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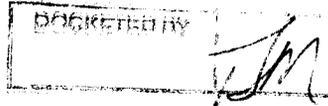


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Arizona Corporation Commission

DOCKETED

MAY 3 2013



- 1 **COMMISSIONERS**
- 2 Bob Stump – Chairman
- 3 Gary Pierce
- 4 Brenda Burns
- 5 Bob Burns
- 6 Susan Bitter Smith

BEFORE THE ARIZONA CORPORATION COMMISSION

7 IN THE MATTER OF THE APPLICATION
 8 OF ARIZONA WATER COMPANY, AN
 9 ARIZONA CORPORATION, FOR A
 10 DETERMINATION OF THE FAIR VALUE
 11 OF ITS UTILITY PLANT AND
 12 PROPERTY, AND FOR ADJUSTMENTS
 13 TO ITS RATES AND CHARGES FOR
 14 UTILITY SERVICE FURNISHED BY ITS
 15 NORTHERN GROUP AND FOR CERTAIN
 16 RELATED APPROVALS.

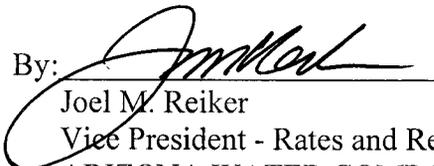
DOCKET NO. W-01445A-12-0348

**NOTICE OF FILING
 RESPONSIVE TESTIMONIES
 OF JOEL M. REIKER AND
 PAULINE M. AHERN**

17 Applicant, Arizona Water Company, hereby files the Responsive Testimonies of Joel M.
 18 Reiker and Pauline M. Ahern in the above-captioned docket.

19 DATED this 3rd day of May, 2013.

20 ARIZONA WATER COMPANY

21 By: 
 22 Joel M. Reiker
 23 Vice President - Rates and Revenue
 24 ARIZONA WATER COMPANY
 25 Post Office Box 29006
 26 Phoenix, Arizona 85038-9006

27 and

28 Steven A. Hirsch (No. 006360)
 Stanley B. Lutz (No. 021195)
 BRYAN CAVE LLP
 Two North Central Avenue, Suite 2200
 Phoenix, AZ 85004-4406
 Attorneys for Arizona Water Company

DOCKET CONTROL

2013 MAY - 3 P 3:02

RECEIVED

1 An ORIGINAL and thirteen (13) copies of the foregoing
filed this 3rd day of May, 2013, with:

2 Docket Control Division
3 Arizona Corporation Commission
1200 West Washington Street
4 Phoenix, Arizona 85007

5
6 COPIES of the foregoing hand-delivered
this 3rd day of May, 2013, to:

7 Janice Alward
8 Chief Counsel, Legal Division
Arizona Corporation Commission
9 1200 West Washington Street
Phoenix, Arizona 85007

10
11 Steven M. Olea
Director, Utilities Division
12 Arizona Corporation Commission
1200 West Washington Street
13 Phoenix, Arizona 85007

14 Daniel W. Pozefsky, Chief Counsel
15 Residential Utility Consumer Office
1110 West Washington Street, Suite 220
16 Phoenix, Arizona 85007

17
18 By: 
19

ARIZONA WATER COMPANY



Docket No. W-01445A-12-0348

**2012 NORTHERN GROUP
RATE CASE
For Test Year Ending 12/31/11**

**PREPARED
RESPONSIVE TESTIMONY
OF
PAULINE M. AHERN
IN SUPPORT OF SETTLEMENT AGREEMENT**

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EXHIBITS

Decoupling: Impact on the Risk and Cost of Common Equity of Public Utilities.....	PMA-18
An Empirical Study of Impact of Decoupling on Cost of Capital.....	PMA-19
Resolution Supporting Consideration Regulatory Policies Deemed as "Best Practices".....	PMA-20

EXECUTIVE SUMMARY

The responsive testimony of Pauline M. Ahern addresses the following issues:

System Improvement Benefits ("SIB") Mechanism – Ms. Ahern concludes that Residential Utility Consumer Office ("RUCO") witness William A. Rigsby is incorrect that the SIB mechanism shifts risk from Arizona Water Company ("AWC" or "the Company") to customers and requires a reduction in the negotiated, compromised 10.00% return on common equity adopted in the proposed Settlement Agreement. Ms. Ahern testifies that the regulatory lag that will be mitigated, but not eliminated, by the SIB mechanism results in greater risk because the Company's ability to earn its authorized rate of return could be permanently impaired. Mitigation of regulatory lag will improve the capital attractiveness of the Company, improve service quality and reliability and provide for more moderate, gradual rate increases, thereby avoiding rate shock. Ms. Ahern also provides empirical evidence that RUCO's perceived reduction in risk due to the SIB is not reflected in the volatility of equity risk premiums or beta, two standard measures of risk.

