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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO: ER-2016-0179

REBUTTAL TESTIMONY

OF

PAULINE M. AHERN, CRRA

ON BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a Ameren Missouri**

January 20, 2017

TABLE OF CONTENTS

| | | |
|------|--|----|
| I. | INTRODUCTION | 1 |
| II. | PURPOSE AND OVERVIEW OF TESTIMONY..... | 2 |
| III. | INDEPENDENCE OF AMEREN MISSOURI’S CAPITAL STRUCTURE | 4 |
| IV. | RELEVANCE OF THE ACTUAL CAPITAL FINANCING AMEREN MISSOURI’S JURISDICTIONAL RATE BASE | 6 |
| V. | COMPARISON OF AMEREN MISSOURI’S COMMON EQUITY RATIO WITH THOSE OF OTHER ELECTRIC UTILITIES | 9 |
| VI. | BOND RATING AGENCY PERSPECTIVE | 11 |
| VII. | CONCLUSION..... | 13 |

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OF

PAULINE M. AHERN, CRRA

FILE NO. ER-2016-0179

I. INTRODUCTION

1
2 **Q. Please state your name, occupation and business address.**

3 A. My name is Pauline M. Ahern. I am an Executive Director of ScottMadden, Inc.
4 My business address is 1900 West Park Road, Suite 250, Westborough, MA 01581. My mailing
5 address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

6 **Q. On whose behalf are you submitting this testimony?**

7 A. I am submitting this Rebuttal Testimony (“Rebuttal Testimony”) before the
8 Missouri Public Service Commission (“Commission”) on behalf of Union Electric Company
9 d/b/a Ameren Missouri (“Ameren Missouri” or the “Company”).

10 **Q. Please summarize your professional experience and educational background.**

11 A. I have offered expert testimony on behalf of investor-owned utilities before
12 thirty-one state regulatory commissions in the United States and Canada on rate of return issues
13 including, but not limited to, common equity cost rate, fair rate of return, capital structure issues,
14 relative investment risk and credit quality issues. I am a graduate of Clark University, Worcester,
15 MA, where I received a Bachelor of Arts degree with honors in Economics. I have also received
16 a Master of Business Administration with high honors and a concentration in finance from
17 Rutgers University.

18 On behalf of the American Gas Association (“A.G.A.”), I calculate the A.G.A. Gas
19 Index, that serves as the benchmark against which the performance of the American Gas Index

1 Fund (“AGIF”) is measured monthly. The A.G.A. Gas Index and AGIF are a market
2 capitalization weighted index and mutual fund, respectively, comprised of the common stocks of
3 the publicly-traded corporate members of the A.G.A.

4 I am a member of the Society of Utility and Regulatory Financial Analysts (“SURFA”)
5 and currently serve on its Board of Directors. I previously served two terms as President of the
6 organization, from 2006–2008 and 2008–2010, and a term as its Secretary/Treasurer from 2004–
7 2006. In 1992, I was awarded the professional designation of "Certified Rate of Return Analyst"
8 (“CRRA”) by SURFA; a designation that is based upon education, experience and the successful
9 completion of a comprehensive written examination.

10 I am an associate member of the National Association of Water Companies, serving on
11 its Finance/Accounting/Taxation and Rates and Regulation Committees; a member of the
12 Advisory Council of the Financial Research Institute – University of Missouri – Robert J.
13 Trulaske, Sr. College of Business; a member of the American Finance and Financial
14 Management Associations; a member of Edison Electric Institute’s Cost of Capital Working
15 Group; and a member of A.G.A.’s State Affairs Committee.

16 The details of my educational background, expert witness appearances, presentations I
17 have given and articles I have co-authored are shown in the attached Appendix A.

18 II. PURPOSE AND OVERVIEW OF TESTIMONY

19 Q. What is the purpose of your Rebuttal Testimony?

20 A. On behalf of Ameren Missouri, my Rebuttal Testimony responds to the Revenue
21 Requirement Cost of Service Report (“Staff Report”) submitted in this proceeding by the
22 Commission Utility Services Division (“Staff”) as it relates to Staff’s recommended capital
23 structure for the Company presented by Staff Witness David Murray.

1 **Q. Have you prepared schedules which support your Rebuttal Testimony?**

2 A. Yes, I have. They have been marked for identification as Schedules PMA-R1
3 through PMA-R4, which have been prepared by me or under my direction, and attached hereto.

4 **Q. Please summarize your conclusions relative to Mr. Murray’s proposed**
5 **capital structure ratio.**

6 A. My Rebuttal Testimony provides evidence that it is not appropriate for the
7 Commission to set rates for Ameren Missouri based upon Ameren Corporation’s (“Ameren”)
8 consolidated capital structure or to set “Ameren Missouri’s ratemaking common equity ratio . . .
9 no higher than Ameren’s common equity ratio (50.51% as of March 31, 2016) with the equity in
10 excess of this ratio being allocated to long-term debt.”¹ Rather, the Commission should adopt the
11 Company’s proposed capital structure which is detailed in Ameren Missouri witness Ryan J.
12 Martin’s Rebuttal Testimony.

13 **Q. Why are the Company’s capital structure ratios at the true-up date,**
14 **December 31, 2016, appropriate for ratemaking purposes?**

15 A. These capital structure ratios are appropriate for ratemaking purposes for four
16 reasons: 1) Ameren Missouri has an independently determined capital structure; 2) Ameren
17 Missouri’s stand-alone capital structure represents the actual capital financing Ameren
18 Missouri’s jurisdictional rate base to which the rate of return set in this proceeding will be
19 applied; 3) Ameren Missouri’s stand-alone capital structure is consistent with the capital
20 structure ratios maintained by other electric utilities; and 4) Ameren Missouri’s stand-alone
21 capital structure supports its bond rating.

¹ Staff Revenue Requirement Cost of Service Report at 28.

1 **III. INDEPENDENCE OF AMEREN MISSOURI'S CAPITAL STRUCTURE**

2 **Q. Please comment upon the independence of Ameren Missouri's stand-alone**
3 **capital structure.**

4 A. As discussed more extensively in Mr. Martin's Rebuttal Testimony, Ameren
5 Missouri's capital structure at December 31, 2016, consists of long-term debt comprised of
6 senior secured notes issued to outside investors, and environmental improvement bonds issued
7 through the State of Missouri's Environmental Improvement & Energy Resources Authority
8 ("EIERA"). The senior secured notes are "secured by a series of [Ameren Missouri's] first
9 mortgage bonds, referred to as the 'senior note mortgage bonds,' issued under the mortgage
10 indenture described under 'Description of First Mortgage Bonds and Mortgage Indenture' in the
11 accompanying prospectus and delivered by us to the senior secured trustee under the senior
12 secured indenture."² In turn, "the first mortgage bonds, including the senior note mortgage
13 bonds, will be secured by the lien of the mortgage indenture, which, subject to certain
14 exceptions, is a first lien on substantially all of our properties."³

15 Thus, Ameren Missouri's long-term debt is secured by its own assets and not the assets of
16 Ameren or Ameren's other subsidiaries, Ameren Illinois and Ameren Transmission Company of
17 Illinois ("ATXI"). Ameren Missouri's assets do not guarantee Ameren's, Ameren Illinois', or
18 ATXI's long-term debt either. In addition, the Commission must approve any of Ameren
19 Missouri's long-term debt issuances.

20 The Company's December 31, 2016 capital structure is also expected to consist of
21 preferred stock issued to outside investors as well and common equity composed of common

² Prospectus Supplement (To Prospectus dated June 22, 2015) \$150,000,000 Ameren Missouri 3.65% Senior Secured Notes due 2045 (hereinafter the "Prospectus"), cover sheet.

³ Prospectus, June 22, 2015 \$150,000,000 Ameren Missouri 3.65% Senior Secured Notes due 2045, at 17.

1 stock, premium on capital, paid-in capital, and retained earnings with such earnings obtained
2 directly from the Company's electric and gas operations.

3 **Q. What factors should typically be considered when determining whether to**
4 **use a regulated subsidiary's or consolidated parent's capital structure for ratemaking**
5 **purposes for the regulated subsidiary?**

6 A. The factors typically considered relative to the use of a regulated subsidiary's
7 actual capital structure or a parent holding company's consolidated capital structure for
8 ratemaking are provided by David C. Parcell in The Cost of Capital – A Practitioner's Guide
9 ("CRRA Guide") prepared for SURFA and provided as the study guide to candidates for
10 SURFA's Certified Rate of Return Certification Examination, which Mr. Murray successfully sat
11 for at SURFA's 2007 Financial Forum held in April 2007. The CRRA Guide notes that these
12 factors or "considerations" will "help determine whether the utility vs parent capital structure is
13 appropriate."⁴ They are:

- 14 1) Whether the subsidiary utility obtains all of its capital from its parent, or issues its
15 own debt and preferred stock;
- 16 2) Whether the parent guarantees any of the securities issued by the subsidiary;
- 17 3) Whether the subsidiary's capital structure is independent of its parent (i.e.,
18 existence of double leverage, absence of proper relationship between risk and
19 leverage of utility and non-utility subsidiaries); and
- 20 4) Whether the parent (or consolidated enterprise) is diversified into non-utility
21 operations.

