BEFORE THE PUBLIC SERVICE COMMMISION
OF THE STATE OF MISSOURI

In the Matter of a Working Case to Consider Policies to Improve Electric Utility Regulation.	)))	File No. EW-2016-0313

ADDITIONAL COMMENTS OF AMEREN MISSOURI

COMES NOW Union Electric Company d/b/a Ameren Missouri, and hereby submits the following additional comments:

Ameren Missouri does not wish to burden the record in this proceeding with another set of exhaustive comments. But there are some statements in the "Missouri Industrial Energy Consumers Comments Supporting Staff's Proposals and Responding to the Utilities' Answers to Commission Questions" ("MIEC's Comments") and in the Staff Report filed in this proceeding that merit a brief response.

MIEC's Comments

Beginning on page 5 of its comments, MIEC provided a calculation of Ameren Missouri's return on a hypothetical $100 million investment, supported by 50% equity and 50% debt, in a capital asset with a 40-year life, with one year of regulatory lag. MIEC points out that the "nominal profit stream" (i.e. without discounting the profit stream to present value) over the 40 years on that investment is $90 million, assuming Ameren Missouri's existing 9.53% return on equity. MIEC argues that "[a] profit of $90 million is certainly incentive to invest $50 million of equity into appropriate infrastructure." MIEC's Comments, p. 6.

Although adding up nominal returns over 40 years yields a large number, taking a closer look at MIEC's example clearly illustrates exactly why regulatory lag provides a strong disincentive for electric utilities to invest. Attachment A, attached hereto, shows a year-by-year

breakdown of the return earned on the investment that MIEC has postulated. With an assumed one year of regulatory lag the return earned in year one is of course negative, because in addition to not earning any return on its investment, Ameren Missouri would also have to absorb one year of depreciation on the investment and pay the interest on the debt that supported the investment. Specifically, in year one the return would be negative 6.44%. By year 2, the investment would have been included in rates, so the realized return on the investment turns positive. But as of year 2, the realized return since the inception of the investment is only 1.39%. As the years pass, the realized return since the inception of the investment continues to improve because there are more years in which the investment was reflected in rates. By year 5 the realized return since the inception of the investment has risen to 5.79%. By year 10 it is 7.16% and by the end of the asset's 40-year life it is 7.86%. If you tack on one additional year at the end to account for positive regulatory lag after the asset is retired, the lifetime realized return on equity for the investment rises to 7.88%--still far below the assumed authorized return on equity of 9.53%, and far below the returns that could be earned elsewhere. This clearly refutes the point, argued by some, that positive regulatory lag at the end of an asset's life can offset negative regulatory lag at the beginning of the asset's life.

On shorter-lived capital assets, the reduction in realized returns resulting from one year of regulatory lag is even more extreme. For example, many computer and telecommunications assets have service lives as short as 5 years. If there is a one-year lag on recovery of the costs of a 5-year asset, 20% of the capital costs will not be recovered. Attachment B, attached hereto, again shows a year-by-year breakdown of realized returns. This time, in year one the realized return is negative 27.79%. The realized return since the inception of the investment remains

negative until year 6, the year of positive regulatory lag after retirement of the asset, when the realized return since inception increases to 4.15%.

MIEC might argue that any positive return should be sufficient to incentivize Ameren Missouri to invest because it is better than nothing. But that argument is based on a flawed assumption that acquiring capital in the form of equity does not have a cost. Equity has a cost, and the cost of equity is assumed to be 9.53% in MIEC's example. If Ameren Missouri is unable to recover the cost of equity associated with its prudent capital investments in the electric grid then it is not recovering its true cost to provide service to its customers. This is a fundamental flaw in MIEC's example and gets to the key point that Missouri's rate setting process often does not provide recovery of the true cost to serve customers. Ameren Corporation, Ameren Missouri's shareholder, has other options to invest capital in businesses where it has a reasonable chance to recover its true cost of equity, and it will allocate its available capital to those businesses if Ameren Missouri is unable to recover its cost of equity.

