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STATE OF ALASKA

THE REGULATORY COMMISSION OF ALASKA

Before Commissioners:

Stephen McAlpine, Chairman
Rebecca L. Pauli
Robert M. Pickett
Norman Rokeberg
Janis W. Wilson

In the Matter of the Request Filed by the)
MUNICIPALITY OF ANCHORAGE d/b/a)
MUNICIPAL LIGHT & POWER DEPARTMENT for)
Approval to Establish Depreciation Rates)
_____)

U-16-094

In the Matter of the Tariff Revision Designated as)
TA357-121 Filed by the MUNICIPALITY OF)
ANCHORAGE d/b/a MUNICIPAL LIGHT &)
POWER DEPARTMENT)
_____)

U-17-008

PREFILED REPLY TESTIMONY OF
BENTE VILLADSEN

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q1. Please state your name, occupation and business address.**

3 A1. My name is Bente Villadsen and I am a Principal of The Brattle Group, whose business
4 address is One Beacon Street, Suite 2600, Boston, MA 02108.

5
6 **Q2. Are you the same Bente Villadsen who provided direct testimony in this proceeding?**

7 A2. Yes. I provided prefiled direct testimony on behalf of the Municipality of Anchorage
8 d/b/a Municipal Light and Power Department (“ML&P” or the “Company”) on
9 December 30, 2016.

10
11 **Q3. What is the purpose of your reply testimony?**

12 A3. The purpose of this testimony is to respond to the prefiled direct testimony of Federal
13 Executive Agencies (“FEA”) witness Michael P. Gorman and Providence Health and
14 Services (“PHS”) witness Daniel J. Lawton on topics related to ML&P’s allowed rate of
15 return (“ROR”) on rate base and allowed return on equity (“ROE”).

16
17 **Q4. Please summarize the conclusions of your reply testimony.**

18 A4. I conclude the following:

- 19
- 20 • The testimonies of Mr. Gorman and Mr. Lawton do not provide persuasive
21 evidence that changes my recommended ROE of 13%. My reply testimony will
22 discuss the specific defects and issues in the testimonies of Mr. Gorman and
23 Mr. Lawton.

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- The RORs proposed by Mr. Gorman and Mr. Lawton are substantially below the norms in the industry despite ML&P’s higher than average risk.
- It is vital to recognize the need to determine a reasonable overall return for ML&P given the recently allowed RORs for other electric utilities and reject the unreasonably low recommendations of FEA witness Gorman and PHS witness Lawton.
- Mr. Gorman does not consider the differences in financial risk between ML&P and the sample companies when determining the ROE.
- Mr. Lawton incorrectly measures the impact of financial risk (i) using multiplier below what is most “indicative” of the effect and (ii) based (on book value of capital structure rather than market value. Therefore his measure fails to adequately adjust for differences in financial risk.
- My recommended ROE accounts for the financial risk using methods widely accepted by financial literature and practitioners.
- Mr. Gorman’s primary recommendation implies an unreasonably low ROE for ML&P that he projects to be below the overall ROR. His recommended ROE is below that of any integrated U.S. utility over the last 10 years
- Mr. Gorman’s arguments regarding the ECAPM should be given no weight as the Blume adjustment to beta and the ECAPM are two separate adjustments with no redundancy between them.

- Mr. Lawton’s failure to use forward-looking interest rates biases his cost of equity estimate downward.

Q5. How is your reply testimony organized?

A5. First, I address the overall reasonableness of the RORs and ROEs proposed by witnesses for FEA and PHS. Second, I address the impact of financial leverage on ML&P. Third, I address the relative risk of ML&P. Fourth, I provide comments on the other witnesses’ methodologies and inputs to the cost of equity models as well as responses to their specific critiques of my analytical approach. Finally, I discuss the impact on ML&P’s overall ROE from including the Beluga River Unit natural gas field (“BRU”) as part of the Company’s consolidated capital structure.

II. OVERALL REACTIONS

Q6. What rate of return recommendations have been provided in this case?

A6. Figure 1 below presents a summary of the recommendations filed in the direct testimony of witnesses for FEA and PHS, as well as ML&P’s proposed ROR.

Figure 1
Summary of Witness Direct Testimony Recommendations¹

	ML&P	PHS	FEA Primary	FEA Alternative
	[1]	[2]	[3]	[4]
Rate of Return				
ROE	13.00%	9.50%	5.29%	8.50%
ROR	7.15%	5.90%	4.41%	5.55%
Capital Structure				
Equity	35.4%	35.4%	35.4%	35.4%
LT Debt	64.6%	64.6%	64.6%	64.6%

Sources:

[1]: Prefiled Direct Testimony of Bente Villadsen, p. 5. ML&P Exhibit 7.

[2]: Direct Prefiled Testimony of Daniel J. Lawton, p. 47.

[3]: Villadsen Calculations based on FEA Ex. MPG-2.

[4]: Prefiled Direct Testimony of Michael P. Gorman Testimony, p. 3. Also, tab 'Revenue Requirement Workpaper' in FEA Ex. MPG-3.

As ML&P advised the Commission on January 17, 2017, in response to staff questions, the actual capital structure of ML&P is 35.5% equity and 64.5% debt. This actual capital structure is based on the electric fund and gas fund combined and none of the other witnesses have disputed the use of a capital structure based on combined operations. My ROE recommendation is not affected by the clarification to capital structure.

Q7. What is your overall reaction to the recommendation of FEA witness Gorman and PHS witness Lawton?

¹ Mr. Gorman suggests in a response to data requests that his primary recommendation implies an ROR of 5.27% and an ROE of 7.71%. This response is attached as Exhibit BV-06. I disagree and address this issue in Section V.

1 A7. As noted in my prefiled direct testimony, p. 6, the return to equity owners must be
2 commensurate with returns on investments in other enterprises having corresponding
3 risks. The recommendations of witnesses Gorman and Lawton are simply too low to
4 reflect actual investor required returns.

5 Because of ML&P's low equity ratio a direct comparison of ML&P's ROE and that of
6 other integrated electric utilities is not straightforward, so the direct comparison includes
7 a discussion of ROR, which ultimately determines what ML&P's customers will pay for
8 capital. The RORs proposed by Mr. Gorman and Mr. Lawton are substantially below the
9 norms in the industry despite ML&P's higher than average risk. The average and median
10 allowed ROR for vertically integrated electric utility rate cases since 2016 are 7.04% and
11 7.3%, respectively.² Thus, the overall rate of return on rate base proposed by
12 Mr. Gorman is 149 to 263 basis points below prevailing regulatory norms, while
13 Mr. Lawton's proposed ROR is 114 basis points below the industry average. ML&P has
14 requested an ROR of 7.15%, which is consistent both the average and mean of the
15 recently allowed rates of return for the average and median vertically integrated electric
16 utilities. It is also slightly below the overall ROR of 7.39% allowed by the Commission
17 in the prior proceeding.³ Figure 2 summarizes this information on allowed and proposed
18 rates of return. And, importantly, these are trailing data and ML&P is asking for
19

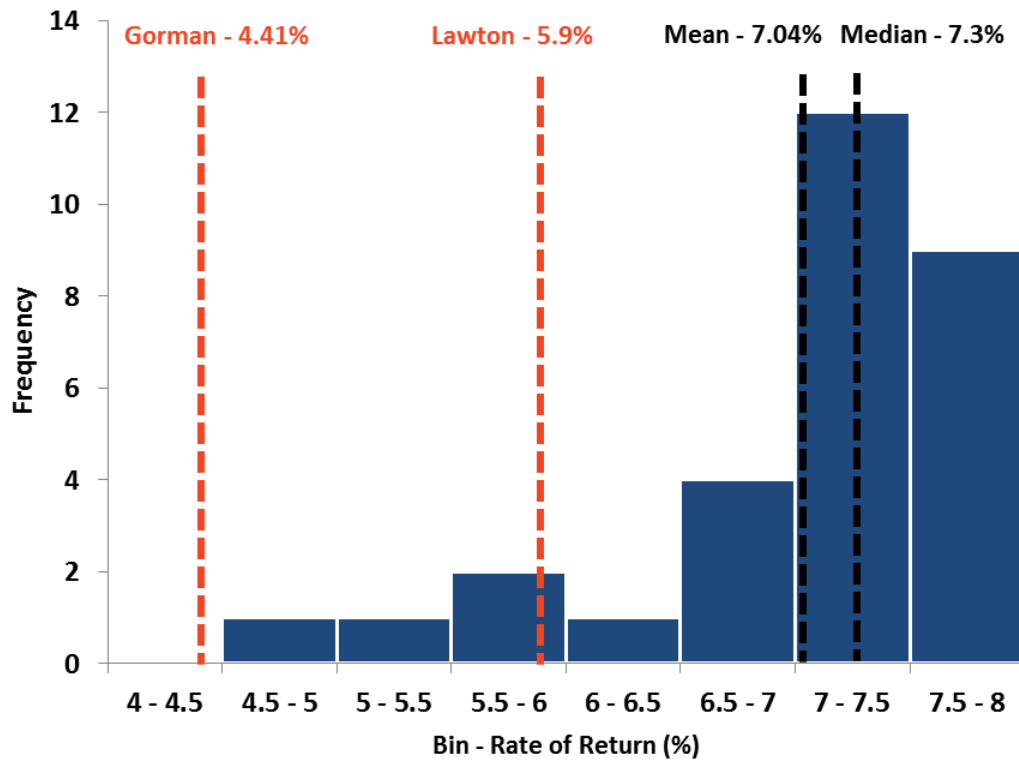
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21 ² SNL Financial, included as Exhibit BV-07.

22 ³ Order No. U-13-184(22), *Order Accepting Stipulation on Certain Disputed Issues, Resolving*
23 *Remaining Disputed Issues, Establishing Revenue Requirement, Making Interim Rates*
24 *Permanent, Establishing Permanent Rates, Ruling on Motions, Imposing Dividend Restriction,*
25 *Opening Dockets of Investigation, and Approving Tariff Sheets*, July 16, 2015 ("Order
26 No. U-13-184(22)") at 54.

1 approval of going-forward rates, all in an era of rising interest rates. As a point of
2 reference for overall returns, the yield on long-term BBB-rated utility debt averaged 4.5%
3 during the months of March to June 2017.⁴ As shown in Figure 2 below, not a single
4 vertically integrated electric utility received an ROR as low as what Mr. Gorman has
5 proposed for MLP in this proceeding. An ROR as low as 4.41%, which is below the cost
6 of BBB-rated debt, is simply much too low.
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23 ⁴ Prefiled Direct Testimony and Exhibits of Michael P. Gorman (“Gorman Direct Testimony”),
24 Exhibit MPG-13 at 1.

Figure 2
Histogram of Authorized Rates of Return since 2016
Vertically Integrated Electric Utilities



Source: SNL Financial.

Q8. Having reviewed the testimonies of the other rate of return witnesses, do you see any reason to change your recommendation that ML&P be allowed to earn 13% return on its 35.5% equity?