⁴ David C. Parcell, The Cost of Capital – A Practitioner's Guide, Prepared for the Society of Utility and Regulatory Financial Analysts, 2010 Edition. Although the citation is from the 2010 Edition, it is identical to the 1998 edition used to prepare for the 2007 exam.

1 **Q. Does the application of these factors to Ameren Missouri support the use of**
2 **Ameren Missouri’s actual capital structure for ratemaking purposes?**

3 A. Yes. Application of the factors, enumerated in the CRRRI Guide listed above, to
4 Ameren Missouri support the use of Ameren Missouri’s actual capital structure for ratemaking
5 purposes. Ameren Missouri does not obtain any long-term debt or preferred stock from Ameren,
6 but rather issues its own long-term debt and preferred stock to outside investors as discussed
7 above. Ameren Missouri’s long-term debt is secured by its own assets and not the assets of
8 Ameren. Double leverage cannot be said to exist since the proceeds of the \$700M November
9 2015 Ameren debt issuance were used to: re-pay Ameren’s commercial paper borrowings, which
10 funded 1) the May 2014 maturity of the \$425M long-term debt which financed Ameren’s now-
11 divested merchant generating business and 2) Ameren’s investment in its transmission
12 subsidiary, ATXI. Finally, Ameren is not diversified into non-utility operations.

13 In view of the foregoing, Ameren Missouri has an independently determined capital
14 structure. Therefore, the only conclusion to be drawn is that Ameren Missouri’s stand-alone
15 capital structure at the true-up date, December 31, 2016, is appropriate for ratemaking purposes.

16 **IV. RELEVANCE OF THE ACTUAL CAPITAL FINANCING AMEREN**
17 **MISSOURI’S JURISDICTIONAL RATE BASE**

18 **Q. Why is the actual capital financing Ameren Missouri’s jurisdictional rate**
19 **base relevant and appropriate for ratemaking purposes?**

20 A. The Company’s actual capital is relevant and appropriate for ratemaking purposes
21 because it represents the actual dollars which are financing the jurisdictional rate base to which
22 the rate of return authorized in this proceeding will be applied. In contrast, the consolidated
23 Ameren capital structure proposed by Mr. Murray contains capital which does not finance
24 Ameren Missouri’s jurisdictional rate base. It includes the long-term debt capital of Ameren

1 Illinois which finances, in part, Ameren Illinois' jurisdictional rate base and is backed by
2 Ameren Illinois' assets. Thus, it is not available for any investment in Ameren Missouri by
3 Ameren. It also includes Ameren Illinois' equity which finances Ameren Illinois' jurisdictional
4 rate base as well and is thus not available for any investment in the Company by Ameren.
5 Finally, it includes long-term debt issued in 2015 to finance Ameren's investment in ATXI, as
6 noted above and by Mr. Murray.⁵

7 As shown on Mr. Martin's Schedule RJM-R1, Ameren Missouri's ratemaking capital
8 structure at December 31, 2016 aggregates to approximately \$7.7B. In contrast, Ameren's
9 consolidated total capital at December 31, 2016 is expected to aggregate to approximately
10 \$15.1B.⁶ Ameren's December 31, 2016 total capital is thus approximately \$7.4B greater than
11 Ameren Missouri's December 31, 2016 total capital. Since Ameren's capital also finances
12 Ameren Illinois and ATXI, that portion of the capital is simply not available to finance Ameren
13 Missouri's jurisdictional rate base.

14 **Q. Why is the actual capital financing Ameren Missouri's rate base relevant?**

15 A. It is relevant because it is the only capital financing Ameren Missouri's
16 jurisdictional rate base to which the overall rate of return set in this proceeding will be applied.
17 Thus, Ameren Missouri should be evaluated as a stand-alone entity, including with regard to its
18 capital structure. To do otherwise violates the basic financial principle that the use of the funds
19 invested gives rise to the risk of the investment.

20 **Q. Does the financial literature support this basic financial principle?**

21 A. Yes. As Brealey and Myers⁷ state:

⁵ Staff Report at 28.

⁶ See Rebuttal Testimony of Company Witness Ryan J. Martin.

⁷ Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996) 204-205 (emphasis added in first paragraph). See Exhibit PMA-RT 1, Schedule 12, at 5-6.

1 *But the company cost of capital rule can also get a firm into trouble if*
2 *the new projects are more or less risky than its existing business.*
3 *Each project should be evaluated at its own opportunity cost of*
4 *capital. This is a clear implication of the value-additivity principle*
5 *introduced in Chapter 7. For a firm composed of assets A and B, the*
6 *firm value is*

7 Firm Value = PV (AB) = PV (A) + PV (B) = sum of separate asset
8 values

9 Here PV(A) and PV(B) are valued just as if they were mini-firms in
10 *which stockholders could invest directly ...If the firm considers*
11 *investing in a third project C, it should also value C as if C were a*
12 *mini-firm. That is, the firm should discount the cash flows of C at the*
13 *expected rate of return that investors would demand to make a separate*
14 *investment in C. The true cost of capital depends on the use to which*
15 *the capital is put. (italics in original)*

16 In addition, Haim Levy and Marshall Sarnat⁸ state:

17 The cost of capital and the discount rate are two concepts which are
18 used throughout the book interchangeably. However, there is a
19 distinction between the *firm's* cost of capital and specific *project's* cost
20 of capital. (italics in original)

21 In any case where the risk profile of the individual projects differ from
22 that of the firm, an adjustment should be made in the required discount
23 rate, to reflect this deviation in the risk profile.

24 It is fundamental that individual investors expect a return commensurate with the risk
25 associated with where their capital is invested. In this proceeding, that capital is both provided by
26 and invested in Ameren Missouri. Hence, Ameren Missouri must be viewed on its own merits,
27 including the actual capital structure financing its rate base. As *Bluefield* so clearly states:

28 A public utility is entitled to such rates as will permit it to earn a
29 return on the value of the property which it employs for the
30 convenience of the public equal to that generally being made at the
31 same time and in the same general part of the country on investments
32 in other business undertakings which are attended by corresponding
33 risks and uncertainties; . . .

⁸ Haim Levy and Marshall Sarnat, Capital Investments and Decisions, 5th Ed. (Prentice/Hall International, 1986) 464-465. See Exhibit PMA-RT 1, Schedule 13 at 3-4.

1 In other words, it is the “risks and uncertainties” surrounding the property employed for
2 the “convenience of the public” which determines the appropriate level of rates. In this
3 proceeding, the property employed “for the convenience of the public” is the rate base of
4 Ameren Missouri. Therefore, it is the total investment risk of Ameren Missouri (including the
5 financial risk inherent in its stand-alone capital structure), and its rate base only, which is
6 relevant to the appropriated rate of return for Ameren Missouri.

7 In view of the foregoing, the capital structure proposed by Mr. Murray contains capital
8 which is clearly not financing Ameren Missouri’s rate base. Consequently, it is not appropriate
9 for setting an authorized return on Ameren Missouri’s jurisdictional rate base. Once again, the
10 only conclusion to be drawn is that Ameren Missouri’s stand-alone capital structure at the true-
11 up date, December 31, 2016, is appropriate for ratemaking purposes.

12 **V. COMPARISON OF AMEREN MISSOURI’S COMMON EQUITY RATIO**
13 **WITH THOSE OF OTHER ELECTRIC UTILITIES**

14 **Q. How does Ameren Missouri’s proposed common equity ratio at**
15 **December 31, 2016 compare with those maintained by other electric utilities?**

16 A. Ameren Missouri’s December 31, 2016 common equity ratio is consistent with
17 those maintained, on average, by the regulated operating subsidiaries of the publicly-traded
18 utilities in both Company Witness Robert B. Hevert’s and Staff Witness Randall R. Woolridge’s
19 proxy groups.

20 As shown on page 1 of Schedule PMA-R1, the common equity ratios, based upon
21 permanent capital (excluding short-term debt), of the regulated operating subsidiaries of
22 Mr. Hevert’s updated proxy group companies averaged 51.89%, with a median of 52.57%, for
23 the year 2015. Ameren Missouri’s proposed common equity ratio of 51.81% falls in the 45%
24 percentile of these regulated operating company common equity ratios. Similarly, the common

1 equity ratios based upon permanent capital of the regulated operating subsidiaries of
2 Dr. Woolridge’s proxy group companies averaged 52.86%, with a median of 52.25%, in 2015, as
3 shown on page 3. Ameren Missouri’s proposed common equity ratio of 51.81% falls in the 48%
4 percentile of Dr. Woolridge’s regulated operating companies’ common equity ratios.