Obviously, the returns realized on individual investments do not exist in isolation. There are other factors that can increase or decrease utility returns in any given period such as weather or the scheduling of plant outages. But the persistent negative impact of regulatory lag on capital investments creates relentless pressure to reduce investments and reduce expenses at an unsustainable pace if the electric utility is to have any realistic opportunity to earn its authorized return. It provides a strong disincentive for electric utilities to ramp up investments to replace aging infrastructure before it fails, or to modernize the electric grid to provide more reliable service and new service options to customers that are available as a result of modern technology. Contrary to MIEC's conclusion, the returns a utility realizes on capital investment in an

environment of significant regulatory lag are not sufficient to support investment into appropriate infrastructure.

Staff Report

Ameren Missouri commends the Staff for developing a thorough and thoughtful report. We do believe that regulatory lag presents a more serious problem for the state than is reflected in the report (as highlighted in the attached schedules), and it is a problem that directly impacts not only electric utilities' ability to invest in modern technologies to automate the electric grid, but also replace aging infrastructure—substations, meters, distribution lines, etc.—on a timely basis to preserve the current high level of reliability that customers enjoy. For that reason, we believe that direction from the legislature is necessary and appropriate to address these issues.

Notwithstanding our disagreement on the magnitude of the problem, we appreciate Staff's diligence in considering the positions of all parties that participated in the workshop. We also appreciate Staff's conclusion that some degree of policy or legislative reform could be beneficial to the Missouri regulatory process and, ultimately Missouri customers, and its recommendation that the regulatory environment should be reformed to some degree. Staff Report, pp. 1-2. Moreover, Staff's enumeration of specific measures that they could support, and those they could not support, is very helpful.

The primary aspect of the report to which Ameren Missouri feels compelled to respond is the discussion of investment levels and depreciation expense levels on pages 23-26 of the Staff Report. On page 24 of the report, Staff reproduced a bar graph that shows Ameren Missouri's ratio of capital investment to depreciation expense is in the bottom quartile of the country, and Staff acknowledges that Ameren Missouri's ratio has been in the bottom quartile every year since 2011. However, Staff also points out that Ameren Missouri's ratio of depreciation expense

to gross plant in service is slightly above the national median. Staff states that "[t]his demonstrates the varying perspectives and interpretations on the need for change to the current regulatory environment."

Ameren Missouri disagrees with this statement. The first bar graph clearly shows that Ameren Missouri's investment level compared to its depreciation expense is at the extreme lower end of the spectrum, and has been for years. This makes the important point that Ameren Missouri's investments in its infrastructure are falling significantly behind the investments made by other regulated utilities across the country. The fact that Ameren Missouri's ratio of depreciation expense to gross plant in service is slightly higher than the national median does not contradict or undercut this point, and it does not suggest a different perspective on the need to change the regulatory environment. In fact, based on simple math it would be expected that companies that are investing at much higher than depreciation expense would reflect a lower ratio of depreciation expense to gross plant in service as the increase in gross plant is much greater than the increase in depreciation expense that is created from those additional investments. The charts themselves demonstrate this by the fact that many of the companies that are in the top tier on the Total Capex to Depreciation Ratio chart are in the bottom tier of the Depreciation to Gross Plant in Service Ratio chart, and the reverse is also true (i.e., many companies in the bottom tier of the Total Capex to Depreciation Ratio chart are in the top tier of the Depreciation to Gross Plant in Service Ratio chart). The bottom line is that nothing in this second chart contradicts the point made by the first chart—that investment in electric utility infrastructure in Missouri is falling behind investment occurring in other states. Ameren Missouri appreciates the Commission's consideration of these additional comments and looks forward to reviewing the Commission's final report on this important topic.

