Exhibit No.:

Issues: Cost of Capital
Witness: Samuel C. Hadaway
Sponsoring Party: Aquila Networks-MPS
And L&P

Case No.: ER-2005-0436

Before the Public Service Commission of the State of Missouri

Surrebuttal Testimony

of

Samuel C. Hadaway

BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI SURREBUTTAL TESTIMONY OF SAMUAL C. HADAWAY ON BEHALF OF AQUILA, INC. D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P CASE NO. ER-2005-0436

EXECUTIVE SUMMARY OF THE SURREBUTTAL TESTIMONY

OF SAMUEL C. HADAWAY

In his surrebuttal testimony on behalf of Aquila, Inc., Dr. Hadaway responds to the rebuttal testimony of Staff witness David Murray. Dr. Hadaway explains and demonstrates in his Surrebuttal Schedule SCH-1 that Mr. Murray's ROE recommendations over the past five years have been consistently below the lowest allowed rates of return from any regulatory commission in the country. Similarly, in the two cases before this Commission that did not settle in which Mr. Murray testified, this Commission ultimately determined that the ROE should be 1.48 percent to 2.21 percent higher than Mr. Murray's midpoint recommendations.

Dr. Hadaway explains why Mr. Murray's recommendations have been extremely low. His low results stem from his singular reliance on the constant growth version of the DCF model with growth rates based entirely on analysts' near-term three-to-five-year estimates. Mr. Murray also fails to give any meaningful consideration to either consensus expectations for higher interest rates during the coming year or to the negative financial integrity impact that his

recommendations would have. Dr. Hadaway concludes that Mr. Murray's criticisms of the Company's rate of return position are not justified and that many

of Mr. Murray's remarks are incorrect.

- 1 Q. Please state your name and business address.
- 2 A. My name is Samuel C. Hadaway. My business address is FINANCO, Inc., 3520
- 3 Executive Center Drive, Austin, Texas 78731. I have previously filed direct and
- 4 rebuttal testimony in this case before the Missouri Public Service Commission
- 5 ("Commission") on behalf of Aquila, Inc. ("Aquila" or "Company").
- 6 Q. What is the purpose of your surrebuttal testimony?
- 7 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of
- 8 Commission Staff witness David Murray. The other two intervenor witnesses
- 9 (Mr. Gorman for the Federal Executive Agencies ("FEA") and Dr. Johnson for the
- 10 Public Counsel) did not file rebuttal testimony.
- 11 Q. Please summarize your understanding of Mr. Murray's position.
- 12 A. By way of background, Mr. Murray's return on common equity ("ROE")
- recommendation is by far the lowest of any of the other witnesses in the case.
- The midpoint of his 8.5 percent to 9.5 percent, 9.0 percent, recommendation is 80
- basis points below the next lowest recommendation (Mr. Gorman for FEA, et al at
- 9.80%). Similarly, Mr. Murray's midpoint is 95 basis points lower than Dr.
- Johnson's 9.95 percent recommendation on behalf of the Public Counsel.
- Recognizing this, he begins his rebuttal on page 2 by attempting to justify his low
- recommendation. In fact, he devotes a considerable portion of his rebuttal to this
- 20 effort and in doing so includes incorrect comments about testimony of the other
- 21 witnesses.
- 22 Q. How does Mr. Murray's ROE recommendation in this case compare to other
- 23 ROE recommendations he has made in past cases before the Commission?

1 A. His current recommendation follows a trend. In each prior case Mr. Murray's 2 proposals have been significantly below the mainstream of allowed ROEs. My Surrebuttal Schedule SCH-1 vividly illustrates this point as it demonstrates clearly 3 4 that Mr. Murray's ROE recommendations in each case have fallen well below the 5 range of ROEs allowed by state commissions around the country. In every case 6 he has been below the lowest allowed return from any commission and generally 7 100 to 150 basis points below the national average. In the Missouri cases that 8 were not settled, his recommendations were 148 basis points and 221 basis points 9 below the equity returns that were ultimately granted by the Commission 10 (Missouri Gas Energy: 10.50% less Murray midpoint at 9.02% = 1.48%; Empire 11 District: 11.00% less Murray midpoint at 8.79% = 2.21%).