A8. No. As I stated above, the returns suggested by witnesses for FEA and PHS are below the industry norms and fail to adequately consider ML&P’s financial and business risks. Most recently, the average allowed ROR for electric utilities in the second quarter of 2017 was 7.11%.⁵ My recommendation provides an overall return for ML&P in line with

⁵ SNL Energy’s RRA Regulatory Focus, “Major Rate Case Decisions: January-June 2017,” July 26, 2017.

1 the average utility while the recommendations of Mr. Gorman and Mr. Lawton are far
2 below. Further, neither FEA witness Gorman nor PHS witness Lawton provide any valid
3 argument or analysis in support of a lower allowed return on equity or return on rate base
4 for ML&P.
5

6 **III. FINANCIAL RISK AND COST OF EQUITY**

7 **Q9. Why do you devote a section to financial risk?**

8 A9. Financial risk or capital structure is a large topic in financial economics and it is
9 commonly recognized in finance textbooks that financial leverage impacts the cost of
10 equity for a company. This is important to ML&P because ML&P currently has
11 substantially more financial leverage (debt) than the sample companies. The issue is
12 illustrated in the excerpt of text from a standard MBA textbook is provided below:⁶
13

14 **COMMON MISTAKE Is Debt Better Than Equity?**

15 Because debt has a lower cost of capital than equity, a com-
16 mon mistake is to assume that a firm can reduce its overall
17 WACC by increasing the amount of debt financing. If this
18 strategy works, shouldn't a firm take on as much debt as pos-
19 sible, at least as long as the debt is not risky?

20 This argument ignores the fact that even if the debt
21 is risk free and the firm will not default, adding leverage

22 increases the risk of the equity. Given the increase in risk,
23 equity holders will demand a higher risk premium and,
24 therefore, a higher expected return. The increase in the cost
25 of equity exactly offsets the benefit of a greater reliance on
26 the cheaper debt capital, so that the firm's overall cost of
27 capital remains unchanged.

28 As Professors Berk and DeMarzo further note:

29 The levered equity return equals the unlevered equity return, plus an extra
30 "kick" due to leverage. ... The amount of additional risk depends on the
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6 Jonathan Berk and Peter DeMarzo, *Corporate Finance, 3rd Ed.*, 2013 ("Berk & DeMarzo 2013"), p. 492.

1 amount of leverage, measured by the firm's market value debt-equity
2 ratio, D/E....⁷

3 Financial economics simply do not leave any doubt that the cost of equity increases with
4 financial leverage and that the relevant measure of financial leverage depends on market
5 value. I, like other cost of capital witnesses (including Mr. Lawton and Mr. Gorman),
6 estimate the cost of equity using market data in the CAPM- and DCF models and
7 therefore the estimation process uses market data.⁸

8 Because several intervenor witnesses object to my considerations of
9 financial risk, I will respond to their misconceptions about the methodologies I have used
10 and address their concerns to ensure that the methods are understood.

11
12 **A. How Financial Leverage Affects the Cost of Equity**

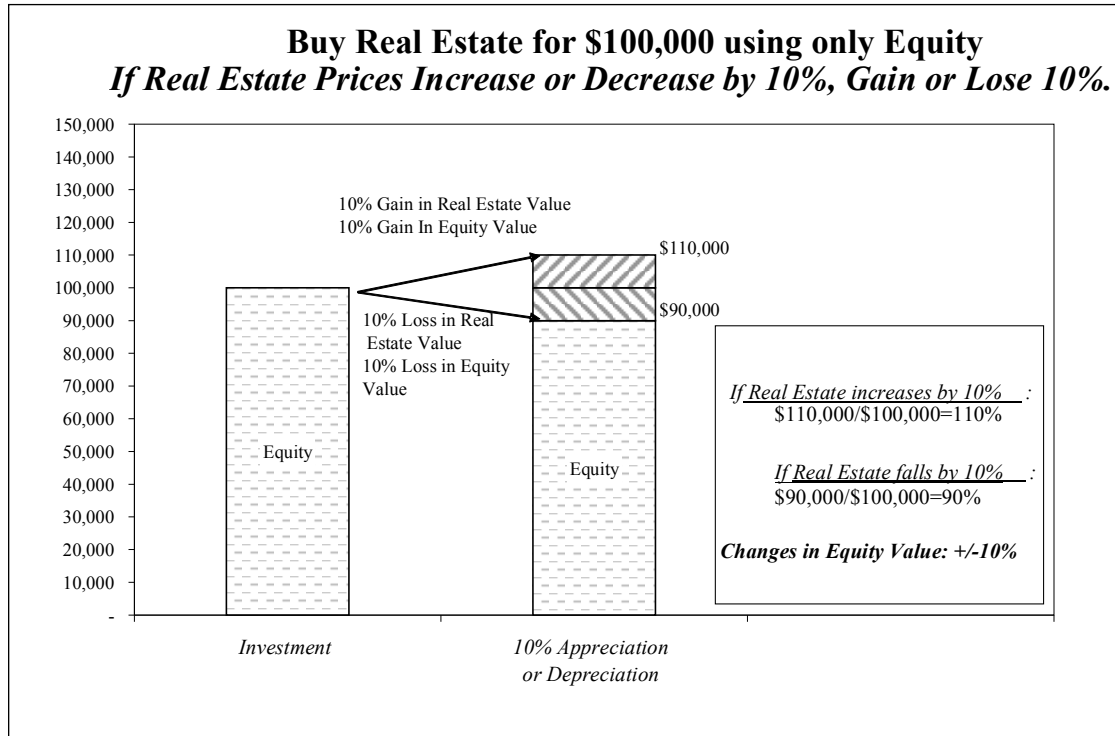
13 **Q10. Could you provide a numerical example to illustrate the impact of financial leverage
14 on cost of equity?**

15 A10. As a simple example, think of an investor who takes money out of her savings and
16 invests \$100,000 in real estate. The future value of the real estate is uncertain. If the real
17 estate market booms, she wins. If the real estate market declines, she loses. Figure 3
18 below illustrates this.

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21 ⁷ Berk & DeMarzo 2013, p. 489. Similar comments appear in Richard A. Brealey,
22 Stewart C. Myers, and Franklin Allen, 2017, *Principles of Corporate Finance, 12th Ed.*,
McGraw-Hill Irwin ("Brealey, Myers & Allen 2017"), p. 442-3.

23 ⁸ Versions of the risk premium model that use allowed or realized ROEs (such as my implied
24 risk premium model) do rely on book value measures and thus financial risk needs to be
25 measured using book value.

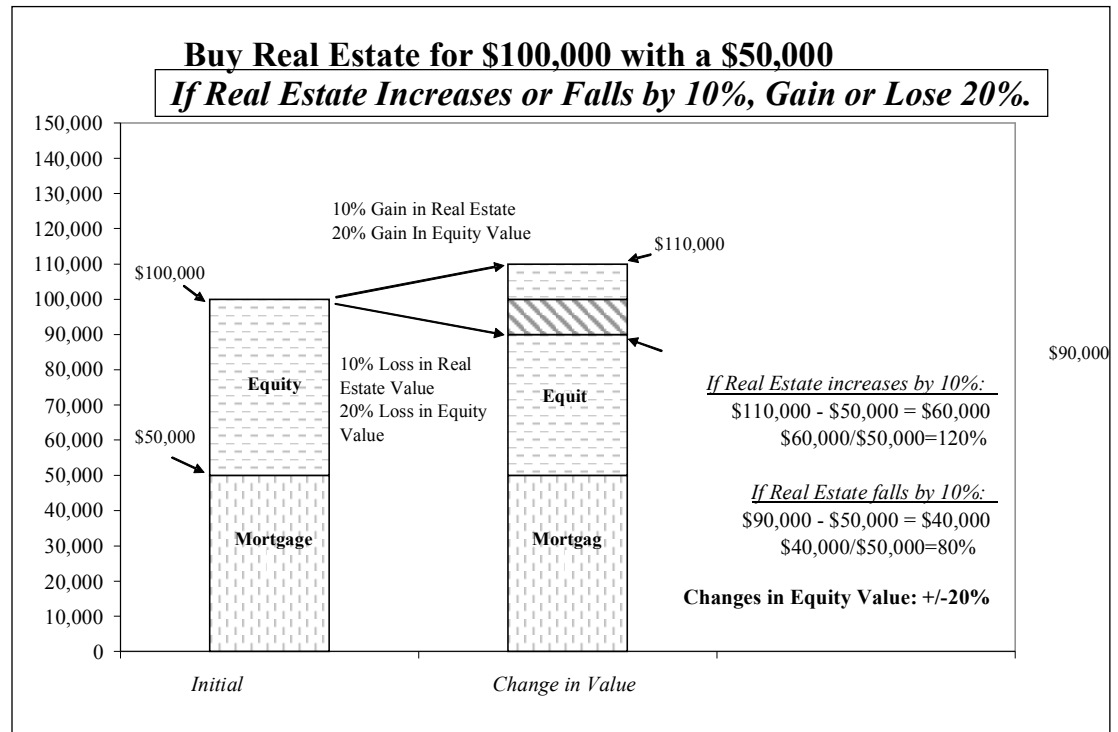
Figure 3
Return on an All-Equity Investment



Compare this to the situation illustrated in Figure 4 below, where the investor finances the same real estate purchase using 50 percent cash from savings (equity) and 50 percent funds from a mortgage (debt). In this case variability in the investor's expected equity return is two times greater than that of Figure 3. The entire fluctuation of 10 percent from rising or falling real estate prices falls on the investor's equity investment, which is smaller (\$50,000) for the leveraged investment depicted in Figure 4 compared to the all-equity \$100,000 investment shown in Figure 3. The equity return for the leveraged investment goes up or down by 20% in Figure 4, even though the actual change in the value of the real estate (+/- 10%) is the same as depicted in Figure 3 for the all-equity investment. The lesson from the example is obvious: debt adds risk to equity.

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Figure 4
Return on a Leveraged Equity Investment



14 **Q11. Do finance textbooks also address the question of how financial leverage affects the**
15 **cost of equity?**

16 A11. Yes. Textbooks on corporate finance provide examples like the one I present above to
17 illustrate how the introduction of debt financing amplifies the variability of equity
18 returns, thus increasing the risk to equity holders and causing them to demand higher
19 expected returns. For example, Professors Brealey, Myers, and Allen write:

20
21 Our example shows how borrowing creates financial leverage or gearing.
22 Financial leverage does not affect the risk or the expected return on the
23 firm's assets, but it does push up the risk of the common stock.

1 Shareholders demand a correspondingly higher return because of this
2 *financial risk*.⁹

3 Similarly, Professors Berk and DeMarzo summarize the effect of leverage on the cost of
4 capital as follows.

5 ...[L]everage increases the risk of equity even when there is no risk that
6 the firm will default. Thus, while debt may be cheaper when considered on
7 its own, it raises the cost of capital for equity. Considering both sources of
8 capital together, the firm's average cost of capital with leverage is ... the
9 same as for the unlevered firm.¹⁰

10 These statements by preeminent finance scholars in widely-used Corporate Finance
11 textbooks highlight two important points that can also be intuitively observed based on
12 the real estate investment example:

13 • The variability of returns on the asset itself (e.g., the piece of real
14 estate) is unchanged by the introduction of financial leverage, therefore “leverage does
15 not affect the risk or the expected return on the firm's assets.” Rather, it is the risk and
16 required returns of the equity and debt financing instruments that are changed by the
17 degree of financial leverage.

