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 Advanced Metering Infrastructure; (2) Request for Accounting Treatment; and (3) All Other Necessary Waivers, Approvals, and Relief.	))))))	Case No. 2016-00152

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 July 2018 through the end of December 2018. This document also includes a description of efficiencies and cost savings pursuant to Section 3(c) of the Stipulation.

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[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. Currently, the total program costs are projected to come in under $33.1 million compared to $47.5 million from the original project estimate. A projected savings of approximately $14.4 million.

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[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 29th day of March 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**	**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)	$ -	$ -	$ 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	$ 16,027,475
6	AMI/ Smart Meter	Field Technology	Labor	Electric meters labor	$ 16,720	$ 577,342	$ 3,468,981	$ 4,063,043
7	AMI/ Smart Meter	Field Technology	Other	Electric meters - PM/Support	$ 162,301	$ 434,355	$ 1,252,269	$ 1,848,925
8	AMI/ Smart Meter	Field Technology	Contingency	Meter contingency	$ -	$ -	$ -	$ -
9	AMI/ Smart Meter	Eng. & Other Services	Other	Overhead allocations	$ -	$ 150,280	$ 827,310	$ 977,590
10	AMI/ Smart Meter	Eng. & Other Services	Other	AFUDC (2)	$ -	$ 2,455	$ -	$ 2,455
				TOTAL	$ 179,096	$ 11,255,854	$ 12,090,058	$ 23,525,007

O&M - Program Costs Non-Recurring O&M					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**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 (1)	$ -	$ -	$ -	$ -
14	AMI/ Smart Meter	Field Technology	Equipment	Electric meters material and labor	$ -	$ 45,211	$ 79,231	$ 124,443
15	AMI/ Smart Meter	Eng. & Other Services	Other O&M	TWACS decommissioning costs - IT work (1)	$ -	$ -	$ -	$ -

Capital - Recurring Costs					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**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**	**Total**
20	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system (3)	$ -	$ -	$ 39,911	$ 39,911
21	AMI/ Smart Meter	Communications	Other O&M	WAN costs (4)	$ -	$ 11,376	$ 71,437	$ 82,813
22	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Billing team labor to manage interval reads	$ -	$ 8,973	$ 153,570	$ 162,543
23	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Analytics labor to support revenue protection	$ -	$ 25,458	$ 38,156	$ 63,614
				TOTAL	$ -	$ 45,807	$ 303,074	$ 348,881

Non-Project Allocations					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**Total**
24	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK	$ 120,018	$ 174,995	$ 184,411	$ 479,424

Notes:

1 Capital telecom labor represents the modem TWACS decommissioning costs in the project.

2 AFUDC actuals include electric and gas.

3 AMI Operations Labor allocations for gas were moved to the Gas schedule.

4 2017 & 2018 WAN allocations for gas were moved to the Gas schedule.

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**	**Total**
1	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material	$ -	$ 3,918,453	$ 2,718,956	$ 6,637,409
2	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	$ -	$ 483,779	$ 1,855,141	$ 2,338,920
3	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	$ -	$ 204,301	$ 312,291	$ 516,592
				TOTAL	$ -	$ 4,606,533	$ 4,886,387	$ 9,492,920

O&M - Program Costs Non-Recurring O&M					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**Total**
4	AMI/ Smart Meter	Field Technology	Equipment	Gas modules material	$ -	$ 1,595	$ 318	$ 1,913
5	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	$ -	$ 4,328	$ 109,008	$ 113,336
6	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	$ -	$ 2,245	$ 19,548	$ 21,793
				TOTAL	$ -	$ 8,168	$ 128,874	$ 137,042

Capital - Recurring Costs					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**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**	**Total**
9	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system (1)	$ -	$ -	$ 30,763	$ 30,763
10	AMI/ Smart Meter	Communications	Other O&M	WAN costs (2)	$ -	$ 6,888	$ 11,229	$ 18,117
				TOTAL	$ -	$ 6,888	$ 41,992	$ 48,880

Non-Project Allocations					Project Actuals			
Row #	**Initiative**	**Cost Type**	**Cost Subtype**	**Description**	**2016**	**2017**	**2018**	**Total**
11	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK	$ 41,938	$ 121,958	$ 128,759	$ 292,655

Notes:

1 AMI Operations Labor allocations for gas were moved from the Electric schedule to this schedule

2 2017 & 2018 WAN allocations for gas were moved from the Electric schedule to this schedule.

