

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

The Application of Duke Energy Kentucky, Inc. for)
(1) a Certificate of Public Convenience and)
Necessity Authorizing the Construction of an) Case No. 2016-00152
Advanced Metering Infrastructure; (2) Request for)
Accounting Treatment; and (3) All Other Necessary)
Waivers, Approvals, and Relief.)

DUKE ENERGY KENTUCKY, INC.'S SEMI-ANNUAL REPORTING

I. Introduction

In its Order in Case No. 2016-00152 entered on May 25, 2017, the Kentucky Public Service Commission (Commission) approved a Stipulation entered into between Duke Energy Kentucky and the Attorney General in Duke Energy Kentucky's Advanced Metering Infrastructure (AMI) or Metering Upgrade Certificate for Public Convenience and Necessity (CPCN) case, subject to certain Commission modifications.¹ Section 8 of the Stipulation reads:

“During deployment and continuing for one year from completion of deployment, Duke Energy Kentucky agrees to provide periodic reporting in six month increments regarding the progress of deployment. This semi-annual reporting shall identify the costs incurred during deployment and as contained in and compared to the projected cost benefit analysis submitted in this case. Duke Energy Kentucky shall also report on various non-financial metrics of

¹ *In the Matter of the Application of Duke Energy Kentucky, Inc. for (1) A Certificate of Public Convenience and Necessity Authorizing the Construction of an Advanced Metering Infrastructure; (2) Request for Accounting Treatment; and (3) All Other Necessary Waivers, Approvals, and Relief, Order, Case No. 2016-00152 (KY. P.S.C., May 25, 2017).*

benefits that have been achieved during deployment, with context given in terms of percentages of totals, including:

- Number of electric meters installed;
- Number of gas modules installed;
- Number of grid routers installed;
- Number of meter reading routes;
- Failure rate of electric meters;
- Remote routine electric and gas meter reads;
- Remote electric meter disconnection (non-pay);
- Remote connection (non-pay); and
- Remote Read-in/Read-out.”²

Further, Section 3(c) of the Stipulation reads:

“Duke Energy Kentucky commits to look for opportunities for additional efficiencies and cost savings through the Metering Upgrade Deployment. The Company shall report on its efforts as part of the six-month Metering Upgrade Deployment reporting described in section 8.”³

Pursuant to Section 8 of the Stipulation Duke Energy Kentucky plans to provide its semi-annual deployment update reports with data as of the end of December and the end of June. The Company began its AMI deployment in August 2017 and completed the deployment on February 27, 2019. This report reflects metrics from January 2019 through the end of June 2019. This document also includes a description of efficiencies and cost savings pursuant to Section 3(c) of the Stipulation.

² *Stipulation and Recommendation*, at p. 13.

³ *Stipulation and Recommendation*, at p. 4.

II. AMI Deployment Costs

Duke Energy Kentucky presents “the costs incurred during deployment and as contained in and compared to the projected cost benefit analysis submitted in this case” in the attached Appendix.⁴ Electric costs are shown on page 1 of the attached Appendix, gas costs are shown on page 2, and page 3 consolidates the electric and gas cost rows from pages 1 and 2 to show total deployment costs.

III. AMI Non-Financial Metrics

Duke Energy Kentucky presents “non-financial metrics of benefits that have been achieved during deployment, with context given in terms of percentages of totals” on page 4 of the attached Appendix.⁵

IV. Efficiencies and Cost Savings

In the first semi-annual filing, Duke Energy Kentucky identified “opportunities for additional efficiencies and cost savings through the Metering Upgrade Deployment” in the form of discounted material costs, lower labor costs and lower overhead costs.⁶ The discounted material costs were due to the volume of Itron devices being deployed by Duke Energy across multiple jurisdictions. The Company projected lower meter installation contract labor due to favorable bidding of work. The deployment also anticipated lower project management labor and overhead costs based on sharing resources across multiple AMI efforts in multiple Duke Energy jurisdictions. The total program costs were approximately \$33.16 million compared to \$47.5 million from the original project estimate. Favorable material, labor, and overhead costs allowed the project to come in approximately \$14.3 million under the original project estimate.