18 • The mechanism by which leverage adds variability to equity
19 returns is independent of any effect of increased leverage on the risk that the firm will be
20 unable to fulfill its fixed financial obligations, and thus (as Berk and DeMarzo put it)
21 “leverage increases the risk of equity even when there is no risk that the firm will
22 default.”

23 ⁹ Brealey, Myers & Allen 2017, p. 446 [emphasis original].

24 ¹⁰ Berk & DeMarzo 2013, p. 482 [emphasis original].

1 **Q12. Can you illustrate using your real estate example why market value leverage must**
2 **be the relevant measure for determining the financial risk affecting equity**
3 **investors?**

4 A12. Yes. Suppose in the above real estate example that the investor had invested in real
5 estate 15 years ago, taking a \$50,000 mortgage to purchase a property worth \$100,000.
6 Further assume that in the 15 years since the purchase, accounting depreciation has
7 reduced the book value of the property to \$70,000, while the investor has paid her
8 mortgage down to a remaining balance of \$30,000. The book value of the investor's
9 equity investment is therefore \$40,000 (= \$70,000 - \$30,000).

10
11 To calculate the economic returns to the equity investor (owner) if (for
12 example) real estate prices rise or fall 20%, one needs to know how real estate prices
13 have developed over the past 15 years. For example, if the market value of the property
14 is now \$200,000, then a 20% change in the price of real estate represents a \$40,000 gain
15 or loss, equal to 100% of the investor's book value of the equity investment.

16 The market returns to the investor, however, is measured relative to her
17 market value equity in the property: \$200,000 less the \$30,000 outstanding mortgage
18 balance,¹¹ or \$170,000. Therefore, when real estate prices change by 20%, the market
19 return on the investor's equity is +/- 23.5% (= \$40,000 / \$170,000), compared to +/-
20 100% (= \$40,000 / \$40,000) return on the book value of equity investment.

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23 ¹¹ Technically, this assumes the market value of the mortgage (i.e., the price a lender would pay
24 for it at current market interest rates) is equal to the outstanding balance, but any discrepancy
25 between market and carrying value of the mortgage would not change the effect of the example.

1 The lesson from this example is clear. It is obviously not correct to say that a 20% drop
2 in housing prices will wipe out the investor's equity, or that a 20% increase in housing
3 prices would double it, as implied by the book value. Using book values would imply
4 much different variability of expected returns—and thus different risk—than what is
5 actually experienced by the investor. Therefore, when measuring the financial leverage
6 of market-traded assets, market values should be used. More generally, financial
7 leverage should always be measured based on the capital structure that dictates the risk
8 and return of the investment.
9

10 **B. Response to Criticisms of Financial Risk Methodology**

11 **Q13. What methods do you use to account for differences in financial risk?**

12 A13. As described in my direct testimony, I consider several methods to ensure that no one
13 method unduly biases the estimation process. The most commonly used method in
14 modern finance theory as presented in textbooks and employed in practice is versions of
15 the Hamada method, which converts the equity beta that is estimated for each proxy
16 company into the so-called unlevered beta (or assets beta) that would apply if the proxy
17 company were hypothetically financed by 100% equity. As an alternative and for the
18 DCF method, I also calculate the overall cost of capital as a weighted average of the cost
19 of equity and the after-tax cost of debt and attempt to ensure that customers pay the same
20 for capital regardless of capital structure as illustrated in Figure 2 of my direct
21 testimony.¹²
22

23
24 ¹² Prefiled Direct Testimony of Bente Villadsen (“Villadsen Direct Testimony”) at 15.

1 **Q14. How did you measure leverage in performing your cost of capital calculations?**

2 A14. I measure leverage using the same type of data as used in the models to ensure an
3 apples-to-apples measurement. The CAPM and DCF approach rely on measurements of
4 beta and dividend yield that are determined for the capital structures inherent in the
5 market data for the sample. Thus, I also use market value capital structures. Because the
6 CAPM as implemented uses *Value Line* betas, which are estimated over a five-year
7 period, I use a five-year capital structure for the sample, whereas the DCF methodology
8 uses market value capital structure data from a moment contemporaneous with the market
9 price data I use for the dividend yield calculation. For the risk premium analyses, which
10 use allowed return on equity (commonly applied to the book value of equity), I measure
11 the financial leverage using book value.
12

13 **Q15. What differences in financial leverage did you have to account for in your**
14 **measurements?**

15 A15. To the extent that the degree of financial leverage differs among the sample companies,
16 the difference must be taken into account to arrive at an accurate capital cost estimate.
17 For example, as illustrated in my direct testimony Exhibit BV-03, Table
18 No. BV-ELEC-13, El Paso had a 5-year average debt to market value ratio of 44.3%,
19 compared to 35.1% for Public Service Enterprise (see column [5]). Therefore, even
20 though their equity betas (as measured by *Value Line*) were the same (at 0.70 as shown in
21 column [1] of Exhibit BV-03, Table No. BV-ELEC-13), El Paso's equity beta reflected
22 more financial risk due to its greater financial leverage. Consequently, the unlevered
23 "asset beta" (calculated using either version of the Hamada unlevering technique in
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1 columns [7] or [8]) is lower for El Paso than for Publ. Serv. Enterprise, indicating the
2 fact that El Paso's equity beta reflects a higher degree of financial risk and a lower degree
3 of systematic business risk, which is measured by the unlevered beta.

4 With respect to my DCF calculations illustrated in Exhibit BV-03, Table
5 No. BV-ELEC-7, Panel A, consider a comparison of Ameren Corp. and OGE Energy.
6 The DCF cost of equity (column [3]), measured using market stock price and dividend
7 data, was approximately 90 basis points higher for Ameren Corp. (9.7%) than for OGE
8 Energy (8.8%). However, the overall after-tax cost of capital estimates (column [10]) for
9 Ameren Corp. and OGE Energy were much closer (at approximately 6.7% and 6.8%,
10 respectively). This reflects that fact that Ameren Corp.'s higher contemporaneous debt to
11 market value ratio (39.8% vs. 29.6% for OGE Energy, as shown in column [8]) imparts
12 higher financial risk that accounts for the higher expected equity return demanded by
13 investors when they purchase Ameren Corp.'s stock.

14
15
16 **Q16. When calculating averages across the sample companies, what quantities provide an**
17 **indicator of the business risk of the sample?**

18 A16. The unlevered beta and overall after-tax cost of capital control for differences in financial
19 leverage among the sample companies and the financial leverage used for rate making
20 purposes. Therefore, it is these quantities that can be meaningfully compared and
21 averaged on an "apples to apples" basis. Conversely, it is *not* appropriate to base cost of
22 equity estimates on simple averages of the directly calculated cost of equity estimates or
23 equity betas for the sample companies, as Mr. Lawton and Mr. Gorman do. Taking such
24 an average effectively combines apples and oranges by incorporating estimates affected
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1 by *both* business risk *and* differences in financial leverage. It therefore does not measure
2 ML&P’s cost of equity at its rate making capital structure. Looking simply to an average
3 beta also fails to consider that there may be a range of reasonable ROE estimates and the
4 importance of placing the target company within that range.

5 I adjust the results of my risk premium approach in order to represent the
6 differences in financial risk between the allowed equity share in the capital structure of
7 other electric utilities and the equity share for the Company. I determine through my risk
8 premium analysis that a reasonable ROE for the average utility is 10.2%, given the
9 historical relationship between allowed ROEs and risk-free rates.¹³ However, the average
10 electric utility has historically been allowed a regulatory capital structure with 48%
11 equity. This is significantly higher than ML&P’s equity share in its capital structure,
12 indicating that ML&P has more financial risk than the average electric utility – as
13 measured by the regulatory capital structure used to set the allowed ROEs. Ignoring this
14 evidence – as do the intervenors – would unreasonably bias downward the overall return
15 allowed for the Company. I find that a 13% ROE allowed on 35.5% equity would
16 provide a comparable overall return to that of the average electric utility based on the risk
17 premium analysis. This analysis appropriately accounts for these differences in financial
18 risk and consistently compares allowed returns on an “apples to apples” basis.
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24 ¹³ Villadsen Direct Testimony, Exhibit BV-03 at 47.

1 **Q17. Since you measure the sample’s business risk based on averages of the unlevered**
2 **beta (assets beta), how do you derive the equity beta and cost of equity capital that**
3 **are representative for ML&P?**

4 A17. As described in my direct testimony,¹⁴ the Hamada adjustment technique applies the
5 estimate of unlevered business risk (i.e., the risk of the underlying assets independent of
6 financing) to ML&P by re-levering the average assets beta at its requested regulatory
7 capital structure, consisting of approximately 35.5% equity. I do the same with respect
8 the sample average overall after-tax weighted average cost of capital estimates that I
9 derive for the DCF and CAPM.

11 **Q18. What justifications do the other cost of capital witnesses in this proceeding offer to**
12 **reject the financial risk adjustments you performed in your direct testimony**
13 **analysis?**

14 A18. Although the other cost of capital witnesses acknowledge that financial leverage
15 increases financial risk to equity investors and increases the cost of equity,¹⁵ they dispute
16 the use of a formal model to measure the impact. For example, Mr. Gorman argues that
17 both *Value Line* and S&P assess a company’s financial risk based on its book value
18 leverage, book value cash flows, and the earnings on its book value common equity,¹⁶

21 ¹⁴ Villadsen Direct Testimony at 58-61 and Exhibit BV-02 at 18-21.

22 ¹⁵ For example, PHS witness Lawton notes in his testimony that “there is a cost for the savings
23 associated with increased debt leveraging” and that this “cost is increased financial risk to the
24 firm.” Direct Prefiled Testimony of Daniel J. Lawton (“Lawton Direct Testimony”) at 46.

25 ¹⁶ Gorman Direct Testimony, Appendix B at 39-40.

1 rather than market value as textbooks recommend.¹⁷ This is simply not an accurate
2 description of *Value Line's* approach. In fact, *Value line* reports companies' "capital
3 structure" using the book value of debt and the market value of equity, which I explain
4 more below.¹⁸ In his alternative recommendation, Mr. Gorman makes no adjustment to
5 his cost of capital estimation results to reflect the differences in financial risk between
6 ML&P and his sample. Mr. Gorman also inaccurately states that I believe that there are
7 two levels of financial risk, one on a book value basis and one a market value basis; I will
8 refute this below.¹⁹ Mr. Lawton also fails to measure leverage based on the market value
9 capital structure²⁰ and therefore does not adequately adjust his cost of capital estimation
10 results to reflect the financial risks of ML&P relative to the sample.
11

12 **1. Mr. Gorman and Mr. Lawton Incorrectly Assert That Financial Risk**
13 **is Determined by Book Value**

14 **Q19. Does Mr. Gorman accurately describe how you implemented your financial risk**
15 **adjustments?**

16 A19. No. Mr. Gorman describes my calculation as follows.

17 [Dr. Villadsen calculates] the ATWACC using the market return on equity
18 estimate (CAPM and DCF estimates) and market weighted capital

19 _____
20 ¹⁷ See, for example, Brealey, Myers and Allen 2017, p. 443 or Berk & DeMarzo 2013, p. 489.
21 See also, Bente Villadsen, Michael J. Vilbert, Dan Harris, and A. Lawrence Kolbe, "*Risk and*
22 *Return for Regulated Industries*," Academic Press 2017, Chapter 7 and the references herein.