5 Thus, Ameren Missouri’s proposed common equity ratio is consistent with the common
6 equity ratios maintained by regulated operating subsidiaries of both Mr. Hevert’s and
7 Dr. Woolridge’s proxy group companies.

8 Once again, the only conclusion to be drawn is that Ameren Missouri’s proposed capital
9 structure is suitable and appropriate for ratemaking purposes in this proceeding. Such a
10 conclusion is corroborated by Charles F. Phillips⁹ who states:

11 Debt ratios began to rise in the late 1960s and early 1970s, and the
12 financial condition of the public utility sector began to deteriorate. It
13 became the common practice to use actual or expected capitalizations;
14 actual where a historic test year is used, expected when a projected or
15 future test year is used.^{83 (footnote omitted)}

16 The objective, in short, shifted from minimization of the short-term
17 cost of capital to protection of a utility’s ability “to raise capital at all
18 times. This objective requires that a public utility make every effort to
19 keep indebtedness at a prudent and conservative level.”^{84 (footnote omitted)}

20 A hypothetical capital structure is used only where a utility’s actual
21 capitalization is clearly out of line with those of other utilities in its
22 industry or where a utility is diversified.”^{85 (footnote omitted)}

⁹ Charles F. Phillips, Jr., The Regulation of Public Utilities – Theory and Practice, 1993, Public Utility Reports, Inc., Arlington, VA, at 391.

1 **VI. BOND RATING AGENCY PERSPECTIVE**

2 **Q. Mr. Murray states that Ameren Missouri’s “S&P credit rating is based upon**
3 **Ameren’s consolidated capital structure.”¹⁰ Please comment.**

4 A. First, it should be noted that, although Standard & Poor’s (“S&P”) no longer
5 includes capital structure (i.e., total debt/capital) as one of its key credit metric ratios, a
6 company’s capital structure directly influences those ratios (i.e., Funds From Operations
7 [“FFO”]/debt; Debt/Earnings Before Income Tax, Depreciation and Amortization [“EBITDA”];
8 FFO/cash interest; EBITDA/interest; Cash Flows from Operations [“CFO”]/debt; Free Operating
9 Cash Flows [“FOCF”]/debt; and Discretionary Cash Flows [“DCF”]/debt). Second, should
10 Ameren Missouri’s key credit metric ratios deteriorate because of a lower than actual common
11 equity ratio, such as that proposed by Mr. Murray, if authorized in this proceeding, Ameren
12 Missouri’s bond rating could be at risk for a downgrade.

13 Mr. Murray is incorrect when he states that “[o]ne of the most glaring reasons for doing
14 so,” (i.e., using Ameren’s consolidated capital structure for ratemaking purposes), “is the fact
15 that Ameren Missouri’s S&P credit rating is based upon Ameren’s consolidated capital
16 structure.” As demonstrated below, quite the opposite is true; namely, Ameren’s credit ratings
17 are based upon its regulated operating utility subsidiaries.

18 S&P is clear in its December 6, 2016, report¹¹ on Ameren Corp. (“S&P – 8/18/15”) that
19 among the key drivers of its S&P BBB+ corporate credit rating are its regulated electric and gas
20 subsidiaries. In other words, S&P views Ameren, on a consolidated basis, as a holding company
21 invested exclusively in regulated utility operating subsidiaries when it states, in describing its

¹⁰ Staff Report at 28.

¹¹ Ameren Corp., Standard & Poor’s RatingDirect, December 6, 2016.

1 Base-Case Operating Scenario on page 4 of Schedule PMA-R2, that “Ameren remains a
2 regulated utility holding company.” Continuing on page 8, S&P states:

3 Under our group rating methodology, we view Ameren as the parent of
4 a group that includes Ameren Illinois and Union Electric d/b/a/
5 Ameren Missouri. (emphasis added)

6 Thus, S&P views Ameren solely as a regulated utility holding company. As such,
7 Ameren’s credit metrics, consolidated business and financial risk is a function of its regulated
8 electric and gas operating subsidiaries. Consequently, there is no basis for Mr. Murray’s
9 assertion that Ameren’s consolidated capital structure is the basis of Ameren Missouri’s S&P
10 credit rating. In fact, as a regulated utility holding company and based upon the previous
11 discussion in this Rebuttal Testimony concerning the composition of Ameren’s consolidated
12 capital, nearly all that capital, is consolidated from the balance sheets of Ameren’s regulated
13 electric and gas utility subsidiaries.

14 Similarly, Moody’s Investors Service and FitchRatings consider that Ameren’s credit
15 profile reflects its regulated utility subsidiaries and not the other way around. For example,
16 Moody’s considers Ameren a “Regulated Electric and Gas Utility Holding Company” in its
17 March 10, 2016 Credit Opinion (“Moody’s 3/10/16”).¹² Moody’s summarized its ratings
18 rationale as:

19 Ameren Corporation’s (Ameren) Baa1 rating reflects a challenging but
20 stable regulatory environment in Missouri and a credit supportive
21 regulatory environment in Illinois. It also incorporates Ameren’s
22 strong consolidated credit metrics, manageable parent company debt
23 (approximately 11% of the total consolidated debt), and improved
24 business risk profile. Ameren’s rating also reflects its position as a
25 parent holding company that is diversified with regulated utilities
26 operating in two states, and considers its growing transmission rate
27 base and the stability of cash flows associated with those investments.
28 (see page 1 of Schedule PMA-R3)

¹² Moody’s Investors Service Credit Opinion: Ameren Corporation – Regulated Electric and Gas Utility Holding Company, March 10, 2016.

1 FitchRatings concurred on July 7, 2016 (“Fitch – 7/7/16”) when it stated:

2 AEE’s credit profile reflects the relatively stable and predictable
3 operating cash flows of its regulated utility subsidiaries and the
4 financial support it receives from them in the form of dividends for the
5 payment of corporate expenses and dividends to common
6 shareholders. . . . The Stable Outlook reflects Fitch’s expectation that
7 AEE will sustain its current financial condition, its strong liquidity
8 position, and a conservative financing strategy to support a projected
9 6.5% compound annual growth rate in rate base through 2020. (*see*
10 page 1 of Schedule PMA-R4)

11 It is clear, then, that Ameren’s regulated utilities form the basis for the rating agencies’
12 opinions relative to the consolidated Ameren credit/bond rating. Yet again, the only conclusion
13 to be drawn is that Ameren Missouri’s stand-alone capital structure at the true-up date,
14 December 31, 2016, is appropriate for ratemaking purposes.

15 VII. CONCLUSION

16 **Q. What do you conclude regarding Ameren Missouri’s proposed capital**
17 **structure?**

18 A. In my opinion, based upon the entirety of this Rebuttal Testimony, Ameren
19 Missouri’s proposed capital structure is appropriate for ratemaking purposes in this proceeding
20 for the four reasons enumerated in the beginning of and supported throughout this Rebuttal
21 Testimony:

- 22 • It is independently determined;
- 23 • It represents the actual capital financing Ameren Missouri’s jurisdiction rate base;
- 24 • It is consistent with the capital structures maintained by other electric utilities; and
- 25 • It supports Ameren Missouri’s credit/bond ratings as well as Ameren’s.

26 Therefore, the Commission should accept the Company’s proposed capital structure for
27 ratemaking purposes, rejecting Mr. Murray’s proposed Ameren capital structure and its

1 alternative, limiting the Company's common equity ratio to that of Ameren with the excess
2 allocated to long-term debt.

3 **Q. Does this conclude your Rebuttal Testimony?**

4 **A. Yes.**

**Pauline M. Ahern, CRRA
Executive Director
ScottMadden Inc.**

Ms. Ahern has served as a consultant for investor-owned and municipal utilities and authorities for nearly 30 years. As a Certified Rate of Return Analyst (CRRA), she has extensive experience in rate of return analyses, including the development of ratemaking capital structure ratios, senior capital cost rates, and the cost rate of common equity for regulated public utilities. She has testified as an expert witness before 31 regulatory commissions in the U.S. and Canada.

She also maintains the benchmark index against which the American Gas Association's (AGA) Mutual Fund performance is measured. Ms. Ahern has also served as President of the Society of Utility Regulatory and Financial Analysts (SURFA) from 2006-2010 and now sits on its Board of Directors. SURFA is a non-profit organization founded to promote the education and understanding of rate of return analysis which represents utility financial analysts in government, the financial community, industry and academia. She also serves on the Finance/Accounting/Taxation Committees of the National Association of Water Companies. Ms. Ahern is also a member of the Advisory Council, Financial Research Institute, University of Missouri - Robert J. Trulaske, Sr. School of Business. She is also a member of Edison Electric Institute's Cost of Capital Working Group.