5% Declining Usage Adjustment – Ms. Ahern concludes that contrary to RUCO's claims, the residential and commercial declining usage adjustment adopted in the proposed Settlement Agreement does not shift risk from Arizona Water Company to customers, and therefore a reduction in the negotiated, compromised 10.00% return on common equity adopted in the proposed Settlement Agreement is not warranted. Such a declining usage adjustment is merely a pro forma adjustment to reflect conditions that are expected to prevail during the time new rates are in place, and not a risk factor.

1 **ARIZONA WATER COMPANY**

2
3 **Responsive Testimony of**
4 **Pauline M. Ahern**

5
6 **I. Introduction**

7 **Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.**

8 A. My name is Pauline M. Ahern. I am a Principal of AUS Consultants. My business
9 address is 155 Gaither Drive, Suite A, Mt. Laurel, New Jersey 08054.

10 **Q. ARE YOU THE SAME PAULINE M. AHERN WHO PROVIDED DIRECT**
11 **TESTIMONY IN THIS PROCEEDING?**

12 A. Yes.

13 **Q. HAVE YOU PREPARED ANY EXHIBITS THAT SUPPORT YOUR**
14 **RESPONSIVE TESTIMONY?**

15 A. Yes. They are attached hereto as Exhibits PMA-18 through PMA-20.¹

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

17 A. My responsive testimony addresses the settlement testimony of William A.
18 Rigsby on behalf of the Residential Utility Consumer Office ("RUCO").

19 **II. Summary**

20 **Q. PLEASE SUMMARIZE YOUR RESPONSIVE TESTIMONY.**

21 A. My responsive testimony addresses Mr. Rigsby's assertion that risk is shifted to
22 customers because of the System Improvement Benefits ("SIB") mechanism and
23 the 5% declining usage adjustment adopted in the proposed Settlement
24 Agreement between Arizona Water Company ("AWC") and the Arizona
25 Corporation Commission's ("ACC" or "the Commission") Utilities Division
26 ("Staff"), filed on April 15, 2013 in this proceeding. My testimony also addresses
27

28 ¹ Exhibits PMA-1 through PMA-17 are attached to the direct testimony of Pauline M. Ahern filed on August 1, 2012, in this proceeding.

1 Mr. Rigsby's recommendation that the negotiated, compromised 10.00% return
2 on equity adopted in the proposed Settlement Agreement be reduced by 0.50%
3 (50 basis points) to reflect a reduction in investor perceived risk due to the SIB
4 mechanism and the 5% declining usage adjustment.

5 **III. System Improvement Benefits ("SIB") Mechanism**

6 **Q. ON PAGE 10, LINE 4 THROUGH PAGE 11, LINE 16 OF HIS SETTLEMENT**
7 **TESTIMONY, MR. RIGSBY DISCUSSES WHY HE BELIEVES THE AGREED**
8 **UPON SIB MECHANISM SHIFTS RISK FROM THE COMPANY TO**
9 **CUSTOMERS. DO YOU AGREE?**

10 **A.** No. Mr. Rigsby's argument for the shifting of risk from the Company to its
11 customers is based on the reduction in regulatory lag which may occur once the
12 SIB mechanism is in place. In reality, the existence of regulatory lag can
13 increase the risk to both the Company and its customers. As I discussed on
14 page 49, line 8 through page 61, line 5 of my direct testimony, regulatory lag
15 occurs during the time between the incurrence of a utility capital expenditure or
16 expense and the time when the utility can begin to earn a return on and of that
17 capital or recover that expense. Such a lag can result in the permanent
18 impairment of the utility's ability to earn its authorized rate of return, resulting in
19 greater risk. Partial mitigation of regulatory lag through the adoption of the SIB
20 mechanism will improve AWC's capital attractiveness, service quality and
21 reliability. The SIB mechanism will also provide for more moderate, gradual rate
22 increases, which will inure to the *benefit* of the Company's customers rather than
23 result in a shifting of risk, as RUCO claims.

24 In addition, because the SIB mechanism reflects the time value of money,
25 qualifying infrastructure replacements will be made in a smooth pattern until the
26 Company's next general rate case, as opposed to all at once (or during a very
27 short period) at a future time without the SIB mechanism. Given the nature of
28 inflation, this means that such infrastructure replacements will ultimately cost less

1 under the SIB mechanism. Thus, absence of a SIB mechanism would actually
2 *increase* the risk to the customer because regulatory lag would not be mitigated
3 and would ultimately cost more to the customer, resulting in higher rates and rate
4 shock.