Q. What do these comparisons indicate?

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A. Mr. Murray's ROE recommendations have been consistently outside the mainstream of allowed ROEs and obviously well below the cost of capital deemed appropriate by other reasonable people.

16 Q. Why are Mr. Murray's recommendations so low?

A. Mr. Murray's recommendations are low because he applies the discounted cash flow ("DCF") and capital asset pricing model ("CAPM") models in ways that cause low outcomes. He places singular reliance on the constant growth DCF model, using analysts' low near-term forecasts, which currently bear little relationship to investors' long-term expectations and requirements. I explained this feature of Mr. Murray's analysis in detail in my rebuttal testimony. Mr. Murray gives no meaningful consideration to overall economic growth or to other

long-term growth rate forecasts. This approach in the DCF model is simply wrong. He also does not perform a meaningful market-based risk premium analysis to check the reasonableness of his DCF results or give any consideration to the financial integrity impacts of his recommendations. Had Mr. Murray more realistically considered the models and data available to him, he should have recognized how far out of step he is. For example, my Surrebuttal Schedule SCH-2 shows that interest rate projections for the coming year have continued to increase, something Mr. Murray has apparently not considered. All these factors demonstrate why Mr. Murray's ROE proposals are so low, and why little or no weight should be given to his recommendations.

A.

Q. At page 2 in his Executive Summary, Mr. Murray compares his constant growth DCF range to your initial results from the traditional constant growth model. Does Mr. Murray tell the Commission in that summary that you rejected those results because they failed to meet basic tests of reasonableness?

No. In a continuing proceeding such as this one, with multiple rounds of testimony, Mr. Murray's summary could easily be misunderstood. As I explained in my direct and rebuttal testimony, the traditional constant growth DCF model, as applied by Mr. Murray, simply does not meet basic checks of reasonableness. Under present market conditions with extremely low near-term growth rates from analysts and with interest rates expected to rise significantly, Mr. Murray's

¹ Mr. Murray offers a CAPM analysis that produces ranges of 6.18 percent to 9.41 percent (historical) and 6.31 percent to 7.45 percent (forward-looking). He appears to accept these results as confirmation of his DCF analysis.

constant growth results are below the reasonable range. Even the of witnesses, Mr. Gorman and Dr. Johnson, appear to recognize this factor of the pessimistic analysts' growth forecasts." Is this an accurate character of your testimony? A. No. Again, Mr. Murray's testimony, when viewed in isolation, countain an incorrect impression of my testimony. While I explained (at a direct testimony) that low yields and pessimistic growth forecasts. DCF results, in the sentence immediately prior to my statement that quoted, I said: "results from the traditional constant growth DCF meet basic checks of reasonableness and, therefore, are not incorrect recommended DCF range." At page 10 of his rebuttal, Mr. Murray says that you us variations of the DCF model to justify an end-result oriented cost equity recommendation of 11.50 percent." How do you result Murray's remark? Mr. Murray is mistaken and at this point his testimony is simply incorporated. Please explain. First, multi-stage growth DCF models and other alternative growth.		
At page 6 of his rebuttal, Mr. Murray says that you dismissed constant growth DCF results because of "historically low divided pessimistic analysts' growth forecasts." Is this an accurate character of your testimony? A. No. Again, Mr. Murray's testimony, when viewed in isolation, count an incorrect impression of my testimony. While I explained (at page 10 direct testimony) that low yields and pessimistic growth forecast DCF results, in the sentence immediately prior to my statement that quoted, I said: "results from the traditional constant growth DCF meet basic checks of reasonableness and, therefore, are not into recommended DCF range." At page 10 of his rebuttal, Mr. Murray says that you us variations of the DCF model to justify an end-result oriented cost equity recommendation of 11.50 percent." How do you result of Murray's remark? A. Mr. Murray is mistaken and at this point his testimony is simply income.	t growth results are below the reasonable range. Even the other in	tervenor
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18 A. Mr. Murray is mistaken and at this point his testimony is simply inco. 19 Q. Please explain.	recommendation of 11.50 percent." How do you respond	to Mr.
19 Q. Please explain.	y's remark?	
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20 A First multi-stage growth DCE models and other alternative growth	explain.	
20 A. Prist, mutu-stage growth Der models and other alternative growth	nulti-stage growth DCF models and other alternative growth rate	methods
are widely used by regulatory commissions around the country. Co	ely used by regulatory commissions around the country. Contrar	y to Mr.