WHEREFORE, Ameren Missouri submits its *Additional Comments.*

Respectfully submitted,

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Dated: November 7, 2016

1 YEAR regulatory lag, 40 year investment

$100M investment:	$ 50	Equity Funding	Assumes 1 YEAR of regulatory lag
	$ 50	Debt Funding	Investment occurs at end of Year 0
	9.53%	Cost of Equity, after-tax	Recovery begins at start of Year 2
	5.56%	Cost of Debt, pre-tax	Extra year of revenue at the end (Year 41)
	39%	Tax Rate, all taxes assumed to be current for simplicity	

				Revenue Required for Cost Recovery					Utility Earnings							Cash Flows for Equity Investors			
Year	Equity Balance	Debt Balance	Net Plant In-Service	Recovery of Cost of Equity	Recovery of Depreciation Expense	Recovery of Interest Expense	Recovery of Income Taxes	Total Revenue Required	Revenue Received	(less): Depreciation Expense	(less): Interest Expense	(less): Income Taxes	Net Income	Realized Return on Equity (Current Year)	Realized Return on Equity (Life-to-Date)	Return ON Equity	Return OF Equity	Total Cash Flow	Discounted Cash Flow
																		$ (50.00)	$ (50.00)
1	$ 50.00	$ 50.00	$ 100.00	$ 4.77	$ 2.50	$ 2.78	$ 3.05	$ 13.09	$ -	$ (2.50)	$ (2.78)	$ 2.06	$ (3.22)	-6.44%	-6.44%	$ (3.22)	1.25	(1.97)	(1.80)
2	48.75	48.75	97.50	4.65	2.50	2.71	2.97	12.83	12.83	(2.50)	(2.71)	(2.97)	4.65	9.53%	1.39%	4.65	1.25	5.90	4.91
3	47.50	47.50	95.00	4.53	2.50	2.64	2.89	12.56	12.56	(2.50)	(2.64)	(2.89)	4.53	9.53%	3.86%	4.53	1.25	5.78	4.40
4	46.25	46.25	92.50	4.41	2.50	2.57	2.82	12.30	12.30	(2.50)	(2.57)	(2.82)	4.41	9.53%	5.08%	4.41	1.25	5.66	3.93
5	45.00	45.00	90.00	4.29	2.50	2.50	2.74	12.03	12.03	(2.50)	(2.50)	(2.74)	4.29	9.53%	5.79%	4.29	1.25	5.54	3.51
6	43.75	43.75	87.50	4.17	2.50	2.43	2.67	11.77	11.77	(2.50)	(2.43)	(2.67)	4.17	9.53%	6.26%	4.17	1.25	5.42	3.14
7	42.50	42.50	85.00	4.05	2.50	2.36	2.59	11.50	11.50	(2.50)	(2.36)	(2.59)	4.05	9.53%	6.59%	4.05	1.25	5.30	2.80
8	41.25	41.25	82.50	3.93	2.50	2.29	2.51	11.24	11.24	(2.50)	(2.29)	(2.51)	3.93	9.53%	6.83%	3.93	1.25	5.18	2.50
9	40.00	40.00	80.00	3.81	2.50	2.22	2.44	10.97	10.97	(2.50)	(2.22)	(2.44)	3.81	9.53%	7.01%	3.81	1.25	5.06	2.23
10	38.75	38.75	77.50	3.69	2.50	2.15	2.36	10.71	10.71	(2.50)	(2.15)	(2.36)	3.69	9.53%	7.16%	3.69	1.25	4.94	1.99
11	37.50	37.50	75.00	3.57	2.50	2.09	2.28	10.44	10.44	(2.50)	(2.09)	(2.28)	3.57	9.53%	7.27%	3.57	1.25	4.82	1.77
12	36.25	36.25	72.50	3.45	2.50	2.02	2.21	10.18	10.18	(2.50)	(2.02)	(2.21)	3.45	9.53%	7.37%	3.45	1.25	4.70	1.58
13	35.00	35.00	70.00	3.34	2.50	1.95	2.13	9.91	9.91	(2.50)	(1.95)	(2.13)	3.34	9.53%	7.45%	3.34	1.25	4.59	1.40
14	33.75	33.75	67.50	3.22	2.50	1.88	2.06	9.65	9.65	(2.50)	(1.88)	(2.06)	3.22	9.53%	7.51%	3.22	1.25	4.47	1.25
15	32.50	32.50	65.00	3.10	2.50	1.81	1.98	9.38	9.38	(2.50)	(1.81)	(1.98)	3.10	9.53%	7.56%	3.10	1.25	4.35	1.11
16	31.25	31.25	62.50	2.98	2.50	1.74	1.90	9.12	9.12	(2.50)	(1.74)	(1.90)	2.98	9.53%	7.61%	2.98	1.25	4.23	0.99