PROFESSIONAL HISTORY

ScottMadden Inc. (2016 – Present)

Sussex Economic Advisors, LLC (2015 – 2016)

Partner

AUS Consultants (1988 – 2015)

Principal

- Offered testimony as an expert witness on the subjects of fair rate of return, cost of capital and related issues before state public utility commissions.
- Provided assistance and support to clients throughout the entire ratemaking litigation process; supervision of the financial analyst and administrative staff in the preparation of fair rate of return and cost of capital testimonies and exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies as well as the preparation of interrogatory responses, as well as rebuttal exhibits.
- Responsible for the production, publishing, and distribution of the AUS Utility Reports (formerly C. A. Turner Utility Reports), which has provided financial data and related ratios for about 80 public utilities (*i.e.*, electric, combination gas and electric, natural gas distribution, natural gas transmission, telephone, and water utilities, on a monthly, quarterly and annual basis) since 1930. Subscribers include utilities, many state regulatory commissions, federal agencies, individuals, brokerage firms, attorneys, as well as public and academic libraries.
- Responsible for maintaining and calculating the performance of the AGA Index, a market capitalization weighted index of the common stocks of the approximately 70 corporate members of the AGA, which serves as the benchmark for the AGA Gas Utility Index Fund.

Assistant Vice President

- Prepared fair rate of return and cost of capital exhibits which were filed along with expert testimony before various state and federal public utility regulatory bodies; supporting exhibits include the determination of an appropriate ratemaking capital structure and the development of embedded cost rates of senior capital and also support the determination of a recommended return on common equity through the use of various market models, such as, but not limited
-

to, Discounted Cash Flow analysis, Capital Asset Pricing Model and Risk Premium Methodology, as well as an assessment of the risk characteristics of the client utility.

- Assisted in the preparation of responses to any interrogatories received regarding such testimonies filed on behalf of client utilities. Following the filing of fair rate of return testimonies, assisted in the evaluation of opposition testimony in order to prepare interrogatory questions, areas of cross-examination, and rebuttal testimony and evaluated and assisted in the preparation of briefs and exceptions following the hearing process.
- Submitted testimony before state public utility commissions regarding appropriate capital structure ratios and fixed capital cost rates.

Senior Financial Analyst

- Supervised two analysts and assisted in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies; the team also assisted in the preparation of interrogatory responses.
- Evaluated the final orders and decisions of various commissions to determine whether further actions were warranted and to gain insight which assisted in the preparation of future rate of return studies.
- Assisted in the preparation of an article authored by Frank J. Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

Administrator of Financial Analysis for AUS Utility Reports

- Oversaw the preparation of this monthly publication, as well as the accompanying annual publication, Financial Statistics - Public Utilities.

Financial Analyst

- Assisted in the preparation of fair rate of return studies including capital structure determination, development of senior capital cost rates, determination of an appropriate rate of return on equity, preparation of interrogatory responses, interrogatory questions of the opposition, areas of cross-examination and rebuttal testimony, as well as preparation of the annual publication C. A. Turner Utility Reports - Financial Statistics - Public Utilities.

Research Dept. of the Regional Economics Division of the Federal Reserve Bank of Boston (1973 – 1975)

Research Assistant

- Involved in the development and maintenance of econometric models to simulate regional economic conditions in New England in order to study the effects of, among other things, the energy crisis of the early 1970's and property tax revaluations on the economy of New England. I was also involved in the statistical analysis and preparation of articles for the New England Economic Review. Also, I was Assistant Editor of New England Business Indicators.

Office of the Assistant Secretary for International Affairs, U.S. Treasury Department, Washington, D.C. (1972)

Research Assistant

- Developed and maintained econometric models which simulated the economy of the United States in order to study the results of various alternate foreign trade policies so that national trade policy could be formulated and recommended.

EDUCATION

M.B.A., Rutgers University, High Honors, 1991
B.A., Clark University, Honors, 1973

DESIGNATIONS AND PROFESSIONAL AFFILIATIONS

Advisory Council

Financial Research Institute
University of Missouri's Robert J. Trulaske, Sr. School of Business

Edison Electric Institute

Cost of Capital Working Group

National Association of Water Companies

Member of the Finance/Accounting/Taxation and Rates and Regulation Committees

Society of Utility and Regulatory Financial Analysts

Member, Board of Directors – 2010-2014 President – 2006-2008 and 2008-2010
Secretary/Treasurer – 2004-2006

American Finance Association

Financial Management Association

SPEAKING ENGAGEMENTS

Sponsor / Moderator: Hot Topic Hotline (webinar) of the Financial Research Institute - University of Missouri's Robert J. Trulaske, Sr. School of Business: "The Cost of Capital: Slower and Lower for Longer" presenter: John Lonski, Managing Director & Chief Capital Market Economist, *Capital Markets Research Group*, Moody's Analytics, November 2, 2015.

"Leadership in the Financial Services Sector", Guest Professor – Cost of Capital, Business Leader Development Program, Rutgers University School of Business, February 20, 2015, Camden, NJ.

"ROE: Trends & Analysis", American Gas Association, AGA Mini-Forum for the Financial Analysts Community & Finance Committee Meeting, September 11, 2014, The Princeton Club, New York, NY.

Guest Professor, "Measuring Risk", Asset Supervision and Administration Commission of the State Council of the Peoples' Republic of China, Rutgers School of Business, July 21, 2014, New Brunswick, NJ.

Instructor, "Cost of Capital 101", EPCOR Water America, Inc., Regulatory Management Team, June 9, 2014, Phoenix, AZ.

Moderator: Society of Utility Financial Analysts: 46th Financial Forum – "The Rating Agencies' Perspectives: Regulatory Mechanisms and the Regulatory Compact", April 22-25, 2014, Indianapolis, IN.

"The Return on Equity Debate: Its Impact on Budgeting and Investment and Wall Street's View of Risk", National Association of Water Companies – 2014 Indiana Chapter Water Summit, March 13, 2014, Indianapolis, IN.

"Regulatory Training in Financing, Planning, Strategies and Accounting Issues for Publicly- and Privately-Owned Water and Wastewater Utilities", New Mexico State University Center for Public Utilities, October 13-18, 2013, Instructor (Cost of Capital).

"Regulated Utilities – Access to Capital", (panelist) - Innovation: Changing the Future of Energy, 2013 Deloitte Energy Conference, Deloitte Center for Energy Solutions, May 22, 2013, Washington, DC.

“Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Advanced Workshop in Regulation and Competition, 32nd Annual Eastern Conference of the Center for Research in Regulated Industries (CRRRI), May 17, 2013, Rutgers University, Shawnee on the Delaware, PA.

“Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks”, before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN.

“Issues Surrounding the Determination of the Allowed Rate of Return”, before the Staff Subcommittee on Electricity of the National Association of Regulatory Utility Commissioners, Winter 2013 Committee Meetings, February 3, 2013, Washington, DC.

“Leadership in the Financial Services Sector”, Guest Professor – Cost of Capital, Business Leader Development Program, Rutgers University School of Business, February 1, 2013, Camden, NJ.

“Analyst Training in the Power and Gas Sectors”, SNL Center for Financial Education, Downtown Conference Center at Pace University, New York City, December 12, 2012, Instructor (Financial Statement Analysis).

“Regulatory Training in Financing Planning, Strategies and Accounting Issues for Publicly and Privately Owned Water and Wastewater Utilities”, New Mexico State University Center for Public Utilities, October 14-19, 2012, Instructor (Cost of Financial Capital).

“Application of a New Risk Premium Model for Estimating the Cost of Common Equity”, Co-Presenter with Dylan W. D’Ascendis, CRRA, AUS Consultants, Edison Electric Institute Cost of Capital Working Group, October 3, 2012, Webinar.

“Application of a New Risk Premium Model for Estimating the Cost of Common Equity”, Co-Presenter with Dylan W. D’Ascendis, CRRA, AUS Consultants, Staff Subcommittee on Accounting and Finance of the National Association of Regulatory Commissioners, September 10, 2012, St. Paul, MN.

“Analyst Training in the Power and Gas Sectors”, SNL Center for Financial Education, Downtown Conference Center at Pace University, New York City, August 7, 2012, Instructor (Financial Statement Analysis).

“Advanced Regulatory Training in Financing Planning, Strategies and Accounting Issues for Publicly and Privately Owned Water and Wastewater Utilities”, New Mexico State University Center for Public Utilities, May 13-17, 2012, Instructor (Cost of Financial Capital).

“A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities”, before the Finance and Regulatory Committees of the National Association of Water Companies, March 29, 2012, Telephonic Conference.

“A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities”, (co-presenter with Frank J. Hanley, Principal and Director, AUS Consultants) before the Water Committee of the National Association of Regulatory Utility Commissioners’ Winter Committee Meetings, February 7, 2012, Washington, DC.

“A New Approach for Estimating the Equity Risk Premium Applied to Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University and Frank J. Hanley, Principal and Director, AUS Consultants) before the Wall Street Utility Group, December 19, 2011, New York City, NY.