23 ¹⁸ See for example, the *Value Line* reports enclosed in Mr. Gorman's exhibit titled "MPG
24 Confidential WP 10." *Value Line* reports the "Capital Structure as of 3/31/2017" using market
25 values for the equity.

26 ¹⁹ Gorman Direct Testimony, Appendix B at 39-40.

²⁰ Lawton Direct Testimony at 54 and 57.

1 structures for each proxy company. She then uses this market ATWACC
2 and each company's book value capital structures to derive a return on
3 equity that produces the same ATWACC on the proxy group's book
4 capital structure that was produced on its market value capital structure.²¹

5 Mr. Gorman also states, "Dr. Villadsen proposes to upwardly adjust her CAPM and DCF
6 model results for the difference in financial risk based on the proxy companies' market
7 value of common equity, compared to their book value common equity."²²

8 These statements are simply incorrect. My adjustments for financial
9 leverage in no way rely on the book value capital structures of the proxy group
10 companies. Rather, I use the textbook approach of determining the average asset beta—
11 appropriately measured using market returns and the consistent capital capitalization
12 data—for my sample companies and relevering that asset beta to an equity beta using the
13 capital structure that ML&P's will earn a return on. I also look to the overall cost of
14 capital as determined using the market-value capital structure of the sample companies
15 and derive an ROE from that, which is consistent with ML&P's proposed regulatory
16 capital structure.

17 Mr. Gorman's apparent misunderstanding of my methods of accounting
18 for financial risk may explain his further mischaracterization of my position as a "belief
19 that there are two levels of financial risk," or that "firms have a different level of
20

21 ²¹ Gorman Direct Testimony, Appendix B at 38.

22 ²² *Id.*, at 39.

1 financial risk, depending on whether one is observing their market value capital structure
2 or the book value capital structure.”²³

3
4 **Q20. Do you, as Mr. Gorman states, believe that there are two levels of financial risk?**

5 A20. No. There is only one measure of financial risk, and that measure needs to be consistent
6 with the data used to derive the return on equity. Thus, if I use market data to derive the
7 cost of equity as is the case for the CAPM and DCF based models, then financial risk is
8 based upon market value. This proposition is supported and accepted by modern finance
9 theory and every textbook on corporate finance of which I am aware.²⁴ Further, the view
10 is not just an ivory-tower creation. Duff & Phelps, a respected commercial provider of
11 cost of capital data relied on in the “real world,” also uses market-value capital structure
12 in the cost of capital estimates.²⁵

13
14 Every day experience also indicates that market value is the measure of
15 financial risk. As illustrated above using the example of a real estate investor, it is the
16 appraised market value of the property—not the original purchase price or other book
17 value measure—that is relevant in determining how debt (a mortgage) affects the
18 investor’s equity return when home prices change. The larger the percentage of the
19 *appraised market value* that is financed with a mortgage, the larger will be variability in

20
21 ²³ *Ibid.*

22 ²⁴ See Footnote 17 above. See Also, Bookshelf Online: 2016 CFA Level I Volume 4 Corporate
Finance and Portfolio Management.

23 ²⁵ See, for example, Duff and Phelps, 2017 Valuation Handbook Industry Cost of Capital at 39.
24 The text relies on a slightly different version of the Hamada methodology, which sets debt betas
equal to zero.

1 your equity return as the property's value varies. This share changes as market values
2 change, even if the property's "book value" is unchanged.

3
4 **Q21. Does Mr. Lawton accurately describe how you measured financial risk?**

5 A21. No. Mr. Lawton states that "Value Line shows historical and forecasted equity capital
6 ratios for the comparable group at around 50%."²⁶ He suggests that I used "inflated
7 equity levels" which overstate the financial risk differences between ML&P and the
8 comparable sample group.²⁷ This is simply not true. Mr. Lawton fails to recognize that I,
9 like every finance textbook I am aware of as well as the CFA curriculum, measure the
10 cost of equity in the CAPM, ECAPM and DCF models, using market based data and
11 consistent with finance theory, financial risk based on the same metric (market values).

12 For example, the CFA curriculum states:

13
14 Financial Risk is the uncertainty of net income and net cash flows
15 attributed to the use of financing that has a fixed cost, such as debt and
16 leases. The greater the use of fixed-financing sources of capital, relative
17 to variable sources, the greater the financial risk. In other words, a
18 company that relies heavily on debt financing instead of equity financing
19 is assuming a great deal of financial risk.²⁸

20
21
22 ²⁶ Lawton Direct Testimony at 54-55.

23 ²⁷ *Ibid.*

24 ²⁸ Bookshelf Online: 2016 CFA Level I Volume 4 Corporate Finance and Portfolio
25 Management.

1 The CFA curriculum then goes on to say that accounting for differences in financial leverage
2 “requires a process of ‘unlevering’ and ‘relevering’ the beta.” The manual specifically prescribes
3 the use of market values for this purpose.²⁹
4

5 Mr. Lawton refers to *Value Line*’s report on Alliant Energy, noting that
6 “Value Line shows the actual 2016 equity ratio for Alliant Energy at 47.2% projected by
7 Value to increase to 48% by 2020.”³⁰ He refers to the accounting or book value capital
8 structure, but ignores the portion of Value Line’s report detailing the “Capital Structure
9 as of 3/31/17.”³¹ *Value Line* presents the book value of debt (\$4.3 billion) as well as the
10 market value of equity (\$9.4 billion) in this section, which implies an equity ratio of
11 approximately 69%.³² Mr. Lawton is simply incorrect that I employ inflated equity ratios
12 in my analysis.
13

14 **Q22. Isn’t it true that *Value Line* and credit rating agencies measure financial risk with**
15 **reference to book values as noted by Mr. Gorman?**

16 A22. Yes and no. Credit rating agencies are concerned with the credit worthiness of debt
17

18 ²⁹ *Id.* I note that in the CFA formula, the taxes are ignored, so that the formula is comparable to
19 what I labeled “Asset Beta without Taxes.”

20 ³⁰ Lawton Direct Testimony at 57.

21 ³¹ See “MPG Confidential WP 10”, which contains the relevant *Value Line* report for Alliant
22 Energy.

23 ³² \$9.4 billion / (\$9.4 billion + \$4.3 billion). Note that this is larger than the equity ratio I use in
24 my direct testimony given difference in when the capital structure was measured. In addition, I
25 use the market value of long-term debt for consistency. As a result the value of the long-term
26 debt I use in the sample companies’ capital structure is higher than what is reported by Value
27 Line (or on the companies’ balance sheet), but consistent with the companies’ reported “fair
28 value” of long-term debt.

1 issuing entities; their ability to pay interest and repay debt. As noted above, they are only
2 indirectly concerned with the cost of equity capital. To ensure credit worthiness, credit
3 rating agencies rely upon accounting and other information to calculate financial ratios to
4 measure the financial health of a company. Using primarily accounting information
5 allows for consistency between companies when evaluating the credit worthiness of a
6 company. A credit report based upon market information would need to be updated
7 frequently.

8
9 Regardless of how credit rating agencies determine credit worthiness, the determination
10 of the cost of equity is necessarily different as equity investors have no “guaranteed”
11 periodic payment and are behind bond holders in case of default.

12 As for *Value Line*, as noted above, the investor service reports companies’
13 “capital structure” using the book value of debt and the *market* value of equity.

14
15 **2. Mr. Gorman Makes No Adjustment for Financial Risk**

16 **Q23. Does Mr. Gorman make an adjustment for the difference in financial risk between**
17 **ML&P and his sample?**

18 A23. No. In his primary recommendation, Mr. Gorman does not consider the differences in
19 financial risk between ML&P and other utilities; in fact, he makes no effort to consider
20 questions of return at all. He instead bases his recommendation on coverage ratios rather
21 than the risk of and return on equity.³³ Mr. Gorman even ignores the differences in
22 financial risk between ML&P and his sample group in his alternative recommendation,
23

24 ³³ Gorman Direct Testimony at 3.

1 which proposes an ROE of 8.5%³⁴ and an ROR of 5.55%.³⁵ Finally, he suggests that
2 methods such as the ATWACC and Hamada Adjustment are inappropriate in the
3 regulatory context.³⁶
4

5 **Q24. How do you respond to Mr. Gorman's assertion that the ATWACC is poor**
6 **regulatory policy?**

7 A24. Mr. Gorman discusses three reasons that he believes the ATWACC would be poor
8 regulatory policy,³⁷ but none of the reasons are accurate. First, he claims that the
9 ATWACC is not transparent. This is puzzling as the approach is discussed in every
10 MBA text I know of and the FERC in a recent decision explicitly referred to the method
11 as "transparent."³⁸ Nothing I am recommending would change how a regulated company
12 manages its capital structure or its reporting requirements to its regulator.
13

14 Second, Mr. Gorman claims that the ATWACC would somehow eliminate
15 a utility's ability to hedge its market costs,³⁹ but the overall after-tax cost of capital or the
16

17 ³⁴ *Ibid.*

18 ³⁵ Workpapers to Exhibit MPG-3 of Michael P. Gorman.

19 ³⁶ Gorman Direct Testimony Appendix B at 39 and 46.

20 ³⁷ *Id.*, at 41.

21 ³⁸ See, for example, Brealey, Myers and Allen (2014), *Principles of Corporate Finance, 11th*
22 *Edition*, McGraw-Hill Irwin, New York, Chapter 19, Ross, Westerfield, and Jaffe (2013),
23 *Corporate Finance, 10th Edition*, McGraw-Hill, Chapter 11, Bodie, Kane and Marcus (2009),
24 *Investments*, McGraw-Hill Irwin, New York, 8th ed., 2009, Chapter 18, and Koller, Goedhart and
25 Wessels (2005), *Valuation, 4th ed.*, John Wiley & Sons., Inc., Chapter 5. 149 FERC ¶ 61,183,
26 "Order Conditionally Accepting Tariff Revisions Subject to Compliance Filing," "Docket
No. ER14-2940-000, Issued November 28, 2014, para 74.

³⁹ Gorman Direct Testimony at 41.

1 Hamada methodology has nothing to do with this ability. I agree that the cost of capital
2 changes between rate cases, but between rate cases, the allowed ROE and revenue
3 requirement would not change in any way that is related to how the ROE originally was
4 determined. This whole objection is simply incorrect. Of course, the cost of capital may
5 change with the next rate case but that is because the cost of debt and equity has changed
6 and has nothing to do with how financial leverage is considered in determining the ROE.