17	30.00	30.00	60.00	2.86	2.50	1.67	1.83	8.85	8.85	(2.50)	(1.67)	(1.83)	2.86	9.53%	7.65%	2.86	1.25	4.11	0.87
18	28.75	28.75	57.50	2.74	2.50	1.60	1.75	8.59	8.59	(2.50)	(1.60)	(1.75)	2.74	9.53%	7.68%	2.74	1.25	3.99	0.78
19	27.50	27.50	55.00	2.62	2.50	1.53	1.68	8.33	8.33	(2.50)	(1.53)	(1.68)	2.62	9.53%	7.71%	2.62	1.25	3.87	0.69
20	26.25	26.25	52.50	2.50	2.50	1.46	1.60	8.06	8.06	(2.50)	(1.46)	(1.60)	2.50	9.53%	7.73%	2.50	1.25	3.75	0.61
21	25.00	25.00	50.00	2.38	2.50	1.39	1.52	7.80	7.80	(2.50)	(1.39)	(1.52)	2.38	9.53%	7.75%	2.38	1.25	3.63	0.54
22	23.75	23.75	47.50	2.26	2.50	1.32	1.45	7.53	7.53	(2.50)	(1.32)	(1.45)	2.26	9.53%	7.77%	2.26	1.25	3.51	0.47
23	22.50	22.50	45.00	2.14	2.50	1.25	1.37	7.27	7.27	(2.50)	(1.25)	(1.37)	2.14	9.53%	7.78%	2.14	1.25	3.39	0.42
24	21.25	21.25	42.50	2.03	2.50	1.18	1.29	7.00	7.00	(2.50)	(1.18)	(1.29)	2.03	9.53%	7.80%	2.03	1.25	3.28	0.37
25	20.00	20.00	40.00	1.91	2.50	1.11	1.22	6.74	6.74	(2.50)	(1.11)	(1.22)	1.91	9.53%	7.81%	1.91	1.25	3.16	0.32
26	18.75	18.75	37.50	1.79	2.50	1.04	1.14	6.47	6.47	(2.50)	(1.04)	(1.14)	1.79	9.53%	7.82%	1.79	1.25	3.04	0.28
27	17.50	17.50	35.00	1.67	2.50	0.97	1.07	6.21	6.21	(2.50)	(0.97)	(1.07)	1.67	9.53%	7.82%	1.67	1.25	2.92	0.25
28	16.25	16.25	32.50	1.55	2.50	0.90	0.99	5.94	5.94	(2.50)	(0.90)	(0.99)	1.55	9.53%	7.83%	1.55	1.25	2.80	0.22
29	15.00	15.00	30.00	1.43	2.50	0.83	0.91	5.68	5.68	(2.50)	(0.83)	(0.91)	1.43	9.53%	7.84%	1.43	1.25	2.68	0.19
30	13.75	13.75	27.50	1.31	2.50	0.76	0.84	5.41	5.41	(2.50)	(0.76)	(0.84)	1.31	9.53%	7.84%	1.31	1.25	2.56	0.17
31	12.50	12.50	25.00	1.19	2.50	0.70	0.76	5.15	5.15	(2.50)	(0.70)	(0.76)	1.19	9.53%	7.85%	1.19	1.25	2.44	0.15
32	11.25	11.25	22.50	1.07	2.50	0.63	0.69	4.88	4.88	(2.50)	(0.63)	(0.69)	1.07	9.53%	7.85%	1.07	1.25	2.32	0.13
33	10.00	10.00	20.00	0.95	2.50	0.56	0.61	4.62	4.62	(2.50)	(0.56)	(0.61)	0.95	9.53%	7.85%	0.95	1.25	2.20	0.11
34	8.75	8.75	17.50	0.83	2.50	0.49	0.53	4.35	4.35	(2.50)	(0.49)	(0.53)	0.83	9.53%	7.86%	0.83	1.25	2.08	0.09
35	7.50	7.50	15.00	0.71	2.50	0.42	0.46	4.09	4.09	(2.50)	(0.42)	(0.46)	0.71	9.53%	7.86%	0.71	1.25	1.96	0.08
36	6.25	6.25	12.50	0.60	2.50	0.35	0.38	3.82	3.82	(2.50)	(0.35)	(0.38)	0.60	9.53%	7.86%	0.60	1.25	1.85	0.07
37	5.00	5.00	10.00	0.48	2.50	0.28	0.30	3.56	3.56	(2.50)	(0.28)	(0.30)	0.48	9.53%	7.86%	0.48	1.25	1.73	0.06
38	3.75	3.75	7.50	0.36	2.50	0.21	0.23	3.29	3.29	(2.50)	(0.21)	(0.23)	0.36	9.53%	7.86%	0.36	1.25	1.61	0.05
39	2.50	2.50	5.00	0.24	2.50	0.14	0.15	3.03	3.03	(2.50)	(0.14)	(0.15)	0.24	9.53%	7.86%	0.24	1.25	1.49	0.04
40	1.25	1.25	2.50	0.12	2.50	0.07	0.08	2.76	2.76	(2.50)	(0.07)	(0.08)	0.12	9.53%	7.86%	0.12	1.25	1.37	0.04
41	-	-	-	-	-	-	-	-	2.76	-	-	(1.08)	1.69		7.88%	1.69	-	1.69	0.04
									MIEC cites this undiscounted "profit" total as if it has some significance >>>				$ 91.38						
															7.88%				(7.25)
														Actual earned return over the life of the investment					Zero is perfect cost recovery
																			Negative indicates costs not fully recovered