“Advanced Cost and Finance Issues for Water”, (co-presenter with Gary D. Shambaugh, Principal & Director, AUS Consultants), 2011 Advanced Regulatory Studies Program – Ratemaking, Accounting and Economics, September 29, 2011, Kellogg Center at Michigan State University – Institute for Public Utilities, East Lansing, MI.

“Public Utility Betas and the Cost of Capital”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Advanced Workshop in Regulation and Competition, 30th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 20, 2011, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 43rd Financial Forum – “Impact of Cost Recovery Mechanisms on the Perception of Public Utility Risk”, April 14-15, 2011, Washington, DC.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Hot Topic Hotline Webinar, December 3, 2010, Financial Research Institute of the University of Missouri.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) before the Indiana Utility Regulatory Commission Cost of Capital Task Force, September 28, 2010, Indianapolis, IN.

Tomorrow’s Cost of Capital: Cost of Capital Issues 2010, Deloitte Center for Energy Solutions, 2010 Deloitte Energy Conference, “Changing the Great Game: Climate, Customers and Capital”, June 7-8, 2010, Washington, DC.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Advanced Workshop in Regulation and Competition, 29th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 20, 2010, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 42nd Financial Forum – “The Changing Economic and Capital Market Environment and the Utility Industry”, April 29-30, 2010, Washington, DC.

“A New Model for Estimating the Equity Risk Premium for Public Utilities” (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) – Spring 2010 Meeting of the Staff Subcommittee on Accounting and Finance of the National Association of Regulatory Utility Commissioners, March 17, 2010, Charleston, SC.

“New Approach to Estimating the Cost of Common Equity Capital for Public Utilities” (co-presenter with Richard A. Michelfelder, Ph.D., Rutgers University) - Advanced Workshop in Regulation and Competition, 28th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 14, 2009, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 41st Financial Forum – “Estimating the Cost of Capital in Today’s Economic and Capital Market Environment”, April 16-17, 2009, Washington, DC.

“Water Utility Financing: Where Does All That Cash Come From?”, AWWA Pre-Conference Workshop: Water Utility Ratemaking, March 25, 2008, Atlantic City, NJ.

PAPERS

“Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model”, co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Dylan W. D’Ascendis, and Frank J. Hanley, *The Electricity Journal*, May, 2013.

“A New Approach for Estimating the Equity Risk Premium for Public Utilities”, co-authored with Frank J. Hanley and Richard A. Michelfelder, Ph.D., Rutgers University, *The Journal of Regulatory Economics* (December 2011), 40:261-278.

“Comparable Earnings: New Life for Old Precept” co-authored with Frank J. Hanley, *Financial Quarterly Review*, (American Gas Association), Summer 1994.

| SPONSOR | DATE | CASE/APPLICANT | DOCKET No. | SUBJECT |
|---|-------|--|--|---|
| City Council of the City of Edmonton, CA | | | | |
| EPCOR Water Services, Inc. | 5/16 | EPCOR Water Services, Inc. | | Rate of Return |
| Arizona Corporation Commission | | | | |
| Arizona Water Company | 12/16 | Arizona Water Company | W-01445A-16-0443 | Return on Equity |
| Arizona Water Company | 08/15 | Arizona Water Company | W-01445A-15-0277 | Return on Equity |
| EPCOR Water Arizona, Inc. | 04/16 | EPCOR Water Arizona, Inc. | WS-01303A-16-0145 | Return on Equity |
| EPCOR Water Arizona, Inc. | 03/14 | EPCOR Water Arizona, Inc. | WS-01303A-14-0010 | Return on Equity |
| Arizona Water Company | 04/12 | Arizona Water Company - Eastern Group | W-01445A-11-0310 | DSIC Mechanism - Credit Quality; Return on Equity |
| Chaparral City Water Company | 04/13 | Chaparral City Water Company | W-02113A-13-118 | Return on Equity |
| Arizona Water Company | 08/12 | Arizona Water Company - Northern Group | W-01445A-12-0348 | Return on Equity |
| Bermuda Water Co. | 09/11 | Bermuda Water Co. | W-01812A-10-0521 | Return on Equity |
| Arkansas Public Service Commission | | | | |
| United Water Arkansas, Inc. | 03/10 | United Water Arkansas, Inc. | 09-130-U | Fair Rate of Return |
| United Water Arkansas, Inc. | 12/06 | United Water Arkansas, Inc. | 06-160-U | Fair Rate of Return |
| United Water Arkansas, Inc. | 09/03 | United Water Arkansas, Inc. | 03-161-U | Return on Equity |
| Arkansas Western Gas Company d/b/a Associated Natural Gas Company | 02/97 | Associated Natural Gas Company | 97-019-U | Capital Structure |
| Arkansas Western Gas Company | 02/97 | ANG Division – Arkansas | 97-019-I | Capital Structure |
| Arkansas Western Gas Company | 02/96 | ANG Division – Arkansas | GR-97-272 | Return on Equity |
| Arkansas Eastern Gas Company | 02/96 | Arkansas Western Gas Company | 96-030-U | Capital Structure |
| British Columbia Utilities Commission | | | | |
| Corix Utilities, Inc. | 07/13 | Corix Utilities, Inc. | Generic Cost of Capital Proceeding- Phase II | Return on Equity |
| Corix Utilities, Inc. | 08/12 | Corix Utilities, Inc. | Generic Cost of Capital Proceeding – Phase I | Return on Equity |
| California Public Utilities Commission | | | | |
| San Gabriel Valley Water Company | 05/12 | San Gabriel Valley Water Company | 12-05-002 | Return on Equity |
| San Jose Water Company | 05/09 | San Jose Water Company | U-168-W | Return on Equity |
| San Jose Water Company | 05/11 | San Jose Water Company | U-168-W | Return on Equity |
| Thames RWE re: California-American Water Co. | 05/02 | Thames RWE re: California-American Water Co. | 02-01-036 | Return on Equity |

| Connecticut Department of Public Utility Control | | | | |
|---|-------|-----------------------------------|-----------|--|
| Aquarion Water Co. of Connecticut | 03/13 | Aquarion Water Co. of Connecticut | 13-02-30 | Return on Equity |
| Connecticut Water Company | 01/10 | Connecticut Water Company | 09-12-11 | Return on Equity |
| Aquarion Water Company | 03/10 | Aquarion Water Company | 10-02-13 | Return on Equity |
| United Water Connecticut | 09/10 | United Water Connecticut | 10-09-08 | Fair Rate of Return |
| United Water Connecticut | 05/07 | United Water Connecticut | 07-05-44 | Fair Rate of Return |
| Delaware Public Service Commission | | | | |
| SUEZ Water Delaware Inc. | 02/16 | SUEZ Water Delaware Inc. | | Fair Rate of Return |
| Artesian Water Company | 04/14 | Artesian Water Company | 14-132 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 11/13 | Tidewater Utilities, Inc. | 13-466 | Return on Equity |
| Tidewater Utilities, Inc. | 09/11 | Tidewater Utilities, Inc. | 11-397 | Fair Rate of Return |
| Artesian Water Company | 04/11 | Artesian Water Company | 11-207 | Fair Rate of Return |
| United Water Delaware, Inc. | 12/10 | United Water Delaware, Inc. | 10-421 | Fair Rate of Return |
| United Water Delaware, Inc. | 02/09 | United Water Delaware, Inc. | 09-60 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 01/09 | Tidewater Utilities, Inc. | 09-29 | Fair Rate of Return |
| Artesian Water Company | 04/08 | Artesian Water Company | 14-132 | Fair Rate of Return |
| Sussex Shores Water Company | 10/07 | Sussex Shores Water Company | 07-278 | Fair Rate of Return |
| United Water Delaware, Inc. | 05/06 | United Water Delaware, Inc. | 06-174 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 04/06 | Tidewater Utilities, Inc. | 06-145 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 04/04 | Tidewater Utilities, Inc. | 04-152 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 01/02 | Tidewater Utilities, Inc. | 02-28 | Fair Rate of Return |
| Sussex Shores Water Company | 11/99 | Sussex Shores Water Company | 99-576 | Fair Rate of Return |
| Tidewater Utilities, Inc. | 9/99 | Tidewater Utilities, Inc. | 99-446 | Fair Rate of Return |
| Long Neck Water Company | 01/99 | Long Neck Water Company | 99-31 | Overall Rate of Return |
| United Water Delaware, Inc. | 03/98 | United Water Delaware | 98-98 | Return on Equity |
| United Water Delaware, Inc. | 08/96 | United Water Delaware, Inc. | 96-164 | Capital Structure and Fixed Capital Cost Rates |
| Florida Public Service Commission | | | | |
| Utilities Inc. | 08/08 | Utilities Inc. | 080006-WS | Fair Rate of Return |
| Utilities, Inc. of Florida | 06/03 | Utilities, Inc. of Florida | 020071-WS | Fair Rate of Return |
| Hawaiian Public Utilities Commission | | | | |
| Laie Water Company, Inc. | 9/16 | Laie Water Company, Inc. | 2016-0229 | Fair Rate of Return |
| GTE Hawaiian Telephone | 10/96 | GTE Hawaiian Telephone | 95-0054 | Common Equity Cost, Capital Structure and Storm Damage Cost Recovery |