5 Also, it is clear that RUCO's views conflict with Staff's position that the
6 adoption of the SIB mechanism does not shift risk from the Company to its
7 customers. As Staff witness Steven M. Olea, Director of the Commission's
8 Utilities Division, states in his testimony in support of the Settlement Agreement:

9
10 [I]n Staff's opinion, the Agreement is fair, balanced, and in
the public interest.

11 * * *

12 As I stated earlier, it allows AWC to provide proper,
13 adequate, safe and reliable water service at just, fair and
14 reasonable rates. This balances both the interest of AWC's
ratepayers and AWC's investors.

15 * * *

16 The primary goal of Staff in this matter, as in all rate
17 proceedings before the Commission, is to protect the public
18 interest by making recommendations that are just, fair and
19 reasonable for both the ratepayers and the Company. Staff
20 believes it has accomplished this objective by reviewing the
21 facts presented and making the appropriate
22 recommendations to the Commission for its consideration.
Staff believes that the proposed settlement balances the
23 interest of AWC and its ratepayers, by ensuring that the
24 Company will have the tools and financial health to provide
25 safe, adequate and reliable service, while complying with
26 Commission requirements at just and reasonable rates.

27
28 Mr. Olea's testimony is consistent with page 67, line 25 through page 68,
line 4 of my direct testimony, where I stated: "...mechanisms such as the
Company's proposed [distribution system improvement charge] enhance the
reliability and quality of water service through more timely improvements to
infrastructure, which directly benefits customers. Such mechanisms also help to

1 lower operating costs in the long-term, as the amount of lost water is reduced by
2 replacing antiquated infrastructure. Also, these mechanisms help alleviate rate
3 shock through more gradual, smaller, regularly timed increases rather than large
4 increases occurring at longer intervals."

5 **Q. PLEASE COMMENT UPON MR. RIGSBY'S REFERENCE ON PAGE 11, LINES**
6 **8-16 OF HIS TESTIMONY TO THE REPORT AUTHORED BY KEN**
7 **COSTELLO OF THE NATIONAL REGULATORY RESEARCH INSTITUTE.**

8 **A.** Mr. Rigsby's reference is misplaced. The SIB mechanism, which allows for the
9 partial recovery on and of investment in qualifying infrastructure replacements
10 between rate cases, is not the same as the cost trackers discussed by Mr.
11 Costello. As Mr. Costello states on page 1 of the report: "A cost tracker allows a
12 utility to recover its actual costs from customers for a specified function on a
13 periodical basis outside of a rate case." The only similarity between cost trackers
14 and the SIB mechanism is the ability of the utility to recover costs on a periodical
15 basis outside of a rate case. However, the costs that are usually subject to a
16 cost tracker are routine operating expenses and not capital expenditures.
17 Routine utility operating expenses are subject to volatility between rate cases
18 and may not match the projected or allowed costs recognized in a rate case's
19 final decision. Infrastructure replacement costs are investments which must be
20 made, sooner or later, by the Company to insure the continued reliability and
21 quality of service to its customers. The SIB mechanism allows the Company to
22 invest in qualifying infrastructure replacements and begin to recover a portion of
23 the associated costs on an ongoing basis between rate cases. Because the
24 investments are made periodically and not "bunched" up just prior to the filing of
25 a general rate case, their overall cost is reduced, as well as the potential for rate
26 shock.

27 **Q. MR. RIGSBY STATES ON PAGE 20, LINES 14-16 OF HIS SETTLEMENT**
28 **TESTIMONY THAT THE ALLOWED COST OF COMMON EQUITY "SHOULD**

1 **BE LOWER BECAUSE OF THE ADOPTION OF THE SIB MECHANISM," AND**
2 **HE PROCEEDS TO RECOMMEND, ON PAGE 22, LINES 1-10, A 0.50% (50**
3 **BASIS POINTS) DOWNWARD RISK ADJUSTMENT. DO YOU AGREE WITH**
4 **MR. RIGSBY'S PROPOSED ADJUSTMENT?**

5 A. No. Mr. Rigsby has provided no empirical evidence to support his proposed
6 downward risk adjustment or that investors even perceive a reduction in risk, and
7 hence a reduction in their required return on common equity, as a result of such
8 mechanisms. In fact, because the SIB surcharge is capped at 5% of the allowed
9 revenue requirement, any reduction in the volatility of revenues, earnings and
10 cash flow, and hence risk, is likely to be very small, if at all. Also, because there
11 are many factors which affect the Company's expenses during the time in which
12 rates will be in effect, there is no reason to conclude that such a small change in
13 revenue volatility will translate into an equivalent reduction in the volatility of
14 earnings and cash flows, and hence, risk.