7
8 Third, Mr. Gorman claims that the ATWACC inflates the equity return for
9 utility investors.⁴⁰ Again, this is not accurate. The consideration of financial leverage
10 simply recognizes that financial risk is important and should be recognized when setting
11 the allowed ROE. It is not an “adder” as Mr. Gorman claims; rather it is symmetrical in
12 its application: as financial leverage decreases, so does the required return on equity, and
13 vice versa.

14
15 **Q25. How do you respond to Mr. Gorman’s critique of the Hamada methodology?**

16 A25. With regards to the Hamada methodology, Mr. Gorman believes that the Hamada
17 methodology “unjustly” increases the CAPM results and should therefore “be completely
18 disregarded by the Commission.”⁴¹ Yet Mr. Gorman provides no basis for this assertion
19 and presents no evidence refuting the application of the Hamada methodology. The
20 Hamada adjustment technique is a common practice amongst finance practitioners and is

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22
23

⁴⁰ *Id.*, at 41, ll. 35-38.

24 ⁴¹ *Id.*, at 46-47.

1 widely accepted in academic literature.⁴² It is symmetrical in its application, meaning
2 that as financial leverage decreases, so does the required return on equity, and vice versa.

3
4 **Q26. Are the financial risk adjustment procedures you rely on accepted and employed by**
5 **other regulators?**

6 A26. Yes, a number of regulators in the U.S. and in countries around the world rely upon the
7 ATWACC to set rates and/or apply a version of the Hamada adjustment when analyzing
8 betas. For example, the Surface Transportation Board (“STB”) uses the
9 weighted-average cost of capital to determine revenue adequacy for railroads,⁴³ as does
10 the Federal Communication Commission to set rates for local exchange carriers.⁴⁴ The
11 Pennsylvania Public Utility Commission has accepted financial leverage,⁴⁵ and the
12 Florida Public Service Commission uses a very similar method to regulate small water
13 companies.⁴⁶ In a recent decision, the FERC used the weighted-average cost of capital
14 (calculated as I do) as a discount rate in a valuation dispute.⁴⁷ In a recent decision, the
15 Alabama Public Service Commission said:
16

17
18 ⁴² See Bookshelf Online: 2016 CFA Level I Volume 4 Corporate Finance and Portfolio
Management.

19 ⁴³ STB Decision in Docket No. EP 558 (Sub-No. 18), August 6, 2015.

20 ⁴⁴ Federal Communications Commission, “Prescribing the Authorized Rate of Return,” WC
Docket No. 10-90, May 16, 2013.

21 ⁴⁵ Pennsylvania Public Utility Commission, Order and Decision in R-00038304 (Pennsylvania-
American Water Company), January 16, 2004.

22 ⁴⁶ Florida Public Service Commission, Order in Docket No. 120006-WS, June 28, 2012, pp. 3-4.

23 ⁴⁷ Order Conditionally Accepting Tariff Revisions, Subject to Compliance Filings, Docket
24 No. ER 14-2940-000, PJM Interconnection, L.L.C., issued November 28, 2014.

1 [t]he Commission recognizes that the ATWACC analysis is not a
2 prevalent methodology in the United States; however, the focus of that
3 methodology on the relationship between the market value and the
4 associated financial risk of the utility is compelling.”⁴⁸

5 **3. Mr. Lawton Does Not Adequately Adjust for Financial Risk**

6 **Q27. Does PHS witness Lawton consider the difference in financial risk between ML&P
7 and the sample?**

8 A27. Yes, Mr. Lawton acknowledges that:

9 the comparable peer risk group with an average 48.85% equity ratio would
10 be less risky than ML&P with a 35.4% equity ratio. As such the equity
11 return estimates developed from the comparable peer group would reflect
12 lower financial risk and would need to be increased if applied to ML&P
13 for setting rates in this case.⁴⁹

14 Unlike Mr. Gorman, Mr. Lawton agrees with me that ML&P has more financial risk than
15 the sample. However, as mentioned previously, Mr. Lawton incorrectly measures the
16 financial risk of the sample based on their book value capital structure rather than the
17 market value capital structure.

18 **Q28. How does Mr. Lawton adjust his equity return estimates to reflect the increased
19 financial risk of ML&P?**

20 A28. Mr. Lawton notes that theoretical and empirical studies “suggest an increase in common
21 equity costs in a range of 7.6 to 13.8 basis points for every one percent increase in the

22 _____
23 ⁴⁸ Alabama Public Service Commission, Report and Order in Docket No. 18117 and 18416,
24 August 21, 2013, p. 20.

25 ⁴⁹ Lawton Direct Testimony at 48-49.

1 debt ratio.”⁵⁰ He assumes the low-end 7.6 basis point adjustment and multiplies this by
2 the difference between the sample’s average book value equity share (48.85%) and
3 ML&P’s regulatory equity share (35.4%)⁵¹, resulting in a “102 basis point (13.45
4 percentage points x 7.6 basis points) equity cost increase for ML&P relative to the
5 comparable group results.”⁵²
6

7 **Q29. Do you agree with Mr. Lawton’s methodology to account for the financial risk of**
8 **ML&P?**

9 A29. No. First, Mr. Lawton understates the financial risk adjustment necessary by comparing
10 ML&P to the book value equity share rather than the market value equity share of the
11 comparable group. Second, he acknowledges a wide range of potential adjustments from
12 7.6 basis points to 13.8 basis points, yet unconvincingly only applies the low-end
13 adjustment despite the fact that the source cited by Mr. Lawton explicitly states that
14 “more recent studies indicate that the upper end of that range is more indicative of the
15 repercussions on equity costs.”⁵³ Thus, using Mr. Lawton’s approach the upper bound
16 which shows an increase of 13.8 basis points for each 1% additional leverage should at
17 the very least be considered.
18

19 _____
20 ⁵⁰ *Id.*, at 48-49.

21 ⁵¹ Mr. Lawton relied on the equity share as reported in ML&P’s Revenue Requirement Study.
22 For clarity, the Company advised the Commission on January 17, 2017, in response to staff
23 questions that the actual consolidated capital structure contains 35.5% equity. Reconciling to this
24 capital structure does not change the calculated weighted cost of capital or the required return in
25 the Revenue Requirement Study nor does it change my ROE recommendations.

26 ⁵² *Id.*, at 49.

⁵³ Roger A. Morin, “*New Regulatory Finance*,” Public Utilities Reports, 2006, p. 469.

1 Mr. Lawton, like I, estimates the cost of equity using a sample of electric
2 utilities whose average market value equity percentage is substantially higher than
3 35.5%, so that an adjustment that takes into account the difference between the capital
4 structures relied upon for estimation purposes and the regulatory equity percentage of
5 MLP results in a non-trivial adjustment using Mr. Lawton's source. For example, I
6 calculate the average market value capital structure of Mr. Lawton's sample companies at
7 56.7% as compared to MLP's equity percentage of 35.5% for a difference of 21.2%.
8 Consequently, an adjustment of 292.0 basis points (calculated as 21.2% multiplied by the
9 "more indicative" 13.8 basis points) is appropriate. This would result in a CAPM ROE
10 of 11.3% to 11.7%.⁵⁴ I note that this range of ROE's are within the range of ROEs I
11 obtained for my CAPM-based models.
12

13 It is clear that Mr. Lawton's 100 basis point adjustment to the ROE would
14 not adequately equate ML&P to the average electric utility. This is clearly seen in my
15 direct testimony, Q/A 64, where I show that in the risk premium model, where the
16 difference in the capital structure used to determine the sample's ROE and that of ML&P
17 is *only* 13%, the difference in equity return is 300 basis points; using the upper end of the
18 approach Mr. Lawton cites, the 13% difference would result in an adjustment of 179.4
19 basis points for a risk premium ROE of 12% (using my 10.2% ROE for the sample).
20

21 **Q30. Does Mr. Lawton compare ML&P to the average electric utility?**
22
23

24 ⁵⁴ See Exhibit BV-09 for details.
25

1 A30. Yes, Mr. Lawton suggests that his ROE recommendation of 9.5% is reasonable because
2 “cost of equity decisions for electric utility operations for calendar year 2016 averaged
3 about 9.74%”⁵⁵ and “the average awarded equity return for an electric utility in the U.S.
4 is about 9.8% in 2016.”⁵⁶ Ignoring the slight discrepancy in Mr. Lawton’s reported
5 figures, I find that the average allowed ROE for vertically integrated electric utilities
6 from 2016 through September 2017 was approximately 9.7% for a utility with an average
7 regulatory equity ratio of about 48.3%.⁵⁷
8

9 **Q31. What would be the implied ROR if ML&P were more like the average electric**
10 **utility, as suggested by Mr. Lawton?**

11 A31. Assuming that ML&P had business and financial risks similar to the average electric
12 utility, then a 9.7% ROE would imply an ROR of 6.7%. See Figure 5 below for this
13 illustrative calculation. This assumes the average regulatory capital structure of 48.3%
14 equity, but also includes the embedded cost of debt for ML&P which is much lower than
15 the average electric utility.
16

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22 _____
⁵⁵ *Id.*, at 22.

23 ⁵⁶ *Id.*, at 9.

24 ⁵⁷ SNL Financial, included as Exhibit BV-07.
25

Figure 5
Illustrative ROR Calculation for Average Authorization since 2016

	Ratio	Cost	Weighted Cost
	[1]	[2]	[3]
Debt	51.7%	3.93%	2.03%
Equity	48.3%	9.70%	4.68%
Rate of Return			6.71%

Sources:

Equity Ratio and Cost from SNL Financial.

Debt Cost from Municipal Light & Power from Exhibit 7, Schedule 3 Cost of Capital.

Q32. How would this illustrative ROE change in order to adjust for the actual financial risk of ML&P?

A32. ML&P has more financial risk than the average utility given its lower equity share and the ROE must be increased in order to reflect this increased risk. If ML&P had the same level of overall business risk as the average electric utility, then it should be allowed the same overall ROR as the average electric utility to reflect that. The ROE would have to be increased by approximately 200 basis points in order allow a comparable 6.7% ROR at ML&P's regulatory capital structure of 35.5% equity. See Figure 6 below for this calculation. Mr. Lawton's adjustment of only 100 basis points would imply an unreasonably low overall ROR for ML&P that does not fully account for its business and financial risks in comparison to the average electric utility.

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Figure 6
Implied Cost of Equity at ML&P Capital Structure for 6.7% Rate of Return

	Ratio	Cost	Weighted Cost
	[1]	[2]	[3]
Debt	64.5%	3.93%	2.53%
Equity	35.5%	11.77%	4.18%
Rate of Return			6.71%

Source:

Debt Cost from Municipal Light & Power from Exhibit 7, Schedule 3 Cost of Capital. Capital Structure from ML&P 1/17/17 Response to Staff Questions submitted on 1/6/17.

IV. COMPANY SPECIFIC CONSIDERATIONS OF RISK AND RETURN

Q33. Is ML&P equal in business risk to the average electric utility?

A33. No, ML&P is riskier than the average electric utility due to its high capital spend, inability to earn its allowed ROE, and smaller than average size. For this reason, I recommend a return at the higher end of the range.⁵⁸

Q34. What does Mr. Lawton say about ML&P's business risk?