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|--|-------|--|---------------------------|---|
| GTE Hawaiian Telephone | 06/96 | GTE Hawaiian Telephone | 95-0051/94-0298 | Self-Insurance Property Damage Reserve-Ratepayer Responsibility |
| Idaho Public Utility Commission | | | | |
| United Water Idaho, Inc. | 05/15 | United Water Idaho, Inc. | UWI-W-15-01 | State Property Tax Study |
| United Water Idaho, Inc. | 08/11 | United Water Idaho, Inc. | UWI-W-11-02 | Fair Rate of Return |
| United Water Idaho, Inc. | 11/04 | United Water Idaho, Inc. | UWI-W-04-04 | Fair Rate of Return |
| Illinois Commerce Commission | | | | |
| Illinois-American Water Company | 10/11 | Illinois-American Water Company | 11-0767 | Return on Equity |
| Apple Canyon Utility Co. / Lake Wildwood Utilities Corp. | 04/10 | Apple Canyon Utility Co. / Lake Wildwood Utilities Corp. | 09-0548/0549 | Fair Rate of Return |
| Illinois American Water Company | 05/09 | Illinois American Water Company | 09-0319 | Return on Equity |
| Illinois-American Water Company | 08/07 | Illinois-American Water Company | 07-0507 | Return on Equity |
| Aqua Illinois, Inc. | 02/06 | Aqua Illinois, Inc. - Kankakee Water Division | 06-0285 | Return on Equity |
| Aqua Illinois | 12/04 | Aqua Illinois - Woodhaven Water & Sewer Divisions | 05-0071 | Return on Equity |
| Aqua Illinois | 12/04 | Aqua Illinois - Oak Run Water & Sewer Divisions | 05-0072 | Return on Equity |
| United Water Idaho, Inc. | 11/04 | United Water Idaho, Inc. | UWI-W-04-04 | Fair Rate of Return |
| Aqua Illinois | 05/04 | Aqua Illinois - Vermillion Water Division | 04-0442 | Return on Equity |
| Aqua Illinois (formerly Consumers Ill. Water Co.) | 05/03 | Aqua Illinois (formerly Consumers Ill. Water Co.) | 03-0403 | Fair Rate of Return |
| Aqua Illinois (formerly Consumers Ill. Water Co.) | 04/00 | Aqua Illinois (formerly Consumers Ill. Water Co.) | 00-0337, 00-0338, 00-0339 | Return on Equity |
| Indiana Utility Regulatory Commission | | | | |
| Indiana-American Water Company | 01/14 | Indiana-American Water Company | 44450 | Return on Equity |
| Pioneer Water LLC | 10/13 | Pioneer Water LLC | 4434 | Return on Equity |
| Utility Center, Inc. | 03/10 | Utility Center, Inc. | 43874 | Fair Rate of Return |
| Twin Lakes Utilities, Inc. | 11/06 | Twin Lakes Utilities, Inc. | 43128 | Fair Rate of Return |
| Utility Center, Inc. | 08/07 | Utility Center, Inc. | 43331 | Fair Rate of Return |
| Twin Lakes Utilities, Inc. | 09/03 | Twin Lakes Utilities, Inc. | 42488 | Fair Rate of Return |
| United Water West Lafayette, Inc. | 01/97 | United Water West Lafayette, Inc. | 41046 | Return on Equity |
| United Water Indiana, Inc. | 01/97 | United Water Indiana, Inc. | 41047 | Return on Equity |
| Iowa Utilities Board | | | | |
| Iowa-American Water Company | 04/11 | Iowa-American Water Company | RPU-2011-0001 | Return on Equity |

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|--|-------|--|-----------------------------|---------------------|
| Iowa-American Water Company | 04/09 | Iowa-American Water Company | RPU-2009-0004 | Return on Equity |
| Iowa-American Water Company | 08/07 | Iowa-American Water Company | RPU-2007-0003 | Return on Equity |
| Kentucky Public Service Commission | | | | |
| Water Service Corp. of Kentucky | 01/09 | Water Service Corp. of Kentucky | 2008-00563 | Fair Rate of Return |
| Water Service Corp. of Kentucky | 08/05 | Water Service Corp. of Kentucky | 2005-00325 | Fair Rate of Return |
| Louisiana Public Service Commission | | | | |
| Louisiana Water Service, Inc. | 03/08 | Louisiana Water Service, Inc. | U-30553 | Fair Rate of Return |
| Maine Public Service Commission | | | | |
| Maine Water Company | 12/13 | Maine Water Company – Camden & Rockland Division | 2013-00362 | Return on Equity |
| Consumers Maine Water Company | 05/00 | Consumers Maine Water Company | 2000-96 & 2000-175 | Return on Equity |
| Maryland Public Service Commission | | | | |
| Greenridge Utilities, Inc. | 05/03 | Greenridge Utilities, Inc. | 8962 | Fair Rate of Return |
| Michigan Public Service Commission | | | | |
| Alpena Power Company | 05/09 | Alpena Power Company | U-15935 | Fair Rate of Return |
| Alpena Power Company | 04/07 | Alpena Power Company | U-15250 | Fair Rate of Return |
| Alpena Power Company | 07/99 | Alpena Power Company | U-12000 | Return on Equity |
| Missouri Public Service Commission | | | | |
| Missouri Gas Energy | 09/13 | Missouri Gas Energy | GR-2014-0007 | Return on Equity |
| Missouri-American Water Company | 06/11 | Missouri-American Water Company | WR-2011-0337 / SR-2011-0338 | Fair Rate of Return |
| Missouri-American Water Company | 10/09 | Missouri-American Water Company | WR-2010-0131 | Return on Equity |
| Missouri American Water Company | 03/08 | Missouri American Water Company | WR-2008-0311 / SR-2008-0312 | Return on Equity |
| Missouri American Water Company | 12/06 | Missouri American Water Company | WR-2007-0216 / WR-2007-0217 | Return on Equity |
| Missouri-American Water Company | 05/03 | Missouri-American Water Company | WR-2003-0500 & WC-2004-0168 | Fair Rate of Return |
| Arkansas Western Gas Company | 02/97 | ANG Division – Missouri | GR-97-272 | Capital Structure |
| New Hampshire Public Utilities Commission | | | | |
| Aquarion Water Co. of New Hampshire, Inc. | 03/13 | Aquarion Water Co. of New Hampshire, Inc. | DW 12-085 | Return on Equity |
| New Jersey Board of Public Utilities | | | | |
| Atlantic City Sewerage Company | 10/16 | Atlantic City Sewerage Company | WR-16100951 | Return on Equity |
| Jersey Central Power & Light Co. | 4/16 | Jersey Central Power & Light Co. | ER-16040383 | Return on Equity |
| Aqua New Jersey, Inc. | 01/16 | Aqua New Jersey, Inc. | WR-16010089 | Return on Equity |