15 **Q. ARE YOU AWARE OF ANY EMPIRICAL STUDIES SHOWING THAT SUCH**
16 **REVENUE VOLATILITY REDUCTION MECHANISMS HAVE LITTLE TO NO**
17 **IMPACT ON INVESTORS' PERCEIVED RISK, AND HENCE THEIR REQUIRED**
18 **RETURN?**

19 A. Yes. I am aware of two recent empirical studies showing that such mechanisms
20 have no statistically significant impact on investor perceived risk, which is
21 reflected in the market data upon which all witnesses in this proceeding have
22 based their recommended returns on common equity. The first study,² by AUS
23 Consultants and Rutgers University – School of Business, Camden, studied the
24 expected equity risk premium, the expected volatility of the equity risk premium,
25 and beta before and after the date revenue decoupling went into effect. The
26

27 ² "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", Pauline M.
28 Ahern, CRRA, Dylan W. D'Ascendis, CRRA (AUS Consultants) and Richard A. Michelfelder,
Ph.D. (Rutgers University – School of Business, Camden), before the Society of Utility Regulatory
& Financial Analysts' 45th Financial Forum, April 18, 2013.

1 results of that study show that there is no statistically significant difference in the
2 expected equity risk premium, the volatility of the equity risk premium, or betas
3 pre- and post-decoupling. (See Exhibit PMA-18) The second study, by The
4 Brattle Group, also examined the effect of revenue decoupling on the cost of
5 capital. The authors of that study found that decoupling has no effect on the
6 volatility of costs, stating that they found "no empirical, statistical evidence that
7 decoupling reduces the cost of capital, for the natural gas LDC industry. If the
8 results for the natural gas distribution industry are indicative for the water and
9 electric industries, it is likely that decoupling does not reduce the cost of capital in
10 those industries either."³ Therefore, if decoupling mechanisms that are intended
11 to reduce the volatility of a utility's revenues have no measurable impact on
12 investors' perceived risk, it follows that the SIB mechanism likewise has no
13 impact on risk.

14 **Q. WAS MR. RIGSBY ABLE TO PROVIDE ANY EVIDENCE OF REGULATORS**
15 **REDUCING THE RETURN ON COMMON EQUITY AS A RESULT OF AN**
16 **INFRASTRUCTURE REPLACEMENT SURCHARGE?**

17 **A.** No. As shown on Exhibit PMA-15 of my direct testimony, the National
18 Association of Water Companies reports that eleven (11) states have SIB-like
19 mechanisms in place. To the best of my knowledge and throughout my
20 experience as a rate of return expert for the last twenty-five (25) years, I have
21 never seen a regulatory commission reduce the allowed return on common
22 equity due to the adoption of an infrastructure replacement surcharge
23 mechanism.

24 In addition, as noted on page 15, lines 9–23 of my direct testimony, the
25 Board of Directors of the National Association of Regulatory Utility
26

27
28 ³ "An Empirical Study of Impact of Decoupling on Cost of Capital," Michael J. Vilbert, Ph.D., The
Brattle Group, before the Society of Utility Regulatory & Financial Analysts' 45th Financial Forum,
April 18, 2013.

1 Commissioners ("NARUC") adopted a resolution in July 2005 (See Exhibit PMA-
2 20) identifying distribution system improvement charges as a mechanism "to help
3 ensure sustainable practices in promoting needed capital investment and cost-
4 effective rates," coupled with a "fair return on capital investment." The resolution
5 makes no mention of a need to reduce the return on equity because of the
6 existence of a distribution system improvement charge.

7 Company witness Mr. Reiker addresses the SIB mechanism in further
8 detail in his responsive testimony.

9 **IV. 5% Declining Usage Adjustment**

10 **Q. MR. RIGSBY STATES ON PAGE 20, LINES 14–19 OF HIS TESTIMONY THAT
11 THE DECLINING USAGE ADJUSTMENT SHIFTS RISK FROM THE
12 COMPANY TO ITS CUSTOMERS, AND THE ALLOWED COST OF COMMON
13 EQUITY SHOULD BE LOWER BECAUSE OF THE ADOPTION OF SUCH A
14 DECLINING USAGE ADJUSTMENT. DO YOU AGREE?**

15 **A.** No. As discussed in Company Witness Mr. Reiker's responsive testimony, the
16 declining usage adjustment is no different than any other type of pro forma
17 adjustment intended to reflect conditions of service that are reasonably expected
18 to prevail during the time new rates are in effect. Therefore, there is no shifting
19 of risk from the Company to its customers and no reduction to the common
20 equity cost rate is warranted.