A34. Mr. Lawton states that "ML&P does not face any unusual business or financial risk."⁵⁹ He further specifies that "ML&P does not face higher business risks than comparable electric operations."⁶⁰

Q35. What evidence does Mr. Lawton provide to support this conclusion?

⁵⁸ Villadsen Direct Testimony at 5.

⁵⁹ Lawton Direct Testimony at 10.

⁶⁰ *Id.*, at 19.

1 A35. None. Mr. Lawton presents no evidence comparing the business risks of ML&P to his
2 electric company sample that would support his conclusion. He discusses the importance
3 of regulatory lag and cost recovery, stating that “[r]ating agencies are foremost concerned
4 with a utility’s ability to recover costs and earn an adequate return,”⁶¹ yet he makes no
5 mention of the fact that ML&P has not earned its allowed ROE for many years.⁶²
6 Furthermore, Mr. Lawton acknowledges that ML&P’s significant capital expenditure
7 program is a risk factor: “These plant additions have caused substantial borrowing
8 increases causing the equity ratio to decline and placed a financial risk on the system.”⁶³
9 These facts would support my conclusion that ML&P is of higher risk than the average
10 electric company.
11

12 **Q36. What does Mr. Gorman say about ML&P’s business risk?**

13 A36. Mr. Gorman asserts that “ML&P’s relative risk is comparable, if not lower than the risk
14 of the utility companies included in the proxy group.”⁶⁴
15

16 **Q37. What evidence does Mr. Gorman provide to support this conclusion?**

17 A37. Mr. Gorman shows that ML&P’s credit rating from S&P of A+ is higher than the average
18 S&P credit rating of BBB+ for the proxy group.⁶⁵ He believes that the risk factors I
19 present are “already incorporated in the credit ratings of the proxy group companies,” so
20

21 ⁶¹ *Id.*, at 28.

22 ⁶² Tariff Advice Letter 357-121, Exhibit 6 at 83.

23 ⁶³ Lawton Direct Testimony at 14.

24 ⁶⁴ Gorman Direct Testimony, Appendix B at 56.

25 ⁶⁵ *Id.*, Appendix B at 57.

1 that the market believes ML&P is less risky than the proxy group given its higher credit
2 rating.⁶⁶

3
4 **Q38. Are credit ratings an appropriate measure of the risk of a company's equity?**

5 A38. No, the goal of the credit rating agencies is not to measure or evaluate the systematic risk
6 of a company's equity, but rather to evaluate the probability that a company will default
7 on its debt. Moody's states this goal concisely in its methodology documents:

8 Ratings assigned on Moody's global long-term and short-term rating
9 scales are forward-looking opinions of **the relative credit risks of**
10 **financial obligations** issued by non-financial corporates, financial
11 institutions, structured finance vehicles, project finance vehicles, and
12 public sector entities. Long-term ratings are assigned to issuers or
obligations with an original maturity of one year or more and **reflect both**
on the likelihood of a default on contractually promised payments and
the expected financial loss suffered in the event of default.⁶⁷

13 Default is a manifestation of the company being unable to make good on its debt
14 obligations. For companies with a high end investment grade rating (including MLP and
15 the sample companies), the probability of default is very low.⁶⁸

16 While credit ratings speak to the probability of debt-holders being paid a
17 promised amount in a timely fashion, equity risk relates to systematic risk or the tendency
18 of a security's returns to respond to returns in the broader stock market. For this reason, a
19 higher credit rating does not necessarily correspond to lower shareholder risk, or vice
20

21 ⁶⁶ *Ibid.*

22 ⁶⁷ Moody's Investor Service, *Ratings, Symbols, and Definitions*, December 2016. [Emphasis
added.]

23 ⁶⁸ According to Standard & Poor's "2016 Annual Global Corporate Default Study and Rating
24 Transitions," April 13, 2017, pp. 10-11, the default rate for BBB or higher rated entities has been
0.00% since 2011. I eliminate non-investment grade companies from my sample.

1 versa. Two companies with identical credit ratings need not have the same required
2 return on equity. For instance, factors that make a company's cash flow more sensitive to
3 the broader market would affect the cost of equity even if they do not affect the
4 individual company's probability of default enough to warrant a change in credit rating.

5
6 **Q39. What do you recommend as ML&P's overall return given its risks?**

7 A39. I find the arguments of Mr. Lawton and Mr. Gorman unconvincing. I maintain my
8 conclusion that ML&P is riskier than the average electric utility due to its high capital
9 spend, inability to earn its allowed ROE, and smaller than average size and should be
10 allowed a return at the higher end of the range. I recommend an ROE range of 12.5% to
11 13.5% with a point estimate of 13%. This would suggest an overall ROR of 7.15%,
12 which is conservative and still below the median allowed ROR for vertically integrated
13 electric utilities as shown in Figure 2. Furthermore, I recommend the use of a
14 consolidated capital structure for ML&P of 35.5% equity / 64.5% debt. As stated in my
15 direct testimony, I find the use of a consolidated capital structure reasonable as investors
16 in ML&P do not distinguish between the utility's electric and gas operations, it would
17 simplify the ratemaking procedure, and there would be little cross-subsidization since the
18 customers of the Electric and Gas Funds overlap.⁶⁹

19
20
21 **Q40. What capital structure did other witnesses use?**

22
23 ⁶⁹ Villadsen Direct Testimony at 13-14. I have updated the capital structure to be consistent with
24 the Company's Equity Management Plan and the Company's response to Commission staff's
25 questions on January 17, 2017. This slight update to the capital structure has no impact on my
26 recommendation of the range of reasonableness for the ROE.

1 A40. Mr. Lawton⁷⁰ and Mr. Gorman⁷¹ both refer to the capital structure used by ML&P from
2 Schedule 3 of the Revenue Requirement Study which represented the consolidated
3 electric fund and gas fund operations of the Company. Thus, there is no dispute about
4 the use of a consolidated capital structure.
5

6 **Q41. How does the use of a consolidated capital structure affect your recommended ROE**
7 **for the Company?**

8 A41. The fact that ML&P owns a gas business does not substantially affect the overall cost of
9 capital of the Company. In determining the appropriate ROE for ML&P, I recommend a
10 range from 12.5% to 13.5%, with a midpoint of 13%, for the consolidated entity.⁷² The
11 consolidated business risk would be an average of the business risk of each fund in
12 ML&P weighted by the size of that fund. It is clear that the gas fund, comprising only
13 approximately \$11.6 million of equity,⁷³ is small in comparison to the total \$246 million
14 equity portion of ML&P's requested rate base.⁷⁴ The equity in the BRU is therefore only
15 approximately 4.7% of ML&P's total equity, meaning that its minimal effect on the
16 overall cost of capital for ML&P is well below what can be reliably measured.
17

18 For example, suppose that the gas fund represented separate risks to equity
19 than the electric fund such that the fair and reasonable ROE for the Gas Fund were either
20

21 ⁷⁰ Lawton Direct Testimony at 3.

22 ⁷¹ Mr. Gorman's Workpapers to Exhibit MPG-3, tab "ROR Revenue Workpaper".

23 ⁷² Villadsen Direct Testimony at 5.

24 ⁷³ Request for Approval of Ratemaking and Accounting Treatment for ML&P's Interest in the
25 Beluga River Unit, Docket U-16-060, dated June 20, 2016, at 11.

26 ⁷⁴ 35.5% equity share x \$694 million rate base.

1 1% above or below that for the electric fund. The consolidated ROE would therefore be
2 only 4.7 basis points higher or lower than the ROE of the electric fund.⁷⁵ This impact is
3 simply not meaningful and is well captured in my recommended range of 12.5% to
4 13.5% (spanning 100 basis points).

5
6 **V. RESPONSIVE TESTIMONY TO FEA WITNESS GORMAN**

7 **Q42. What other issues do you have with Mr. Gorman’s testimony?**

8 A42. In addition to the issues presented above related to ML&P’s business and financial risks,
9 I have a few other issues with Mr. Gorman’s testimony. First, Mr. Gorman recommends
10 a return for ML&P that is unreasonably low in comparison to the allowed returns for
11 other electric utilities. Second, Mr. Gorman suggests that the use of adjusted betas in my
12 Empirical CAPM (“ECAPM”) estimate is inappropriate and double counts the
13 adjustments necessary. On this point, he is incorrect and does not understand that the
14 adjustments are fundamentally different and complementary. Finally, Mr. Gorman’s
15 testimony in this proceeding is inconsistent with his statements in recent testimony from
16 other jurisdictions.

17
18 **A. Gorman’s Primary Recommendation Implies An Unreasonably Low Rate of**
19 **Return**

20 **Q43. How has Mr. Gorman determined his primary recommendation?**

21 A43. Mr. Gorman states that his “recommended revenue increase is not based on a rate of
22 return on rate base methodology” and instead uses a debt service coverage (“DSC”)

23
24 ⁷⁵ 1% × 4.7%. If applied to BRU’s capitalization, the magnitude is about \$5,400.

1 methodology.⁷⁶ Therefore, Mr. Gorman estimates the amount of revenue ML&P should
2 be allowed to recover in order to produce what he believes to be appropriate levels of
3 cash flow to cover the company's debt service obligations. To do this, Mr. Gorman
4 removes the Rate Stabilization Adjustments ("RSA") proposed by the Company and then
5 decreases ML&P's revenue requirement to a level that results in projected financial
6 metrics he finds reasonable.⁷⁷ Mr. Gorman does not propose adjustments to the cost of
7 service; he does not propose specific line item adjustments to the Company's revenue
8 requirement study; he simply backs in to this figure of a \$19 million reduction to
9 ML&P's proposed revenue that he finds reasonable without any evidence that ML&P's
10 cost of service or revenue requirement study are incorrect.⁷⁸ This clearly diverges from
11 the approaches taken by myself and Mr. Lawton and the Commission should place no
12 weight on Mr. Gorman's testimony. The rate of return regulation requires a return on
13 equity commensurate with what equity investors require on investments of similar risk.
14 In this case the best comparables are integrated electric utilities.

15
16
17 **Q44. How would the implied return for ML&P from Mr. Gorman's primary**
18 **recommendation compare to the return allowed for other electric utilities?**

19 A44. Mr. Gorman's primary recommendation would imply an overall ROR and an ROE far
20 below any recently allowed return for an electric utility. As shown in Figure 7 below,
21 Mr. Gorman's primary recommendation would reduce the return for ML&P by

22 ⁷⁶ Gorman Direct Testimony at 3.

23 ⁷⁷ See Gorman Direct Testimony, Exhibit MPG-2.

24 ⁷⁸ Responses to MLP-FEA-3 discovery requests, included as Exhibit BV-06.

1 \$19 million and imply an overall ROR of 4.41%. This would be lower than any other
2 allowed return for a vertically integrated electric utility since 2013 and the implied ROE
3 is lower than any observed figure in the SNL data base of allowed ROEs.⁷⁹
4

5 **Figure 7**
6 **Rate of Return from Mr. Gorman's Primary Recommendation**

7 ML&P Requested Rate of Return on Rate Base	[1]	7.15%
8 Gorman Proposed Revenue Reduction	[2]	\$19,000,000
9 ML&P Rate Base	[3]	\$694,120,079
Gorman Proposed Rate of Return on Rate Base	[4] = [1] - ([2] / [3])	4.41%

10 Sources:

11 [1]: Tariff Advice Letter, 357-121, Exhibit 7 at 3.