Murray's statement, my approach to reviewing various model alternatives is not

atypical. Second, Mr. Murray's remarks about my orientation and the Company's

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- 1 requested 11.5 percent ROE are inappropriate and wrong. As shown on page 44 2 of my direct testimony, my DCF models supported an ROE range of 10.6 percent 3 to 11.1 percent and my risk premium analysis supported an ROE of 11.0 percent 4 with other risk premium methods indicating 11.2 percent to 11.8 percent. From 5 this analysis and my review of higher projected interest rates for the coming year, 6 I recommended a base ROE of 11.0 percent for the reference company utility 7 The Company's requested 11.5 percent ROE is based on the further 8 analysis of MPS/LP construction requirements and other risks, which clearly 9 exceed the risks of the reference group.
- 10 Q. At page 11 of his rebuttal, Mr. Murray criticizes your risk premium analysis 11 relative to "traditional finance" methods. How do you respond?
- A. Mr. Murray says that "risk premium analysis in traditional finance would never use allowed returns on common equity as a variable." I disagree with this statement.
- 15 **Q.** Why?
- A. The average allowed returns used in my risk premium analysis represent the
 annual consensus from state commissions about investors' requirements. I do not
 and would not advocate using the other commissions' findings as a sole or
 independent source for estimating ROE. However, to ignore this information
 entirely as Mr. Murray has done, or to criticize it because it does not match ones
 personal beliefs is not reasonable.
- Q. At pages 12 and 13 of his rebuttal, Mr. Murray cites four pieces of your testimony from the early 1980s and says that you relied entirely on a constant

1 growth DCF model and that your testimony now is inconsistent because it is 2 offered on behalf of utility companies instead of for the Texas PUC. How do 3 vou respond? 4 A. Mr. Murray's remarks are again inappropriate and incorrect. To the best of my 5 recollection, I have considered the constant growth version of the DCF model in 6 each case, just as I did in the present case. I have also tested the DCF results 7 against risk premium results and against current economic and market conditions. 8 Based on this review, I offer my ROE recommendations in each case with 9 consideration for the conditions and circumstances that exist at the time. At other 10 times the various DCF models have produced more consistent results relative to 11 each other and relative to risk premium models and economic conditions. In these cases I have routinely included the constant growth DCF version. This is the 12 13 customary approach used by most professional economists and it is the 14 appropriate way to exercise experienced judgment. For Mr. Murray to suggest 15 otherwise is wrong. 16 Q. At page 19 of his rebuttal, Mr. Murray questions whether you "believe in" 17 the efficient markets hypothesis ("EMH") and says that efficient markets are 18 "a fundamental assumption of the [DCF] model." How do you respond? 19 A. Mr. Murray's statements are incorrect both with respect to my views on market 20 efficiency and with respect to DCF model requirements. The DCF model was developed in the 1950s and earlier.² The EMH literature did not begin until into the 1960s.³ While it is reasonable to expect investors to behave rationally and for the DCF model to incorporate investors' expectations, Mr. Murray is simply wrong about any strict connection between the DCF model and the EMH. Furthermore, my responses in my deposition were entirely consistent with current academic views about market efficiency, including those of Professor Eugene Fama, whose research originated the EHM.⁴ Mr. Murray is wrong about current views on market efficiency and about DCF model requirements.

A.

Q.

Beginning at page 19 of his rebuttal, Mr. Murray offers a quotation from the Public Counsel's testimony in the most recent Empire District case (Case No. ER-2004-0570), which says that utility growth rates have been trending down and that prior 8 percent growth expectations should be replaced with 3-4 percent growth. He then for several pages criticizes your use of a 6.6 percent growth rate based on expected growth in nominal GDP. How do you respond?