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| United Water New Jersey, Inc. | 10/15 | United Water New Jersey, Inc. | WR-15101177 | Return on Equity |
| United Water Toms River, Inc. | 02/15 | United Water Toms River, Inc. | W-01303A-14-0010 | Return on Equity |
| Atlantic City Sewerage Company | 10/14 | Atlantic City Sewerage Company | WR-14101263 | Return on Equity |
| Aqua New Jersey, Inc. | 01/14 | Aqua New Jersey, Inc. | WR-14010019 | Fair Rate of Return |
| Middlesex Water Company | 11/13 | Middlesex Water Company | WR-13111059 | Return on Equity |
| United Water New Jersey, Inc. | 03/13 | United Water New Jersey, Inc. | WR-13030210 | Fair Rate of Return |
| Jersey Central Power & Light Company | 11/12 | Jersey Central Power & Light Company | ER-12111052 | Return on Equity |
| United Water Toms River, Inc. | 09/12 | United Water Toms River, Inc. | WR-12090830 | Fair Rate of Return |
| Pinelands Water Company | 08/12 | Pinelands Water Company | WR-12080735 | Return on Equity |
| Pinelands Wastewater Company | 08/12 | Pinelands Wastewater Company | WR-12080734 | Return on Equity |
| Middlesex Water Company | 01/12 | Middlesex Water Company | WR-12010027 / PUC 1653-2012 | Fair Rate of Return |
| Aqua New Jersey, Inc. | 12/11 | Aqua New Jersey, Inc. | WR 11120859 | Fair Rate of Return |
| The New Jersey Utilities Association | 10/11 | The New Jersey Utilities Association | PUC 07146-09 (OAL) / WO-090148 (BPU) | Return on Equity |
| United Water New Jersey, Inc. | 07/11 | United Water New Jersey, Inc. | WR-11070428 | Fair Rate of Return |
| The Atlantic City Sewerage Company | 04/11 | The Atlantic City Sewerage Company | WR-11040247 | Fair Rate of Return |
| United Water Great Gorge, Inc./United Water Vernon Sewerage, Inc. | 10/10 | United Water Great Gorge, Inc./United Water Vernon Sewerage, Inc. | WR-10100785 | Fair Rate of Return |
| United Water New Jersey, Inc. | 12/09 | United Water New Jersey, Inc. | WR-09120987 | Fair Rate of Return |
| Aqua New Jersey, Inc. | 12/09 | Aqua New Jersey, Inc. | WR-09121005 | Fair Rate of Return |
| The Atlantic City Sewerage Company | 11/09 | The Atlantic City Sewerage Company | WR-09110940 | Fair Rate of Return |
| United Water Toms River, Inc. | 11/09 | United Water Toms River, Inc. | WR-09110934 | Fair Rate of Return |
| Middlesex Water Company | 08/09 | Middlesex Water Company | WR-0908066 | Fair Rate of Return |
| United Water New Jersey, Inc. | 09/08 | United Water New Jersey, Inc. | WR-08090710 | Fair Rate of Return |
| United Water West Milford, Inc. | 09/08 | United Water West Milford, Inc. | WR-08100928 | Fair Rate of Return |
| United Water Arlington Hills, Inc. | 09/08 | United Water Arlington Hills, Inc. | WR-08100929 | Fair Rate of Return |
| Applied Wastewater Management | 08/08 | Applied Wastewater Management | WR-08080550 | Fair Rate of Return |
| Middlesex Water Company | 04/08 | Pinelands Water Company | WR-08040282 | Return on Equity |
| United Water Toms River, Inc. | 03/08 | United Water Toms River, Inc. | R-WR-08030139 | Fair Rate of Return |
| Aqua New Jersey, Inc. | 12/07 | Aqua New Jersey, Inc. | WR-07120955 | Fair Rate of Return |
| The Atlantic City Sewerage Company | 11/07 | The Atlantic City Sewerage Company | WR-0007110866 | Fair Rate of Return |

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| Middlesex Water Company | 04/07 | Middlesex Water Company | PUCRL 05663-2007N | Fair Rate of Return |
| United Water New Jersey, Inc. | 02/07 | United Water New Jersey, Inc. | WR-07020135 | Fair Rate of Return |
| Aqua New Jersey, Inc. | 12/05 | Aqua New Jersey, Inc. | WR-05121022 | Fair Rate of Return |
| Pinelands Water Company | 08/05 | Pinelands Water Company | WR-05080681 | Return on Equity |
| Pinelands Wastewater Company | 08/05 | Pinelands Wastewater Company | WR-05080680 | Return on Equity |
| Middlesex Water Company | 05/05 | Middlesex Water Company | WR-05050451 | Fair Rate of Return |
| Pinelands Wastewater Company | 12/03 | Pinelands Wastewater Company | WR-031201017 | Return on Equity |
| Pinelands Water Company | 12/03 | Pinelands Water Company | WR-031201016 | Return on Equity |
| Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | 12/03 | Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | WR-03120974 | Return on Equity |
| Middlesex Water Company | 11/03 | Middlesex Water Company | WR-03110900 | Fair Rate of Return |
| Mount Holly Water Company | 07/03 | Mount Holly Water Company | WR-03070509 & OAL PUCRL 07280-2003N | Fair Rate of Return |
| Elizabethtown Water Company | 07/03 | Elizabethtown Water Company | WR-03070510 & OAL PUCRL 07281-2003N | Return on Equity |
| New Jersey-American Water Company | 04/03 | New Jersey-American Water Company | WR-03070511 & OAL PUCRL 07279-2003N | Fair Rate of Return |
| Thames RWE re: New Jersey-American Water Co. | 08/02 | Thames RWE re: New Jersey-American Water Co. | WM-01120833 | Return on Equity |
| Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | 03/02 | Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | WR-02030133 | Return on Equity |
| Elizabethtown Water Company | 04/01 | Elizabethtown Water Company | WR-01040205 | Overall Fair Rate of Return |
| Middlesex Water Company | 06/00 | Middlesex Water Company | WR-00060362 | Fair Rate of Return |
| Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | 03/00 | Aqua New Jersey, Inc. (formerly Consumers New Jersey Water Co.) | WR-00030174 & OAL PUCRS04524-00S | Return on Equity |
| Middlesex Water Company | 09/98 | Middlesex Water Company | 98-090795 | Fair Rate of Return |
| Middlesex Water Company | 11/96 | Middlesex Water Company | 96-110818 | Return on Equity |
| New York State Public Service Commission | | | | |
| SUEZ New York Inc. | 2/16 | SUEZ New York Inc. | 16-W-0130 | Fair Rate of Return |
| United Water New Rochelle, Inc. / United Water West Chester, Inc. | 11/13 | United Water New Rochelle, Inc. / United Water West Chester, Inc. | 13-W-0539/13-W-564 | Return on Equity |
| United Water New York, Inc. | 07/13 | United Water New York, Inc. | 13-W-0295 | Fair Rate of Return |
| Long Island American Water Company d/b/a Long Island American Water for Water Service | 05/11 | Long Island American Water Company | 11-W-0200 | Return on Equity |
| United Water Owego-Nichols, Inc. | 02/11 | United Water Owego-Nichols, Inc. | 11-W-0082 | Fair Rate of Return |
| United Water Westchester, Inc. | 11/09 | United Water Westchester, Inc. | 09-W-0828 | Fair Rate of Return |

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| United Water New Rochelle Inc. | 11/09 | United Water New Rochelle Inc. | 09-W-0824 | Fair Rate of Return |
| United Water New York, Inc. | 09/09 | United Water New York, Inc. | 09-W-0731 | Fair Rate of Return |
| United Water Owego/Nichols, Inc. | 05/07 | United Water Owego/Nichols, Inc. | 07-W-0639 / 07-W0872 | Fair Rate of Return |
| United Water New York, Inc. / South County | 01/06 | United Water New York, Inc. | Cases 06-W-0131 and 06-W-0244 | Fair Rate of Return |
| United Water New Rochelle, Inc. | 09/04 | United Water New Rochelle, Inc. | 04-W-1221 | Fair Rate of Return |
| North Carolina Utility Commission | | | | |
| Carolina Water Service of North Carolina | 08/15 | Carolina Water Company of North Carolina | W-354, Sub 344 | Return on Equity |
| Aqua North Carolina, Inc. | 12/13 | Aqua North Carolina, Inc. | W-218, Sub 363 | Fair Rate of Return |
| Carolina Water Service, Inc. of NC. | 10/13 | Carolina Water Service, Inc. of NC. | W-354 Sub 336 | Fair Rate of Return |
| Pluris, LLC | 08/12 | Pluris, LLC | W-1282, Sub 8 | Return on Equity |
| Aqua North Carolina, Inc. | 05/11 | Aqua North Carolina, Inc. | W-218, Sub 319 | Fair Rate of Return |
| Carolina Water Service, Inc. of NC | 10/10 | Carolina Water Service, Inc. of NC | W-354. Sub 324 | Fair Rate of Return |
| Carolina Water Service, Inc. of NC | 10/10 | Carolina Water Service, Inc. of NC - Ops. in Currituck Co. | W-354. Sub 327 | Fair Rate of Return |
| Transylvania Utilities, Inc. | 05/06 | Transylvania Utilities, Inc. | W-1012, Sub 7 | Fair Rate of Return |
| Carolina Pines Utilities, Inc. | 04/04 | Carolina Pines Utilities, Inc. | W-1151 | Return on Equity |
| Transylvania Utilities, Inc. | 04/04 | Transylvania Utilities, Inc. | W-1012, Sub 5 | Return on Equity |
| Nero Utilities, Inc. | 04/04 | Nero Utilities, Inc. | W-1152 | Return on Equity |
| Pennsylvania Public Utility Commission | | | | |
| Metropolitan Edison Co. | 04/16 | Metropolitan Edison Co. | R-2016-2537349 | Return on Equity |
| Pennsylvania Electric Co. | 04/16 | Pennsylvania Electric Co. | R-2016-2537352 | Return on Equity |
| Pennsylvania Power Co. | 04/16 | Pennsylvania Power Co. | R-2016-2537355 | Return on Equity |
| West Penn Power Co. | 04/16 | West Penn Power Co. | R-2016-2537359 | Return on Equity |
| United Water Pennsylvania Inc. | 01/15 | United Water Pennsylvania Inc. | R-2015-2462523 | Return on Equity |
| Penn Estates Utilities, Inc. | 12/11 | Penn Estates Utilities, Inc. | R-2011-2255159 | Return on Equity |
| United Water Pennsylvania, Inc. | 05/11 | United Water Pennsylvania, Inc. | R-2011-2232985 | Fair Rate of Return |
| United Water Pennsylvania, Inc. | 09/09 | United Water Pennsylvania, Inc. | R-2009-2122887 | Fair Rate of Return |
| Penn Estates Utilities, Inc. (Water) / (Sewer) | 09/09 | Penn Estates Utilities, Inc. (Water) / (Sewer) | R-2009-2117532 / R-2009-2117400 | Fair Rate of Return |
| Utilities, Inc. - Westgate | 09/09 | Utilities, Inc. - Westgate | R-2009-2117389 | Fair Rate of Return |
| Utilities, Inc. of Pennsylvania | 09/09 | Utilities, Inc. of Pennsylvania | R-2009-2117402 | Fair Rate of Return |
| Trigen-Philadelphia Energy Corp. | 06/09 | Trigen-Philadelphia Energy Corp. | R-2009-2111011 | Fair Rate of Return |
| The Columbia Water Company | 12/08 | The Columbia Water Company | R-2008-2045157 | Return on Equity |
| The Newtown Artesian Water | 11/08 | The Newtown Artesian Water | R-2008-2042293 | Fair Rate of Return |