12 [2]: Mr. Gorman's workpapers to Exhibit MPG-2, tab [Electric], cell AA3.

13 [3]: Tariff Advice Letter 357-121, Exhibit 7 at 2.

14 **Q45. What ROE would be implied by Mr. Gorman's primary recommendation?**

15 A45. Mr. Gorman's primary recommendation would imply an unreasonably low ROE of 5.3%
16 that is lower than any recently allowed electric utility ROE. See Figure 8 below.

24 ⁷⁹ SNL database of allowed ROEs as of September 10, 2010.

Figure 8
Return on Equity from Mr. Gorman's Primary Recommendation

Gorman Proposed Rate of Return on Rate Base	[1]	4.41%
ML&P Weighted Cost of Debt	[2]	2.54%
ML&P Equity Percentage	[3]	35.5%
Gorman Proposed Rate of Return on Equity	[4] = ([1] - [2]) / [3]	5.28%

Sources:

[1]: Figure 7 , row [4].

[2]: Tariff Advice Letter 357-121, Exhibit 7 at 3.

[3]: Capital Structure from ML&P 1/17/17 Response to Staff Questions submitted on 1/6/17.

Not only is this ROE much lower than the industry norm, Mr. Gorman himself has rejected ROEs that are this low. In recent testimony before the Illinois Commerce Commission, Mr. Gorman stated that ROE results below 8% cause him concerns:

I have concerns with my constant growth DCF using a sustainable growth rate and my multi-stage growth DCF model **because they produce results around and even under 8.0%. I do not believe that a return on equity this is reasonably consistent with market evidence of required risk premiums and security valuations.**⁸⁰

Mr. Lawton would also reject an ROE at this level to be unreasonably low. Mr. Lawton's analysis⁸¹ and response to a discovery request⁸² confirm that he would reject as unreasonable any ROE estimate below 7.75%.

Q46. Does Mr. Gorman agree with your calculations of his implied ROR and ROE?

⁸⁰ Illinois Commerce Commission, Docket No. 17-0124, IIEC/CUB Exhibit 1.0, June 28, 2017 at 68. [Emphasis added]

⁸¹ See, for example, Exhibit DJL-7 footnote: "All Values Below 7.75% excluded as outliers."

⁸² Response to MLP-PHS-2 discovery request 149, included as Exhibit BV-08.

1 A46. No. In response to discovery requests, Mr. Gorman states that his proposed revenue
2 reduction of \$19 million would imply an ROR of 5.27% and an ROE of 7.71%.⁸³

3
4 **Q47. Do you agree with Mr. Gorman's statement of his implied ROR and ROE?**

5 A47. No. My calculations in Figure 7 and Figure 8 accurately portray the implied ROR and
6 ROE from Mr. Gorman's primary recommendation that should be compared to my
7 recommendation, the recommendation of Mr. Lawton, and the recently authorized RORs
8 and ROEs for other electric utilities.

9 Mr. Gorman's response in Exhibit BV-06 is based on his forecasted ROR
10 for ML&P, as shown in his Workpapers to Exhibit MPG-2, rather than the Revenue
11 Requirement Study produced by ML&P.⁸⁴ In fact, Mr. Gorman's financial forecast of his
12 primary recommendation shows the ROR for ML&P declining from 5.27% in 2017 to
13 4.22% in 2021. At the same time, the ROE for ML&P would decline from 6.78% in
14 2017 to 3.11% in 2021.⁸⁵ I summarize these results from Mr. Gorman's analysis in
15 Figure 9 below.

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⁸³ Exhibit BV-06 at 3-5.

22 ⁸⁴ See, Tariff Advice Letter 357-121, Exhibit 7, for ML&P's Revenue Requirement Study.

23 ⁸⁵ Gorman Direct Testimony, Exhibit MPG-2. Note that Mr. Gorman is inconsistent between his
24 Exhibit MPG-2, where he presents an ROE of 6.8%, and his discovery response in
25 Exhibit BV-06, where he presents an ROE of 7.71%.

Figure 9
Financial Forecast from Mr. Gorman's Primary Recommendation

	2017	2018	2019	2020	2021
MPG-2, Tab "Electric"					
[a] Gorman Recommended ROE	6.78%	4.93%	4.32%	3.46%	3.11%
[b] Gorman Recommended ROR	5.27%	4.95%	4.66%	4.45%	4.22%

Sources:

[a]: Workpaper MPG-2, tab 'Electric' at row 574.

[b]: Workpaper MPG-2, tab 'Electric' at row 577.

I have two specific findings based on Mr. Gorman's response in Exhibit BV-06. First, it is unreasonable and defies all logic to recommend an ROE that would be less than the overall ROR. This would suggest that equity is less risky than debt, a premise that is not supported in any financial literature. Second, any analysis of the implied ROR and ROE for ML&P based on Mr. Gorman's primary recommendation lead to numbers that are far below the range of reasonableness. Ignoring his inconsistency of presenting an ROE of 7.71% for ML&P in Exhibit BV-06 and presenting an ROE of 6.8% in Exhibit MPG-2 to his prefiled testimony, even Mr. Gorman's suggestion of 7.71% as the implied ROE from his primary recommendation would be rejected as unreasonable by Mr. Lawton (who sets a minimum threshold of 7.75% in his analysis) and by Mr. Gorman's standards in prior testimony (that any ROE below 8% would cause him concern).

Lastly, I note that it appears Mr. Gorman calculates the ROE for this year as the Net Income for this year divided by the Total Fund Equity for last year. A more conventional approach would calculate this year's ROE as this year's Net Income divided by the average Total Fund Equity for the year; e.g., the average of the equity outstanding

1 at the end of last year and this year. Calculating the ROE as the current year's net
2 income divided by the average of the equity results gives an ROE of 6.56% rather than
3 6.78% for 2017.

4 Mr. Gorman's primary recommendation diverges from rate base / rate of
5 return methodology, proposes an overall ROR that is below any recently allowed ROR
6 for electric utilities, and would apply an ROE for ML&P that is far below the range of
7 reasonableness. For all of these reasons, the Commission must reject Mr. Gorman's
8 primary recommendation.
9

10 **B. Empirical CAPM As Implemented is Meaningful**

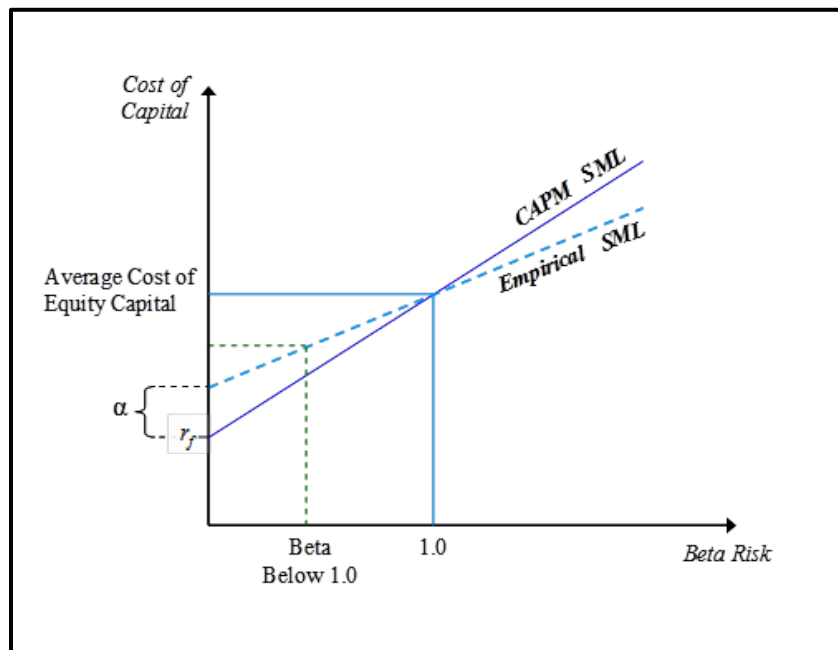
11 **Q48. How do you respond to Mr. Gorman's assertions that employing the ECAPM while**
12 **using adjusted beta estimates from *Value Line* is inappropriate?⁸⁶**

13 A48. Mr. Gorman is not correct. These are two fundamentally different and complementary
14 adjustments. This can be shown by reference to Figure 10 below which illustrates the
15 empirical security market line ("SML"). The adjustment to beta corrects the estimate of
16 the relative risk of the company, which is measured along the horizontal axis of the SML.
17 The ECAPM adjusts the risk-return tradeoff (i.e., the slope) in the SML, which is on the
18 vertical axis. In other words, the expected return (measured on the vertical axis) for a
19 given level of risk (measured on the horizontal axis) is different from the predictions of
20 the theoretical CAPM. Getting the relative risk of the investment correct does not adjust
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24 ⁸⁶ Gorman Direct Testimony, Appendix B at 47-50.

1 for the slope of the SML, nor does adjusting the slope correct for errors in the estimation
2 of relative risk.

3
4 **Figure 10**
The Empirical Security Market Line



15
16 **Q49. Can you explain further why using *Value Line's* adjusted betas do not correct for**
17 **the issues raised by empirical tests of the CAPM?**

18 A49. Yes. It is because the issues raised by the empirical tests are completely independent
19 from the reason betas are adjusted. The beta adjustment performed by *Value Line* is
20 based on the method outlined by Professor Marshall Blume,⁸⁷ based on his empirical
21 observation that historical measurements of a firm's beta are not the best predictors of
22 what that firm's systematic risk *will be* going forward. Professor Blume was able to

23 ⁸⁷ Blume, Marshall E. (1971), "On the Assessment of Risk," *The Journal of Finance*, 26,
24 p. 1-10.