As I explained in my rebuttal testimony, Mr. Murray (as well as the other intervenor witnesses) seems to have missed the point about what the growth rate in the DCF model is supposed to be. The growth rate in the DCF model is supposed to be the growth rate expected by investors into the very distant future

² See for example, J.B. Williams, *The Theory of Investment Value*, Cambridge, Mass., Harvard University Press, 1938 and M. Gordon and E. Shapiro, "Capital Equipment Analysis: The Required Rate of Profit," *Management Science*, October 1956, pp. 102-110.

³ See for example, Eugene F. Fama, "The Behavior of Stock Market Prices," *Journal of Business*, January 1965, pp. 34-105.

⁴See "As Two Economists Debate Markets, the Tide Shifts," *The Wall Street Journal online*, October 18, 2004.

(technically to infinity). In this context it does not really matter what the Public Counsel or Mr. Murray or even what Wall Street analysts think about growth for In the present low inflation environment, it is not the next 3 to 5 years. unexpected that near-term growth rates are low and only about equal to the longterm inflation rate. This does not mean that investors believe that low inflation and low growth will prevail forever. Other versions of the DCF model have been developed by professional economists to deal with this fluctuating growth rate problem. In fact, the effect of low near-term growth is what my two-stage DCF model is intended to incorporate. However, it is not correct or appropriate to extend such low near-term growth rates far out into the future as Mr. Murray has. His continued focus on such items as the Public Counsel quotation in his efforts to support unreasonably low DCF results is a clear reflection of his misunderstanding or his basic disregard for the underlying theory of the DCF model. Such an approach is incorrect and cannot produce a reasonable estimate of the cost of equity capital. At pages 23-26 of Mr. Murray's rebuttal testimony, there is a discussion of market-to-book adjustments and an argument that current DCF results should be adjusted downward to account for current market-to-book ratios

21 A. No.

direct testimony?

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Q.

22 Q. Is such an approach consistent with financial theory or practice?

greater than one. Did Mr. Murray propose such an adjustment in his initial

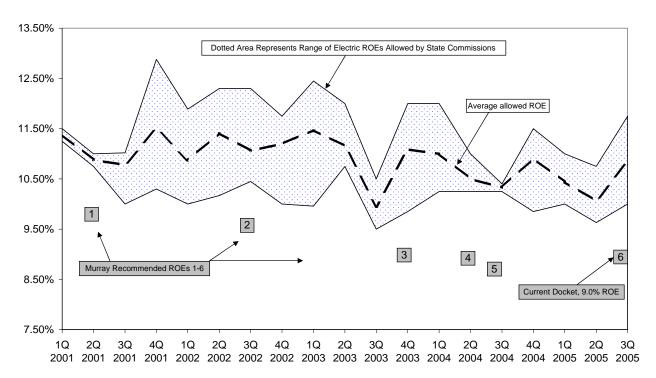
1 A. No. I have never seen in any finance textbook or any practical application of the 2 DCF model a downward adjustment to account for market-to-book ratios greater 3 than one. When market-to-book ratios are less than one, upward adjustments are 4 sometimes necessary to avoid dilution. Such adjustments are not penalties to 5 utility customers or rewards for shareholders. They are simply a reflection of the 6 costs incurred when utilities are required to raise equity under unfavorable market 7 conditions. Under more favorable conditions, or when merger and acquisitions or 8 other industry factors push up market-to-book ratios, utilities can raise needed 9 equity capital without dilution. Utility customers clearly are not harmed by these 10 higher market-to-book ratios and, in fact, customers benefit from the lower dividend yields in the DCF model. Any further downward adjustment to the 12 estimated ROE, in an effort to take back some of the shareholders' return as Mr. 13 Murray's testimony suggests, would be wrong.

