties met to discuss reporting of distribution system efficiencies from Integrated Volt/Var Control (IVVC) implementation. As discussed in that meeting, the IVVC development and testing began in the 4<sup>th</sup> quarter of 2012 with the first report beginning in 2012.

The following report reflects the number of circuits that were operating under IVVC control by year-end 2015. This report utilizes 2012 as the baseline year for the System Average Voltage from which the MWh Reduction under IVVC is calculated.

The MWh Reduction with IVVC is calculated with an assumed CVR Factor of .5 and .79.

Report Year	2015					
System Avg Voltage Baseline(2012)	123.2					
<b>IVVC Operation</b>	<b>Avg Voltage with IVVC</b>	<b>% Avg Volt Reduction with IVVC</b>	<b>MWh under IVVC Control</b>	<b>MWh Reduction with IVVC</b>	<b>Assumed CVR Factor</b>	<b>Circuits under IVVC Control</b>
IVVC Circuit Avg Voltage	120.95	1.83	14,521,502	<b>132,603</b>	0.5	511
IVVC Circuit Avg Voltage	120.95	1.83	14,521,502	<b>209,513</b>	0.79	511

**This foregoing document was electronically filed with the Public Utilities**

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Summary: Testimony Direct Testimony of Donald L. Schneider, Jr. electronically filed by Ms. E Minna Rolfes on behalf of Amy B. Spiller and Elizabeth H. Watts and Duke Energy Ohio, Inc.