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	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	$ 16,027,475
6	AMI/ Smart Meter	Field Technology	Labor	Electric meters labor	$ 16,720	$ 577,342	$ 3,468,981	$ 4,063,043
7	AMI/ Smart Meter	Field Technology	Other	Electric meters - PM/Support	$ 162,301	$ 434,355	$ 1,252,269	$ 1,848,925
8	AMI/ Smart Meter	Field Technology	Contingency	Meter contingency	$ -	$ -	$ -	$ -
9	AMI/ Smart Meter	Eng. & Other Services	Other	Overhead allocations	$ -	$ 150,280	$ 827,310	$ 977,590
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	$ 6,637,409
12	AMI/ Smart Meter	Field Technology	Labor	Gas modules labor	$ -	$ 483,779	$ 1,855,141	$ 2,338,920
13	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	$ -	$ 204,301	$ 312,291	$ 516,592
				TOTAL	$ 179,096	$ 15,862,387	$ 16,976,445	$ 33,017,928

O&M - Program Costs Non-Recurring O&M					Project Actuals			
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	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	$ 124,443
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	$ 113,336
21	AMI/ Smart Meter	Field Technology	Other O&M	Gas modules - PM/Support	$ -	$ 2,245	$ 19,548	$ 21,793
				TOTAL	$ -	$ 53,379	$ 208,106	$ 261,485

Capital - Recurring Costs					Project Actuals			
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	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	Total
28	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system - electric	$ -	$ -	$ 39,911	$ 39,911
29	AMI/ Smart Meter	Field Technology	Internal Labor	Duke operational labor - head-end system - gas	$ -	$ -	$ 30,763	$ 30,763
30	AMI/ Smart Meter	Communications	Other O&M	WAN costs - electric	$ -	$ 11,376	$ 71,437	$ 82,813
31	AMI/ Smart Meter	Communications	Other O&M	WAN costs - gas	$ -	$ 6,888	$ 11,229	$ 18,117
32	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Billing team labor to manage interval reads	$ -	$ 8,973	$ 153,570	$ 162,543
33	AMI/ Smart Meter	Eng. & Other Services	Other O&M	Analytics labor to support revenue protection	$ -	$ 25,458	$ 38,156	$ 63,614
				TOTAL	$ -	$ 52,695	$ 345,066	$ 397,761

Non-Project Allocations					Project Actuals			
Row #	Initiative	Cost Type	Cost Subtype	Description	2016	2017	2018	Total
34	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK - electric	$ 120,018	$ 174,995	$ 184,411	$ 479,424
35	AMI/ Smart Meter	Back Office Systems	Other	MDM & OW Enterprise allocation to DEK - gas	$ 41,938	$ 121,958	$ 128,759	$ 292,655
				TOTAL	$ 161,956	$ 296,953	$ 313,170	$ 772,079

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
01	Build Metric	Number of Electric Meters Installed	Project	32,322	118,600	145,029
		Percent of Planned AMI Electric Meters	ITD	22.6%	82.9%	101.4%
02	Build Metric	Number of Gas Modules Installed (1)	Project	24,493	76,425	101,618
		Percent of Planned AMI Gas Modules	ITD	23.8%	74.2%	98.7%
03	Build Metric	Number of Grid Routers Installed (2)	Project	50	121	121
		Percent of Planned AMI Grid Routers	ITD	41.3%	100.0%	100.0%
04	Operational Metric	Number of Meter Reading Routes (3)	Project	356	248	94
		Reduction of Meter Routes from Project Inception (3)	ITD	-3.8%	-33.0%	-74.6%
05	Operational Metric	Failure Electric Meters	Project	8	220	570
		Failed Rate of AMI Electric Meters Installed	ITD	0.02%	0.19%	0.39%
06	Operational Metric	Remote Routine Electric & Gas Meter Reads	Date	28,784	153,456	218,005
		Percent of Remote/Total Remote & Non-Remote Meter Reads (3)	Specified	11.7%	62.3%	87.9%
07	Operational Metric	Remote Electric Meter Disconnection (Non-Pay)	Date	61	429	606
		Percent of Remote/Total Remote & Non-Remote NPD	Specified	17.2%	79.0%	96.5%
08	Operational Metric	Remote Connection (Non-Pay)	Date	38	306	421
		Percent of Remote/Total Remote and Non-Remote NPR	Specified	13.9%	79.3%	94.6%
09	Operational Metric	Remote Read-In/Read-Out	Date	287	2,950	2,966
		Percent of Remote/Total Remote & Non-Remote Read In/Out	Specified	10.1%	63.7%	86.1%

Notes:

1 The reduction in the anticipated gas module deployment is the result of gas modules associated with electric opt-out customers, inside meter access issues, and a small increase in exclusions.

2 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.

3 Adjustments were made to the June 2018 figures since the last filing.