14 Q. Does this conclude your surrebuttal testimony?

15 A. Yes, it does.

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Murray Electric & Gas Recommended ROEs vs. Allowed Electric ROEs



	ROE	ROE
Murray Recommended ROEs (midpoint of range)	Recommended	l Awarded
1: Docket GR-2001-292, Missouri Gas Energy, prepared April 2001	9.85%	n/a (stipulation)
2: Docket ER-2002-424, Empire District Electric Company, prepared August, 2002	9.66%	n/a (stipulation)
3: Docket ER-2004-0034, Aquila Networks, prepared December, 2003	9.14%	n/a (stipulation)
4: Docket GR-2004-0209, Missouri Gas Energy, prepared April, 2004	9.02%	10.50%
5: Docket ER-2004-0570, Empire District Electric Company, prepared September, 2004	8.79%	11.00%
6: Docket ER-2005-0436, Aquila Networks, prepared October, 2005	9.00%	n/a (pending)

Source of Allowed ROEs:

Regulatory Research Associates

Major Rate Case Decisions--January 2005-September 2005 (October 4,2005);

Major Rate Case Decisions--January 2003-December 2004 (January 14, 2005);

Major Rate Case Decisions--January 2001-December 2002 (January 22, 2003).

Note:

Case 1: 1st-2nd quarter 2001 allowed electric ROE range = 10.75% to 11.50%; gas company range = 10.75% to 11.50% Case 4: 1st-2nd quarter 2004 allowed electric ROE range = 10.25% to 12.00%; gas company range = 10.00% to 12.00%