Attachment A

1 YEAR regulatory lag, 5 year investment

$100M investment:	$ 50	Equity Funding	Assumes 1 YEAR of regulatory lag
	$ 50	Debt Funding	Investment occurs at end of Year 0
	9.53%	Cost of Equity, after-tax	Recovery begins at start of Year 2
	5.56%	Cost of Debt, pre-tax	Extra year of revenue at the end (Year 6)
	39%	Tax Rate, all taxes assumed to be current for simplicity	

				Revenue Required for Cost Recovery					Utility Earnings							Cash Flows for Equity Investors			
Year	Equity Balance	Debt Balance	Net Plant In-Service	Recovery of Cost of Equity	Recovery of Depreciation Expense	Recovery of Interest Expense	Recovery of Income Taxes	Total Revenue Required	Revenue Received	(less): Depreciation Expense	(less): Interest Expense	(less): Income Taxes	Net Income	Realized Return on Equity (Current Year)	Realized Return on Equity (Life-to-Date)	Return ON Equity	Return OF Equity	Total Cash Flow	Discounted Cash Flow
																		$ (50.00)	$ (50.00)
1	$ 50.00	$ 50.00	$ 100.00	$ 4.77	$ 20.00	$ 2.78	$ 3.05	$ 30.59	$ -	$ (20.00)	$ (2.78)	$ 8.88	$ (13.90)	-27.79%	-27.79%	$ (13.90)	10.00	(3.90)	(3.56)
2	40.00	40.00	80.00	3.81	20.00	2.22	2.44	28.47	28.47	(20.00)	(2.22)	(2.44)	3.81	9.53%	-10.21%	3.81	10.00	13.81	11.51
3	30.00	30.00	60.00	2.86	20.00	1.67	1.83	26.35	26.35	(20.00)	(1.67)	(1.83)	2.86	9.53%	-5.31%	2.86	10.00	12.86	9.79
4	20.00	20.00	40.00	1.91	20.00	1.11	1.22	24.24	24.24	(20.00)	(1.11)	(1.22)	1.91	9.53%	-3.29%	1.91	10.00	11.91	8.27
5	10.00	10.00	20.00	0.95	20.00	0.56	0.61	22.12	22.12	(20.00)	(0.56)	(0.61)	0.95	9.53%	-2.49%	0.95	10.00	10.95	6.95
6	-	-	-	-	-	-	-	-	22.12	-	-	(8.63)	13.49		4.15%	13.49	-	13.49	7.81
															4.15%				(9.22)
															Actual earned return over the life of the investment				Zero is perfect cost recovery
																			Negative indicates costs not fully recovered

Attachment B