21 **V. Final Comments**

22 **Q. DO YOU HAVE ANY FINAL COMMENTS?**

23 **A.** Yes. Although the SIB mechanism and the declining usage adjustment have no
24 measurable effect on investors' perception of risk and, hence, the required return
25 on common equity, the Company's requested return on common equity, which
26 was based upon my market-based rate of return analysis, was 11.30%. The
27 compromised 10.00% return on equity adopted in the proposed Settlement
28 Agreement is the result of a negotiated settlement which takes into account all

1 other aspects of the negotiations. Therefore, the Company has, in effect, already
2 agreed to a 1.30% (130 basis points) reduction in its requested, and well
3 supported, 11.30% return on common equity.

4 In view of all of the above, there is no justification to further reduce the
5 compromised 10.00% return on equity adopted in the proposed Settlement
6 Agreement to reflect either the SIB mechanism or the declining usage
7 adjustment.

8 **Q. DOES THAT CONCLUDE YOUR RESPONSIVE TESTIMONY?**

9 **A. Yes.**

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EXHIBIT

PMA-18

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Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks

Pauline M. Ahern, CRRA, Principal

Dylan W. D'Ascendis, CRRA, Principal

AUS Consultants

Richard A. Michelfelder, Ph.D.

Rutgers University

Society of Utility Regulatory and Financial Analysts

April 18, 2013

Today's Discussion

- Introduction
- Impact of decoupling on risk
- Two empirical tests:
 - The Predictive Risk Premium Model™
 - Differences in systematic risk, i.e., β
- Conclusion

4/30/2013

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Introduction

- Ratemaking mechanisms that decouple revenues from commodity sales volume or stabilize revenues are sweeping the US.
- Started in CA in early 80's to take away disincentive to promoting energy end-use efficiency.
- Currently being implemented for gas and electric utilities with water utilities (outside CA and NY) beginning to look into such mechanisms.
- Reduces risk – is it enough to decrease the cost of capital?

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3

Decoupling Reduces Volatility of Cash Flow

$$\text{Operating CF (OCF)} = \text{Revenues (R)} - \text{Cost (C)}$$

Volatility of OCF is the variance of OCF:

$$VAR (R - C) = VAR (R) + VAR (C) + COV (R, C)$$

Source:

R. Michelfelder, P. Ahern, and D. D'Ascendis, "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", (*Working paper, 2013*)

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Decoupling Reduces Volatility of Cash Flow

$$VAR (R - C) = VAR (R) + VAR (C) + COV (R, C)$$

With decoupling, volatility is lower:

$$VAR (R - C) = VAR (C)$$

Source: R. Michelfelder, P. Ahern, and D. D'Ascendis, "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", (*Working paper, 2013*)

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Decoupling Lowers Systematic Risk

Systematic risk is defined as:

$$\beta_i = \rho_{i,m} \frac{\sigma_i}{\sigma_m}$$

Where: $\rho_{i,m}$ = The correlation coefficient of the individual stock (i) and the market (m) return; and,

σ_i and σ_m = Standard deviation of the individual stock and market returns, respectively

Source: R. Michelfelder, P. Ahern, and D. D'Ascendis, "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", (*Working paper, 2013*)

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Decoupling Lowers Systematic Risk

Defining variables with superscript “D”, with decoupling:

σ_i^D and $\rho_{i,m}^D$ are lower, therefore systematic risk is lower with decoupling and defined as:

$$\beta_i^D = \rho_{i,m}^D \frac{\sigma_i^D}{\sigma_m}$$

Therefore, $\beta_i^D = \rho_{i,m}^D \frac{\sigma_i^D}{\sigma_m} < \rho_{i,m} \frac{\sigma_i}{\sigma_m}$

Source: R. Michelfelder, P. Ahern, and D. D’Ascendis, “Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks”, (*Working paper, 2013*)

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Predictive Risk Premium Model™

PRPM™

- Collaboration with:
 - Frank J. Hanley, CRRRA, Principal, AUS Consultants
- Nobel Prize in Economics awarded in 2003 to Robert F. Engle “for methods of analyzing economic *time series* with time-varying volatility (*ARCH*)”. www.nobelprize.org
- *ARCH* (Engle’s Nobel Prize winning work) developed for measuring levels of risk.
- Conclusion: a generalized version to estimate the equity risk premium for public utilities – Predictive Risk Premium Model™ (PRPM™).