Trends & Projections

\$11,734.3 \$12,485.4 7.0 6.4 4.2 3.6		Annu	Annual % Change	ge				2005				E2006	
\$11,734.3 \$12,485.4 7.0 6.4 4.2 3.6	E2006	2004	E2005	E2006		10	20	A30	E40	10	20	30	40
	\$13,233.3	7.0	6.4	0.9	Gross Domestic Product GDP (current dollars)	\$12,198.8		\$12,589.6	\$12,775.4	\$12,988.6	\$13,162.9	\$13,313.1	\$13,468.7
	6.0 3.3				Annual rate of increase (%) Applial rate of increase—real GDP (%)	7.0	6.0	7.0	9.0	6.8 8.6	5.5 3.3	3.0	4.8 0.0
2.6 2.8	2.6				Annual rate of increase–GDP deflator (%)	3.1	2.6	. E.	2.8	. E.	2.1	1.6	
					*Components of Real GDP								
\$7,8	\$8,076.4	3.9	3.5	2.9	Personal consumption expenditures	\$7,764.9	\$7,829.5	\$7,904.7	\$7,904.2	\$7,962.1	\$8,037.2	\$8,115.5	\$8,190.8
	2.9	' 0	L .		% change	3.5	3.4	3.9	(0.0)	3.0	3.0	4.0	3.00
1,089.9 1,139.3	1,148.5	6.0	4.5	0.8 8 c	Uurable goods	1,122.3	1,143.9	1,1/3.5	5,117.3	2,111,1	1,135.5	1,138.8	1,182.5
43109 44361	2,309.7 4 569 7	3.0	9.4	3.0 3.0	Nondurable goods Services	2,203.0 4 392.0	4.417.6	4,300.0 4,452.5	4,313.0 4,482.5	4 514 8	2,30U.3 4 551 1	2,38U.9 4 588 5	4,399.7 4,624.5
	1.423.2	9.4	9.0	10.5	Nonresidental fixed investment	1.252.2	1,279.0	1.298.4	1,324.2	1.374.9	1.417.4	1,443.4	1.457.1
	10.5		2 .		% change	5.7	8.8	6.2	8.2	16.2	12.9	7.5	3.8
_	1,149.7	11.9	10.9	9.4	Producers durable equipment	1,014.2	1,040.9	1,063.3	1,085.8	1,114.3	1,138.7	1,162.2	1,183.5
2	569.2	10.3	7.0	(3.8)	Residental fixed investment	574.8	290.0	597.0	604.7	596.3	577.9	557.8	545.0
	(3.8)		i		% change	9.6	11.0	4.8	5.3	(2.4)	(11.8)	(13.2)	(8.8)
		' (1 (. (Net change in business inventories	58.2	(1.7)	(16.6)	30.7	32.4	27.1	24.7	25.9
1,952.3 1,994.3	7	2.2	2.2	2.3	Gov't purchases of goods & services	1,971.9	1,984.1	1,999.9	2,021.2	2,028.4	2,035.8	2,045.1	2,054.9
123.1 144.8	7 777 1	2.5	2.9	2.9	Federal State & local	731.8	1.36.1	1 2/0 8	1 259 6	1 26/1	1 269 /	1 2 7 8 2	1 286 9
		t. 5 '	<u> </u>	0.4	Net exports	(645.4)	(614.2)	(6118)	(6319)	(634.2)	(634 9)	(636.0)	(636.3)
		8.4	8.9	6.2	Exports	1,165.3	1,195.4	1,197.6	1,218.9	1,239.4	1,258.2	1,277.0	1,300.7
	1,904.2	10.7	5.9	4.6	Imports	1,810.7	1,809.6	1,809.4	1,850.8	1,873.6	1,893.2	1,913.0	1,937.0
					** Income & Profits								
₩	ò	5.9	2.7	6.4	Personal income	\$10,073.4	\$10,221.2		\$10,487.0	\$10,679.5	\$10,849.7	\$11,015.4	\$11,165.9
9,0	9'6	6.1	4.5	6.3	Disposable personal income	8,902.0	9,008.6	9,070.2	9,245.6	9,417.7	9,559.9	9,698.4	9,819.8
		' (' '	' '	Savings rate (%)	0.0	0.1	(1.1)	0.1	0.7	0.0	6.0	0.7
1,059.4 1,424.7	1,499.1	13.0	34.5	5.7	Corporate profits before taxes	5,8/8.3	1,412.2	1,352.1	1,556.3	1,542.9	2,500.8	1,484.9	1,46/./
		20.2	33.2 18.1	12.7	tEarnings per share (S&P 500)	60.32			69.16	72.83	74.99	77.28	77.92
					†Prices & Interest Rates								
	2.5				Consumer price index	2.4	4.2	5.1	3.2	2.4	1.2	1.2	1.3
1.4 3.2	4.4	í			Treasury bills	2.5	2.9	3.4	3.9	4.3	4.4	4.4	4.4
	5.2	,			10-yr notes	4.3	4.2	4.2	4.6	2.0	5.1	5.3	2.5
5.1 4.6	5.4		1		30-yr bonds	4.7	4.5	4.4	4.8	2.1	5.3	5.4	2.6
	6.3			1	New issue rate—corporate bonds	5.3	5.1	5.1	5.6	0.9	6.2	6.4	9.9
		1			Other Key Indicators			. (,	
1,949.7 2,060.9		5.2	5.7	(10.4)	Housing starts (1,000 units SAAR)	2,083.0	2,044.3	2,069.3	2,046.7	1,956.9	1,833.6	1,804.9	1,792.2
10.9	16.3	<u>.</u> ن	(0.7)	(3.1)	Auto & truck sales (1,000,000 units)	0.5 2.2	17.2 5.1		13.7	 	7.01	0.01	0.0
		,			SILS dollar	(2.6)	11.6	9 2	3.2	(7.4)	(5.9)	(2.5)	(8.8)

Note: Annual changes are from prior year and quarterly changes are from prior quarter. Figures may not add to totals because of rounding. A-Advance data. P-Preliminary. E-Estimated. R-Revised. *1996 Chain-weighted dollars. **Current dollars. †Trailing 4 quarters. †Average for period. §Quarterly % changes at quarterly rates. This forecast prepared by Standard & Poor's.

BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

County of Jackson)	SS					
State of Missouri)	55					
		AFFIDAVIT OF	SAMUEL	C. HADA	WAY		
Samuel C. H sponsors the accompliant said testimony were made as to the and that the aforesai information, and believed the subscribed and swort subscribed	panyin was pre- facts id test ief.	repared by him a in said testimon timony and sched	itled "Surrel and under his y and schedulules are true	direction ales, he was and corr	and supervisional could respond a	on; that if included the stherein set of his know	quiries forth;
M. Commission and	·		_		Notary Pub Terry D. Li		les
My Commission exp	mes.						
8-20	2	008			Sary Public	TERRY D. LU	JTES
					Notary Seal	Jackson Co My Commission	

August 20, 2008