⁴ *Stipulation and Recommendation*, at p.13.

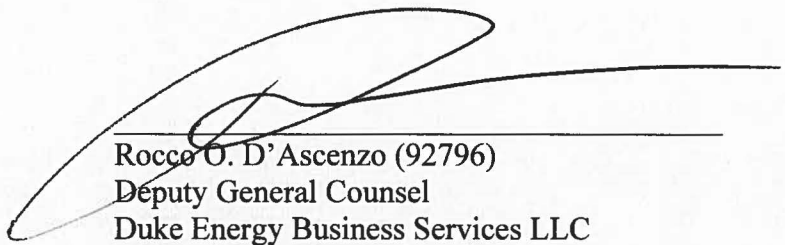
⁵ *Id.*

⁶ *Semi-Annual Reporting*, Case No. 2016-00152 (KY P.S.C., March 29, 2018).

V. Conclusion

The Company will continue to provide periodic updates in compliance with the Commission-approved Stipulation.

Respectfully submitted,



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CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing has been served via electronic mail to the following party on this 13th day of August 2019.

Rebecca W. Goodman
Office of the Attorney General
Utility Intervention and Rate Division
700 Capital Avenue, Suite 20
Frankfort, KY 40601-8204



Rocco O. D'Ascenzo

Duke Energy Kentucky
Compliance with Public Service Commission Order Case No. 2016-00152
Semi-Annual Reporting Non-Financial Metrics of Benefits Achieved During Deployment
Electric

Capital - Program Costs Initial Capital					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
1	AMI/ Smart Meter	Communications	Equipment	Communication device material	\$ -	\$ 585,632	\$ -	\$ -	\$ 585,632
2	AMI/ Smart Meter	Communications	Labor	Communication device labor	\$ -	\$ 7,784	\$ 10,881	\$ -	\$ 18,665
3	AMI/ Smart Meter	Communications	Labor	Telecom labor	\$ -	\$ -	\$ 1,222	\$ -	\$ 1,222
4	AMI/ Smart Meter	Communications	Contingency	Telecom contingency	\$ -	\$ -	\$ -	\$ -	\$ -
5	AMI/ Smart Meter	Field Technology	Equipment	Electric meters material (1)	\$ 75	\$ 9,498,006	\$ 6,529,394	\$ (301,171)	\$ 15,726,305
6	AMI/ Smart Meter	Field Technology	Labor	Electric meters labor	\$ 16,720	\$ 577,342	\$ 3,468,981	\$ 53,993	\$ 4,117,036
7	AMI/ Smart Meter	Field Technology	Other	Electric meters - PM/Support	\$ 162,301	\$ 434,355	\$ 1,252,269	\$ 208,064	\$ 2,056,988
8	AMI/ Smart Meter	Field Technology	Contingency	Meter contingency	\$ -	\$ -	\$ -	\$ -	\$ -
9	AMI/ Smart Meter	Eng. & Other Services	Other	Overhead allocations	\$ -	\$ 150,280	\$ 827,310	\$ 8,508	\$ 986,099
10	AMI/ Smart Meter	Eng. & Other Services	Other	AFUDC	\$ -	\$ 2,455	\$ -	\$ -	\$ 2,455
TOTAL					\$ 179,096	\$ 11,255,854	\$ 12,090,058	\$ (30,606)	\$ 23,494,402

O&M - Program Costs Non-Recurring O&M					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
11	AMI/ Smart Meter	Communications	Equipment	Communication device material	\$ -	\$ -	\$ -	\$ -	\$ -
12	AMI/ Smart Meter	Eng. & Other Services	Other O&M	MDM costs	\$ -	\$ -	\$ -	\$ -	\$ -
13	AMI/ Smart Meter	Eng. & Other Services	Other O&M	TWACS decommissioning costs - field work	\$ -	\$ -	\$ -	\$ -	\$ -
14	AMI/ Smart Meter	Field Technology	Equipment	Electric meters material and labor	\$ -	\$ 45,211	\$ 79,231	\$ 5,982	\$ 130,424
15	AMI/ Smart Meter	Eng. & Other Services	Other O&M	TWACS decommissioning costs - IT work	\$ -	\$ -	\$ -	\$ -	\$ -