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Predictive Risk Premium Model™

PRPM™

- **Assumptions:**
 - Investors will behave as they always have behaved;
 - Based upon economic (not financial) theory of investment decision making;
 - Volatility changes over time & is related from one period to the next; this is especially true for financial markets: (ARCH) or Autoregressive Conditional Heteroskedasticity”;
 - Volatility in prices & returns cluster over time; and,
 - High & low volatility periods can be used to predict equity risk premiums.

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Predictive Risk Premium Model™

PRPM™

- Minimizes subjective judgment.
- Prices all the risk actually faced by investors; not only systematic risk as assumed by CAPM.
- Been used in rate of return testimonies since early 2012.
- Academic credibility:
 - *Journal of Economics and Business* (December 2011) 63:582-604. Michelfelder & Pilotte
 - *Journal of Regulatory Economics* (December 2011) 40:261-278. Ahern, Hanley & Michelfelder
 - *The Electricity Journal* (Forthcoming, May 2013). Michelfelder, Ahern, D'Ascendis, & Hanley

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Predictive Risk Premium Model™ PRPM™

Predictive Risk Premium Model has two stages:

- 1) Predicted equity risk premium depends upon predicted volatility
- 2) Predicted volatility depends on:
 - previous volatility
 - previous prediction error

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Predictive Risk Premium Model™ PRPM™

Technically:

$$\text{Predicted RP} = a (\text{Predicted } \sigma^2)$$

$$\text{Predicted } \sigma^2 = b_0 + b_1 (\text{Previous } \sigma^2) + b_2 (\text{Previous Prediction Error})^2$$

where a , b_1 , b_2 are slopes and b_0 is a constant

Test for Change in Risk Premium After Decoupling

Predicted RP = a (Predicted σ^2) + D_{rp} (*decoupling*)

Predicted $\sigma^2 = b_0 + b_1$ (Previous σ^2) + b_2 (Previous Prediction Error)²:

where a, b_1 , b_2 are slopes and b_0 is a constant

D_{rp} is the change in the predicted RP after decoupling

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Test for Change in Volatility of Risk Premium after Decoupling

Predicted RP = a (Predicted σ^2)

Predicted $\sigma^2 = b_0 + b_1$ (Previous σ^2) + b_2 (Previous Prediction Error)² + D_v (*decoupling*):

where a, b_1 , b_2 are slopes and b_0 is a constant

*D_v is the change in volatility in risk premium after
decoupling*

Differences in Systematic Risk

Differences in the means of annual betas before and after implementation of decoupling

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Data and Sample

PRPMTM Data: Monthly holding period returns minus Ibbotson yield on US Long Treasury Bonds for PRPM

Beta Data: U. Chicago's Center for Research in Regulated Industries (known as "CRSP") yearly betas for beta difference

Public utilities sample: all electric and combination electric and gas company stocks where 95%+ of revenues are decoupled

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Companies

<u>Company</u>	<u>Eff. Decoupling Date</u>	<u>Beginning of Measurement Period</u>	<u>Total # of Months</u>
ED	10/31/07	07/30/02	126
PCG	01/31/83	01/31/53	720
EIX	01/31/83	01/31/53	720
CHG	07/31/09	01/31/06	84
CMS	05/28/10	9/30/07	64
HE	12/31/10	11/30/08	50
POR	12/31/10	11/30/08	50
IDA	03/30/07	05/30/01	140

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Results of PRPM™ Decoupling Tests

No differences in expected risk premium:

D_{rp} is not significant

No differences in expected volatility of risk premium:

D_{vis} not significant

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Results of Differences in Systematic Risk

- Mean pre-decoupling beta: 0.67
- Mean post-decoupling beta: 0.56
- Although most post betas are lower, none of the differences are statistically significant

Conclusion:

No differences in systematic risk

Conclusions

- Theoretically and practically, decoupling reduces investment risk of public utility stocks.
- The impact of decoupling on stock returns, risk, and cost of capital cannot be isolated nor measured (to date) due to the myriad of other risk drivers impacting the investment risk of stocks.
- Utility executives have revealed their preference for decoupling, which says more about the impact of decoupling on risk and cost of capital than theoretical or empirical tests.

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Contact Us

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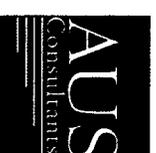
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www.ausinc.com

856.234.9200

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EXHIBIT

PMA-19

The Brattle Group

AN EMPIRICAL STUDY OF IMPACT OF DECOUPLING ON COST OF CAPITAL

SURFA CONFERENCE

Indianapolis, IN

Presented by:

Michael J. Vilbert, Ph.D.