| Company | | Company | | |
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| NRG Energy Center Harrisburg | 03/08 | NRG Energy Center Harrisburg | R-2008-2028395 | Fair Rate of Return |
| Total Environmental Solutions, Inc. - Treasure Lake Water Division | 02/08 | Total Environmental Solutions, Inc. - Treasure Lake Water Division | R-00072493 | Fair Rate of Return |
| Total Environmental Solutions, Inc. - Treasure Lake Sewer Division | 02/08 | Total Environmental Solutions, Inc. - Treasure Lake Sewer Division | R-00072495 | Fair Rate of Return |
| Emporium Water Company | 06/06 | Emporium Water Company | R-00061297 | Fair Rate of Return |
| NRG Energy Center Pittsburgh | 06/06 | NRG Energy Center Pittsburgh | R-00061435 | Fair Rate of Return |
| City of DuBois, PA | 04/06 | City of DuBois, PA | R-00050671 | Fair Rate of Return |
| United Water Pennsylvania, Inc. | 01/06 | United Water Pennsylvania, Inc. | R-00051186 | Fair Rate of Return |
| Valley Energy, Inc. | 10/04 | Valley Energy, Inc. | R-00049345 | Fair Rate of Return |
| Borough of Hanover | 08/02 | Borough of Hanover | R-00027522 | Fair Rate of Return |
| Audubon Water Company | 04/02 | Audubon Water Company | R-00027104 | Fair Rate of Return |
| Wellsboro Electric Company | 10/01 | Wellsboro Electric Company | R-00016356 | Fair Rate of Return |
| Emporium Water Company | 09/00 | Emporium Water Company | R-00005050 | Fair Rate of Return |
| Penn Estates Utilities, Inc. | 01/00 | Penn Estates Utilities, Inc. | R-00005031 & R-00005032 | Fair Rate of Return |
| Pittsburgh Thermal, L.P. | 11/99 | Pittsburgh Thermal, L.P. | R-00994641 | Fair Rate of Return |
| PG Energy | 03/98 | PG Energy | R-009880 | Capital Structure and Embedded Fixed Capital Cost Rates |
| Western Utilities, Inc. | 08/97 | Western Utilities, Inc. | R-00963856 | Fair Rate of Return |
| PG Energy | 05/96 | PG Energy | R-0096312 | Capital Structure and Embedded Fixed Capital Cost Rates |
| Public Service Commission of Nevada | | | | |
| Utilities Inc. of Central Nevada | 06/15 | Utilities Inc. of Central Nevada | 15-06063 | Fair Rate of Return |
| Utilities Inc. of Central Nevada | 12/09 | Utilities Inc. of Central Nevada | 09-12017 | Fair Rate of Return |
| Utilities Inc., of Nevada | 06/09 | Utilities Inc., of Nevada | 09-06037 | Fair Rate of Return |
| Spring Creek Utilities, Inc. | 06/08 | Spring Creek Utilities, Inc. | 08-06036 | Fair Rate of Return |
| Utilities, Inc. of Central Nevada | 12/06 | Utilities, Inc. of Central Nevada | 06-12023 | Fair Rate of Return |
| Spring Creek Utilities, Inc. | 04/06 | Spring Creek Utilities, Inc. | 06-01002 | Fair Rate of Return |
| Public Service Commission of South Carolina | | | | |
| United Utility Companies, Inc. | 09/13 | United Utility Companies, Inc. | 2013-199-WS | Capital Structure |
| Utilities Services of South Carolina | 09/13 | Utilities Services of South Carolina | 2013-201-WS | Capital Structure |
| Tega Cay Water Services Inc. | 12/12 | Tega Cay Water Services Inc. | 2012-177-WS | Fair Rate of Return |

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| Carolina Water Service, Inc. | 08/11 | Carolina Water Service, Inc. | 2011-47-WS | Fair Rate of Return |
| Tega Cay Water Service, Inc. | 04/10 | Tega Cay Water Service, Inc. | 2009-473-WS | Fair Rate of Return |
| United Utility Companies, Inc. | 02/10 | United Utility Companies, Inc. | 2009-479-W/S | Fair Rate of Return |
| Utilities Services of South Carolina | 11/07 | Utilities Services of South Carolina | 2007-286-WS | Fair Rate of Return |
| Southland Utilities, Inc. | 09/07 | Southland Utilities, Inc. | 2007-244-W | Fair Rate of Return |
| Tega Cay Water Service, Inc. | 07/06 | Tega Cay Water Service, Inc. | 2006-97-WS | Return on Equity |
| United Utility Companies, Inc. | 07/06 | United Utility Companies, Inc. | 2006-107-W/S | Fair Rate of Return |
| Carolina Water Service, Inc. | 06/06 | Carolina Water Service, Inc. | 2006-92-W/S | Fair Rate of Return |
| Utilities Services of South Carolina | 11/05 | Utilities Services of South Carolina | 2005-217-WS | Fair Rate of Return |
| Carolina Water Service of South Carolina | 04/05 | Carolina Water Service of South Carolina | 2004-357-W/S | Fair Rate of Return |
| United Utility Companies | 01/02 | United Utility Companies | 2000-0210-W/S | Fair Rate of Return |
| Carolina Water Service of South Carolina | 06/01 | Carolina Water Service of South Carolina | 2000-0207-W/S | Fair Rate of Return |
| Public Utility Commission of Ohio | | | | |
| Aqua Ohio, Inc. | 12/13 | Aqua Ohio, Inc. | 13-2124-WW-AIR | Return on Equity |
| Ohio American Water Company | 8/12 | Ohio American Water Company | 11-4161-WS-AIR | Fair Rate of Return |
| Ohio American Water Company | 6/09 | Ohio American Water Company | 09-391-WS-AIR | Fair Rate of Return |
| Ohio American Water Company | 10/06 | Ohio American Water Company | 06-433-WS-AIR | Fair Rate of Return |
| Ohio-American Water Company | 11/04 | Ohio-American Water Company | 03-2390-WS-AIR | Return on Equity |
| Regulatory Commission of Alaska | | | | |
| Fairbanks Natural Gas, LLC | 6/14 | Fairbanks Natural Gas, LLC | U-14-102 | Fair Rate of Return |
| Rhode Island Public Utilities Commission | | | | |
| United Water Rhode Island, Inc. | 8/13 | United Water Rhode Island, Inc. | 4434 | Fair Rate of Return |
| United Water Rhode Island, Inc. | 6/11 | United Water Rhode Island, Inc. | 4255 | Fair Rate of Return |
| Virginia State Corporation Commission | | | | |
| Aqua Virginia, Inc. | 8/14 | Aqua Virginia, Inc. | PUE-2014-00045 | Return on Equity |
| Massanutten Public Service Corporation | 9/09 | Massanutten Public Service Corporation | PUE-2009-00041 | Return on Equity |
| Land'Or Utility Company | 12/06 | Land'Or Utility Company | PUE-2006-00128 | Return on Equity |
| Massanutten Public Service Corporation | 12/06 | Massanutten Public Service Corporation | PUE-2006-00126 | Return on Equity |
| Reston Lake Anne Air Conditioning Corp. | 5/12 | Reston Lake Anne Air Conditioning Corp. | PUE-2011-00130 | Return on Equity |
| Aqua Virginia, Inc. | 10/11 | Aqua Virginia, Inc. (Monticello) | PUE-2005-00080 | Return on Equity |
| Aqua Virginia, Inc. | 10/11 | Aqua Virginia, Inc. – Sydnor | PUE-2011-00099 | Return on Equity |

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| | | Hydrodynamics, Inc. | | |
| United Water Virginia, Inc. | 10/97 | United Water Virginia, Inc. | PUE-2097-0544 | Fair Rate of Return |
| Washington Utilities & Transportation Commission | | | | |
| Washington Natural Gas Company | 03/95 | Washington Natural Gas Company | UG-950278 | Capital Structure Ratios - Fixed Capital Cost Rates |

Schedules PMA-R1

through PMA-R4

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in their entirety