Capital - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
16	AMI/ Smart Meter	IT	IT - Hardware	Communication device end of life replacement costs	\$ -	\$ -	\$ -	\$ -	\$ -
17	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with communication device failures	\$ -	\$ -	\$ -	\$ -	\$ -
18	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with Electric meter failures	\$ -	\$ -	\$ -	\$ -	\$ -
19	AMI/ Smart Meter	Field Technology	Equipment	Material burdens - Electric	\$ -	\$ -	\$ -	\$ -	\$ -

O&M - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
20	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system	\$ -	\$ -	\$ 39,911	\$ 24,213	\$ 64,124
21	AMI/ Smart Meter	Communications	Other O&M	WAN costs (4)	\$ -	\$ 11,376	\$ 71,437	\$ 107,649	\$ 190,462
22	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Billing team labor to manage interval reads	\$ -	\$ 8,973	\$ 153,570	\$ 63,692	\$ 226,235
23	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Analytics labor to support revenue protection	\$ -	\$ 25,458	\$ 38,156	\$ 27,438	\$ 91,053
TOTAL					\$ -	\$ 45,807	\$ 303,074	\$ 222,993	\$ 571,874

Non-Project Allocations					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
24	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK	\$ 120,018	\$ 174,995	\$ 184,411	\$ 50,854	\$ 530,278

Notes:
 1 (\$301,171) credit represents excess materials moved from Duke Energy Kentucky to Duke Energy Ohio

Duke Energy Kentucky
Compliance with Public Service Commission Order Case No. 2016-00152
Semi-Annual Reporting Non-Financial Metrics of Benefits Achieved During Deployment
Gas

Capital - Program Costs Initial Capital					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
1	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material (1)	\$ -	\$ 3,918,453	\$ 2,718,956	\$ (237,972)	\$ 6,399,436
2	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	\$ -	\$ 483,779	\$ 1,855,141	\$ 87,175	\$ 2,426,095
3	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	\$ -	\$ 204,301	\$ 312,291	\$ 31,766	\$ 548,358
TOTAL					\$ -	\$ 4,606,533	\$ 4,886,387	\$ (119,032)	\$ 9,373,889

O&M - Program Costs Non-Recurring O&M					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
4	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material	\$ -	\$ 1,595	\$ 318	\$ -	\$ 1,913
5	AMI/ Smart Meter	Field Technology	Lab+D38or	Gas modules labor	\$ -	\$ 4,328	\$ 109,008	\$ 23,431	\$ 136,767
6	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	\$ -	\$ 2,245	\$ 19,548	\$ 2,002	\$ 23,794
TOTAL					\$ -	\$ 8,168	\$ 128,874	\$ 25,433	\$ 162,475

Capital - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
7	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with Gas modules	\$ -	\$ -	\$ -	\$ -	\$ -
8	AMI/ Smart Meter	Field Technology	Equipment	Material burden costs - Gas modules	\$ -	\$ -	\$ -	\$ -	\$ -

O&M - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
9	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system	\$ -	\$ -	\$ 30,763	\$ 16,935	\$ 47,698
10	AMI/ Smart Meter	Communications	Other O&M	WAN costs	\$ -	\$ 6,888	\$ 11,229	\$ 60,062	\$ 78,179
TOTAL					\$ -	\$ 6,888	\$ 41,992	\$ 76,997	\$ 125,877

Non-Project Allocations					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
11	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK	\$ 41,938	\$ 121,958	\$ 128,759	\$ 35,593	\$ 328,248

Notes:
1 (\$237,972) credit represents excess materials moved from Duke Energy Kentucky to Duke Energy Ohio