April 18, 2013

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Antitrust Competition Consumer and Distribution Environmental Litigation and Regulation Energy Economics Intellectual Property International Arbitration
International Trade Intellectual Property Regulatory Finance and Accounting Risk Management Securities Tax Utility Regulatory Policy and Rate-making Valuation
Electric Power Environmental Assessments Natural Gas Petroleum Pharmaceuticals, Medical Devices, and Biotechnology Telecommunications and Media Transportation

Agenda

Motivation for the Study

Decoupling – What is it?

Decoupling – Should it reduce the cost of capital?

Empirical Analysis of Gas Local Distribution Industry

Conclusion

Firm Overview

Motivation for the Study

Question: What is the effect on a company's cost of capital from the adoption of a decoupling mechanism?

An update to the original study* published in March 2011 (corrected version in June 2011).

- ◆ Expand the study period from October 2005 to May 2012.
- ◆ Increase the number of separate cost of capital estimation periods from 18 to 26.
- ◆ Sample of 12 holding companies with 46 subsidiaries.
- ◆ More states and additional subsidiaries have adopted decoupling mechanisms. (See for example, *Innovative Regulation: A Survey of Remedies for Remedies for Regulatory Lag*, 2012 Update, EEI, Draft - February 2013.)

* Joseph Wharton, Michael Vilbert, Richard Goldberg and Toby Brown, *The Impact of Decoupling on the Cost of Capital: An Empirical Investigation* (2011). The Brattle Group.

Decoupling – What is it?

- ◆ Decoupling is a rate making policy that can sever the direct and positive link between utility's unit sales and its collection of base (or non-commodity) revenues.
 - Situation is similar for water, electricity, or natural gas
- ◆ Types of decoupling include:
 - True-up decoupling schemes
 - Straight fixed-variable (SFV) rate design
 - Lost fixed revenue adjustment mechanisms (“LRAMs”) targeted at Energy Efficiency reductions
- ◆ Various decoupling policies are being actively pursued:
 - Eliminate the “through-put disincentive” to Utility EE programs between general rate cases

Decoupling – Should it reduce the cost of capital?

- ◆ Credit rating agencies welcome decoupling as a policy reducing the risk to debt holders.
- ◆ Decoupling is designed to stabilize revenue in relation to certain kinds of sales changes.
- ◆ Some have argued this stabilization reduces business risk, therefore also reduces the Cost of Capital, and should result in a reduction in the Allowed Return on Equity (RoE)
 - Almost every regulatory case where decoupling is proposed must address the contention that the RoE should be lowered.
- Reductions of up to 300 basis points (bps) have been proposed.

Decoupling – Should it reduce cost of capital?

- ◆ About one-fifth of regulatory approvals of decoupling have explicitly reduced the Allowed ROE.

Decoupling Decisions and the Reduction in the Allowed Return on Equity

ROE Reduction	No. of Decisions	Shares	No. Resulting from Settlement Agreement
None	56	78%	28
10 basis points	9	13%	4
25 basis points	3	4%	1
50 basis points	4	6%	0
Total	72	100%	33

Source: Pamela Morgan, *A Decade of Decoupling for U.S. Energy Industries*, Dec. 2012

- ◆ These commission decisions appear to be based on judgment, not on empirical estimates of the reduction in the CoC.

Decoupling – should it reduce cost of capital?

- ◆ Cost of capital (CoC) is driven by the non-diversifiable volatility in future operating earnings
 - = base revenues – base costs
- ◆ Decoupling does reduce volatility of revenues.
 - Most common does allow growth proportional to customers
- ◆ Decoupling has no effect on volatility of costs.
- ◆ It is not immediately obvious that decoupling reduces CoC.
 - To answer the question, we look at the reaction in financial markets to adoption of the policy.
 - Disclaimer: these results are based on *Brattle* internal research.

We Conducted Empirical Analysis on Gas Local Distribution Industry

- ◆ Study period is October 2005 – May 2012
- ◆ The number of states and companies with decoupling mechanisms in place increased over the period of our study.
 - During the period, decoupling was adopted for 21 gas LDCs subsidiaries.
 - Over 50% of those changes (11) were in the years 2007 through 2009.
- ◆ Water, natural gas LDC, and regulated electric companies have similar industry risk profiles.
 - All are regulated on the basis of cost of service using original cost for investment.
 - Cost of capital experts often consider results from the other two in estimating the CoC.

Brattle's Gas Holding Company CoC Sample

- ◆ Natural gas sample has 12 Holding Company (HC) members that experienced change in decoupling
 - HC must be predominantly in gas LDC business
 - At each point in time, must pass set of six sample selection criteria
 - Criteria reduce other factors affecting the CoC estimates
- ◆ Period of study is October 2005 to May 2012
 - There are 26 separate dates when Brattle has estimated cost of capital for rate case proceedings.
 - At each instance, we estimated CoC for each qualifying HC.
- ◆ Financial markets are dynamic and the sample changes over time

Measuring the Degree of Decoupling Over Time

Analysis integrates data/information on degree of decoupling, with contemporaneous information on the estimated CoC that financial markets require.