Duke Energy Kentucky
Compliance with Public Service Commission Order Case No. 2016-00152
Semi-Annual Reporting Non-Financial Metrics of Benefits Achieved During Deployment
Electric & Gas

Capital - Program Costs Initial Capital					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
1	AMI/ Smart Meter	Communications	Equipment	Communication device material	\$ -	\$ 585,632	\$ -	\$ -	\$ 585,632
2	AMI/ Smart Meter	Communications	Labor	Communication device labor	\$ -	\$ 7,784	\$ 10,881	\$ -	\$ 18,665
3	AMI/ Smart Meter	Communications	Labor	Telecom labor	\$ -	\$ -	\$ 1,222	\$ -	\$ 1,222
4	AMI/ Smart Meter	Communications	Contingency	Telecom contingency	\$ -	\$ -	\$ -	\$ -	\$ -
5	AMI/ Smart Meter	Field Technology	Equipment	Electric meters material	\$ 75	\$ 9,498,006	\$ 6,529,394	\$ (301,171)	\$ 15,726,305
6	AMI/ Smart Meter	Field Technology	Labor	Electric meters labor	\$ 16,720	\$ 577,342	\$ 3,468,981	\$ 53,993	\$ 4,117,036
7	AMI/ Smart Meter	Field Technology	Other	Electric meters - PM/Support	\$ 162,301	\$ 434,355	\$ 1,252,269	\$ 208,064	\$ 2,056,988
8	AMI/ Smart Meter	Field Technology	Contingency	Meter contingency	\$ -	\$ -	\$ -	\$ -	\$ -
9	AMI/ Smart Meter	Eng. & Other Services	Other	Overhead allocations	\$ -	\$ 150,280	\$ 827,310	\$ 8,508	\$ 986,099
10	AMI/ Smart Meter	Eng. & Other Services	Other	AFUDC	\$ -	\$ 2,455	\$ -	\$ -	\$ 2,455
11	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material	\$ -	\$ 3,918,453	\$ 2,718,956	\$ (237,972)	\$ 6,399,436
12	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	\$ -	\$ 483,779	\$ 1,855,141	\$ 87,175	\$ 2,426,095
13	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	\$ -	\$ 204,301	\$ 312,291	\$ 31,766	\$ 548,358
				TOTAL	\$ 179,096	\$ 15,862,387	\$ 16,976,445	\$ (149,637)	\$ 32,868,291

O&M - Program Costs Non-Recurring O&M					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
14	AMI/ Smart Meter	Communications	Equipment	Communication device material	\$ -	\$ -	\$ -	\$ -	\$ -
15	AMI/ Smart Meter	Eng. & Other Services	Other O&M	MDM costs	\$ -	\$ -	\$ -	\$ -	\$ -
16	AMI/ Smart Meter	Eng. & Other Services	Other O&M	TWACS decommissioning costs - field work	\$ -	\$ -	\$ -	\$ -	\$ -
17	AMI/ Smart Meter	Field Technology	Equipment	Electric meters material and labor	\$ -	\$ 45,211	\$ 79,231	\$ 5,982	\$ 130,424
18	AMI/ Smart Meter	Eng. & Other Services	Other O&M	TWACS decommissioning costs - IT work	\$ -	\$ -	\$ -	\$ -	\$ -
19	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material	\$ -	\$ 1,595	\$ 318	\$ -	\$ 1,913
20	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	\$ -	\$ 4,328	\$ 109,008	\$ 23,431	\$ 136,767
21	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	\$ -	\$ 2,245	\$ 19,548	\$ 2,002	\$ 23,794
				TOTAL	\$ -	\$ 53,379	\$ 208,106	\$ 31,414	\$ 292,899

Capital - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
22	AMI/ Smart Meter	IT	IT - Hardware	Communication device end of life replacement costs	\$ -	\$ -	\$ -	\$ -	\$ -
23	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with communication device failures	\$ -	\$ -	\$ -	\$ -	\$ -
24	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with Electric meter failures	\$ -	\$ -	\$ -	\$ -	\$ -
25	AMI/ Smart Meter	Field Technology	Equipment	Material burdens - Electric	\$ -	\$ -	\$ -	\$ -	\$ -
26	AMI/ Smart Meter	Field Technology	Equipment	Annual costs assoc. with Gas modules	\$ -	\$ -	\$ -	\$ -	\$ -
27	AMI/ Smart Meter	Field Technology	Equipment	Material burden costs - Gas modules	\$ -	\$ -	\$ -	\$ -	\$ -

O&M - Recurring Costs					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
28	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system - electric	\$ -	\$ -	\$ 39,911	\$ 24,213	\$ 64,124
29	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system - gas	\$ -	\$ -	\$ 30,763	\$ 16,935	\$ 47,698
30	AMI/ Smart Meter	Communications	Other O&M	WAN costs - electric	\$ -	\$ 11,376	\$ 71,437	\$ 107,649	\$ 190,462
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32	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Billing team labor to manage interval reads	\$ -	\$ 8,973	\$ 153,570	\$ 63,692	\$ 226,235
33	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Analytics labor to support revenue protection	\$ -	\$ 25,458	\$ 38,156	\$ 27,438	\$ 91,053
				TOTAL	\$ -	\$ 52,695	\$ 345,066	\$ 299,990	\$ 697,751

Non-Project Allocations					Project Actuals				
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	2019	Total
34	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK - electric	\$ 120,018	\$ 174,995	\$ 184,411	\$ 50,854	\$ 530,278
35	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK - gas	\$ 41,938	\$ 121,958	\$ 128,759	\$ 35,593	\$ 328,248
				TOTAL	\$ 161,956	\$ 296,953	\$ 313,170	\$ 86,447	\$ 858,526

Duke Energy Kentucky
Compliance with Public Service Commission Order Case No. 2016-00152
Semi-Annual Reporting Non-Financial Metrics of Benefits Achieved During Deployment

Metric No	Type	Description	Period	Dec-17	Jun-18	Dec-18	Jun-19
01	Build Metric	Number of Electric Meters Installed	Project	32,322	118,600	145,029	146,169
		Percent of Planned AMI Electric Meters	ITD	22.6%	82.9%	101.4%	102.2%
02	Build Metric	Number of Gas Modules Installed	Project	24,493	76,425	101,618	104,676
		Percent of Planned AMI Gas Modules	ITD	23.8%	74.2%	98.7%	101.6%
03	Build Metric	Number of Grid Routers Installed (1)	Project	50	121	121	121
		Percent of Planned AMI Grid Routers	ITD	41.3%	100.0%	100.0%	100.0%
04	Operational Metric	Number of Meter Reading Routes	Project	356	248	94	72
		Reduction of Meter Routes from Project Inception	ITD	-3.8%	-33.0%	-74.6%	-80.5%
05	Operational Metric	Failure Electric Meters	Project	8	220	570	935
		Failed Rate of AMI Electric Meters Installed	ITD	0.02%	0.19%	0.39%	0.64%
06	Operational Metric	Remote Routine Electric & Gas Meter Reads	Date	28,784	153,456	218,005	221,859
		Percent of Remote/Total Remote & Non-Remote Meter Reads	Specified	11.7%	62.3%	87.9%	89.6%
07	Operational Metric	Remote Electric Meter Disconnection (Non-Pay)	Date	61	429	606	466
		Percent of Remote/Total Remote & Non-Remote NPD	Specified	17.2%	79.0%	96.5%	93.2%
08	Operational Metric	Remote Connection (Non-Pay)	Date	38	306	421	281
		Percent of Remote/Total Remote and Non-Remote NPR	Specified	13.9%	79.3%	94.6%	91.2%
09	Operational Metric	Remote Read-In/Read-Out	Date	287	2,950	2,966	3,495
		Percent of Remote/Total Remote & Non-Remote Read In/Out	Specified	10.1%	63.7%	86.1%	93.1%

Notes:

- (1) Initial CGR forecast was refined after the final AMI implementation design was completed in June 2017. Due to the density and strength of the meter mesh, fewer CGRs were needed.