- HCs, not their subsidiaries, have stock that is traded on exchanges and for which the CoC can be estimated.
- State regulated subsidiaries, not their HCs, have regulated rates and operate under state regulatory agencies that can approve decoupling ratemaking policies.
- Indicator variable (1 or 0) for each subsidiary of a HC in each year, which is then weighted based on the quantity of gas delivered each year.
- HC Index each year is weighted average of the Indicators for the subsidiaries in that year.

Degree of Decoupling in the Sample

Decoupling "Index Scores" of Natural Gas Holding Company Sample

Company	No. of gas LDC Subs	Decoupling Index Scores of Gas Holding Cos.		
		2005	2009	2012
AGL	6	0.61	0.78	0.83
Amos	12	0.00	0.02	0.03
Laclede	1	1.00	1.00	1.00
New Jersey Resources	1	0.00	1.00	1.00
Nicor	1	0.00	1.00	1.00
NiSource	9	0.00	0.39	0.50
Northwest Natural	3	0.93	0.92	0.92
Piedmont	3	0.73	0.75	0.79
South Jersey Industries	1	0.00	1.00	1.00
Southwest Gas	3	0.06	0.68	1.00
WGL	3	0.44	0.45	0.82
Veeva	3	0.00	1.00	1.00
Totals: number of Subs/simple average		46	0.34	0.73
				0.81

- ◆ There is considerable variation in the Decoupling Index across HCs and over time.
- ◆ The amount of decoupling in the sample has grown over time.
- ◆ If decoupling has a material impact, it should show up in the CoC measures for the HCs.

Two Statistical Analyses Were Conducted

- ◆ Data set
 - There are up to 26 observations of the WACC* for each member of the Gas Sample
 - Annual Index of Decoupling for each HC
- ◆ An econometric model of WACC to examine sign and size of coefficient of Decoupling explanatory variable
 - Index variable of decoupling (weighted by gas sales of Subs)
 - Index variable with a lag

*WACC – Weighted-Average Cost of Capital

Tests Show No Material CoC Reduction

- ◆ If decoupling substantially reduced the CoC, then estimated impacts would be negative.
 - Previous estimate was no impact.
 - Point estimates ranged from +16 bps to -9 bps, but were statistically insignificant.
- ◆ Provisionally, our updated results generate the “counter intuitive” result that decoupling is associated with a higher Cost of Capital, which appears statistically significant.
 - We are not ready to publish these.
 - We are continuing to seek explanations for results.
- ◆ Important to remember that whatever effect decoupling may have, it is reflected in the sample companies.

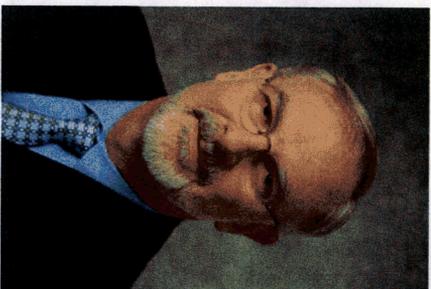
Possible Explanations of Current Results

- ◆ Signaling – gas consumption per customer is declining and has been over the last decade coupled with requirement to improve and replace infrastructure results in increasing rates.
- ◆ Policies associated with the implementation of decoupling increase the risk so that even though decoupling may reduce risk, it does not provide sufficient reduction to offset increased risk.
- ◆ Empirically, it is difficult to pinpoint when the effect of decoupling would be present in the market. For example, it could be when implemented, when adopted by regulatory decision, or when introduced as a possibility in a rate proceeding or even before that.

Conclusions

- ◆ We found no empirical, statistical evidence that decoupling reduces the cost of capital, for the natural gas LDC industry.
- ◆ If the results for the natural gas distribution industry are indicative for the water and electric industries, it is likely that decoupling does not reduce the cost of capital in those industries either.
- ◆ As a policy for improving conservation efforts, decoupling is likely to remain both necessary and effective.

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He received his Ph.D. in Financial Economics from the Wharton School of the University of Pennsylvania, an MBA from the University of Utah, an M.S. from the Fletcher School of Law and Diplomacy, Tufts University, and a B.S. degree from the United States Air Force Academy. He joined The Brattle Group in 1994 after a career as an Air Force officer, where he served as a fighter pilot, intelligence officer, and professor of finance at the Air Force Academy.

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Firm Overview

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