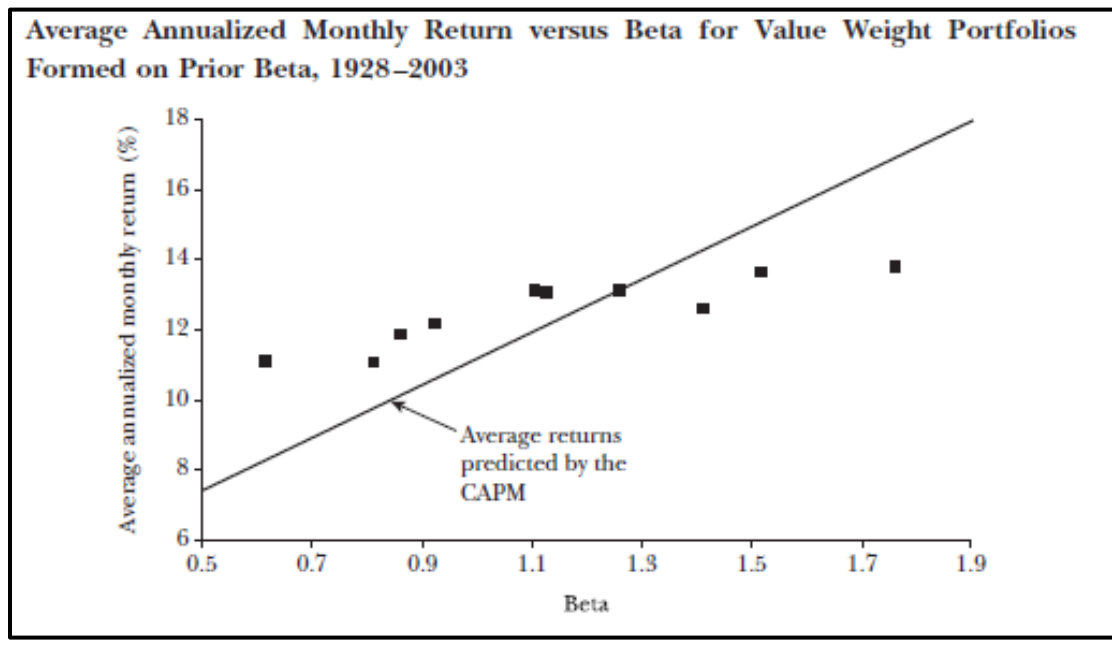
1 apply a consistent adjustment procedure to historical betas that increased their accuracy
2 in *forecasting* eventual realized betas. Essentially, Professor Blume’s adjustment
3 transforms a historical beta into a better estimate of expected future beta. It is this
4 expected “true” beta that drives investors’ expected returns according to the CAPM.
5 Therefore, it is appropriate to use *Value Line’s* adjusted betas, rather than raw historical
6 betas, when employing the CAPM to estimate the forward-looking cost of equity capital.

7
8 However, the backward-looking empirical tests of the CAPM that gave
9 rise to the ECAPM did not suffer from bias in the measurement of betas. Researchers
10 plotted realized stock portfolio returns against betas measured *over the same time period*
11 to produce plots such as Figure 11 below, which comes from the 2004 paper by
12 Professors Eugene Fama and Kenneth French.⁸⁸ The fact that betas and returns were
13 measured contemporaneously means that the betas used in the tests were *already the best*
14 *possible measure* of the “true” systematic risk over the relevant time period. In other
15 words, no adjustments were needed for these betas. Despite this, researchers observed
16 that the risk-return trade-off predicted by the CAPM was too steep to accurately explain
17 the realized returns. As explained above the ECAPM explicitly corrects for this
18 empirical observation.
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23 ⁸⁸ Fama, Eugene F. & French, Kenneth R, (2004), “The Capital Asset Pricing Model: Theory
24 and Evidence,” *Journal of Economic Perspectives*, 18(3), p. 25-46.

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Figure 11
Evidence from Empirical Tests of the CAPM⁸⁹



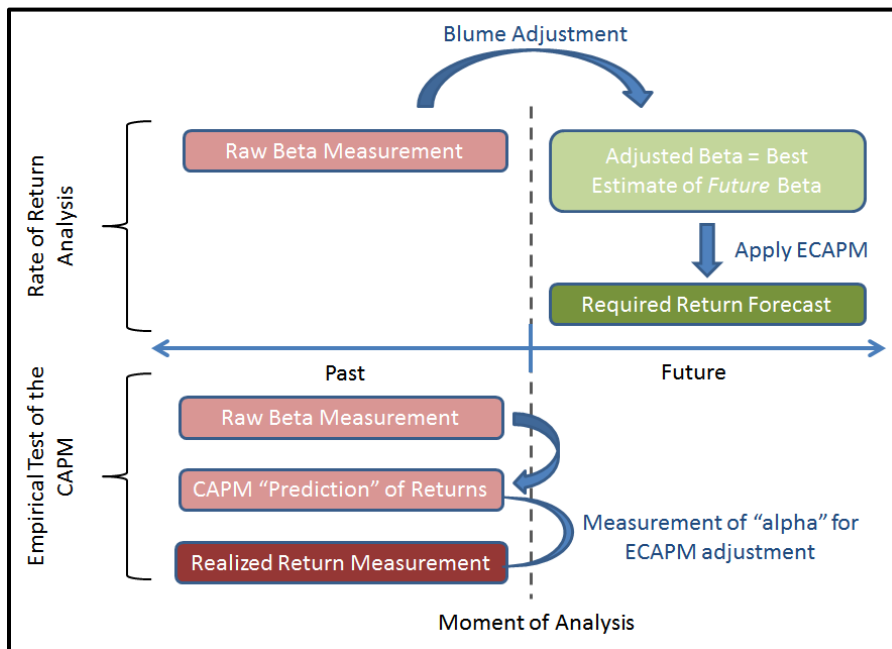
Q50. Did the empirical tests that gave rise to the ECAPM use raw betas in their analyses?

A50. They did. However, this is simply because, as illustrated in the bottom half of Figure 12 below, the researchers were able to measure raw betas and realized returns from the same historical period. In other words, no adjustment to the raw beta was necessary to evaluate the market return realized for the same historical period. Hence, the raw betas they measured accurately captured the systematic risk that impacted the returns they measured. In a sense, the measured betas and realized returns were already contemporaneous in the tests of the CAPM that identified the effect shown in Figure 10 and Figure 11.

⁸⁹ *Id.*, p. 33.

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Figure 12
Empirical Tests of the CAPM vs. Forward-looking Application of ECAPM



Q51. So then is Mr. Gorman correct that the Commission should reject the ECAPM results because using adjusted betas in the ECAPM will “double count the adjustment” to the estimated required return on equity?

A51. No. The Blume adjustment to beta and the ECAPM are separate adjustments with no redundancy between them. In fact, both adjustments are necessary to produce the most accurate possible forward-looking estimate of the required return on equity.

A rate of return analyst must use a historical measurement of beta to make a forecast of the expected *future* return on equity. Therefore, the analyst should first apply the Blume adjustment (as *Value Line* does) to get the best estimate of the systematic risk over the (future) period in which she will estimate the ROE. Once the risk

1 measurement is contemporaneous with the returns to be estimated, the analyst should
2 apply the ECAPM to adjust for the empirical shortcomings of the CAPM.

3
4 **Q52. Can you summarize the independent reasons for using adjusted betas and**
5 **employing the ECAPM?**

6 A52. Raw historical betas are adjusted to provide a better estimate of *expected* “true” betas,
7 which are the appropriate measure of risk that predicts expected future returns in the
8 CAPM. The ECAPM is used because empirical tests show that *even when the best*
9 *possible estimate* of “true” beta is used, the CAPM tends to under-predict required returns
10 for low-beta stocks and over-predict required returns for high-beta stocks. These are
11 independent but complementary adjustments supported by empirical tests of this model
12 of financial theory. Both adjustments are appropriate when using risk-positioning models
13 to estimate the cost of equity.

14
15 **Q53. Do any other cost of capital witnesses in this proceeding support using adjusted**
16 **betas when employing the ECAPM?**

17
18 A53. Yes, Mr. Lawton’s ECAPM analysis presented in Exhibit DJL-9 also uses adjusted betas
19 from *Value Line*.

1 **VI. RESPONSIVE TESTIMONY TO PHS WITNESS LAWTON**

2 **Q54. What other issues do you have with Mr. Lawton's testimony?**

3 A54. In addition to the issues presented above related to ML&P's business and financial risks,
4 I also have issue with Mr. Lawton's use of a historical interest rate as the risk-free rate
5 input for his CAPM analysis.⁹⁰
6

7 **Q55. What Treasury yield does Mr. Lawton rely on to estimate the risk-free rate?**

8 A55. He adopts as his risk-free rate input 2.90%, which he states is the recent three-month
9 average on 30-year U.S. Treasury bonds from April through June 2017.⁹¹ In doing so, he
10 rejects forecasted bond yields such as those relied on by Mr. Gorman⁹² and myself,
11 stating that this historical average is "the best approximation of interest rate levels," and
12 asserting that the market expects low yields on interest rates "for the foreseeable near
13 term future."⁹³
14

15 **Q56. Do you agree with Mr. Lawton that historical bond yields are the best**
16 **approximation of future levels and that forecasted bond yields are not valuable in**
17 **estimating future interest rates?**

18 A56. No. While it is certainly true that expert forecasts do not always precisely predict
19 eventual spot yields, research shows that such forecasts generally exhibit a conservative
20

21 _____
22 ⁹⁰ Lawton Direct Testimony at 40.

23 ⁹¹ *Ibid.*

24 ⁹² Gorman Direct Testimony, Appendix B at 26.

25 ⁹³ Lawton Direct Testimony at 21-22.

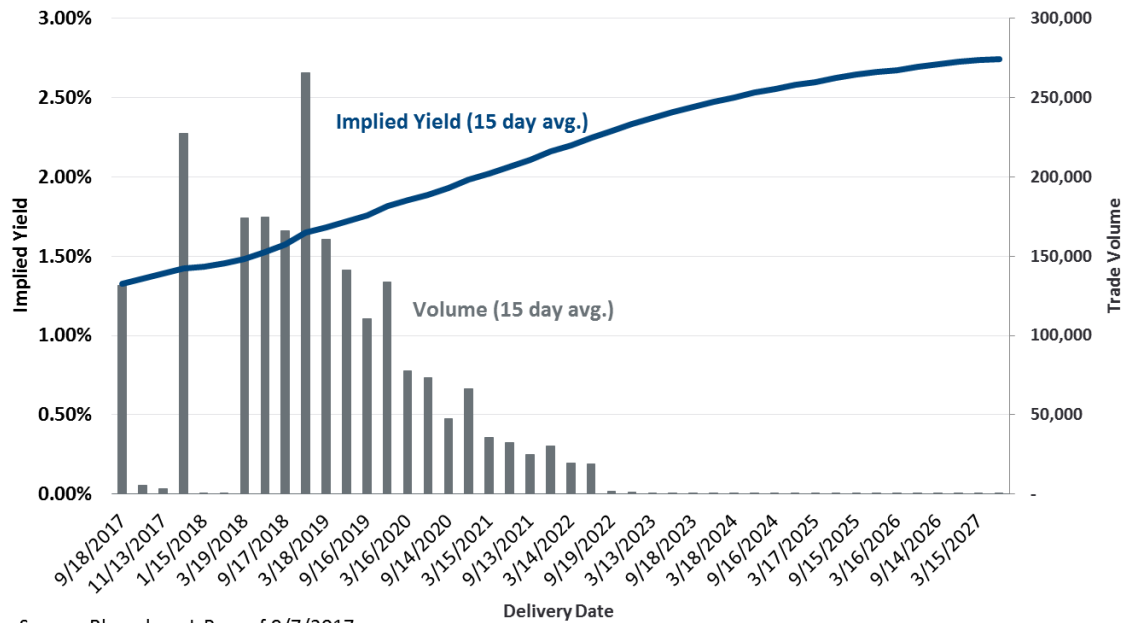
1 “status quo bias”—tending to over-predict eventual spot yields during falling interest rate
2 environments and *under*-predict actual yields when interest rates are on the rise.⁹⁴ Since
3 interest rates have generally followed a downward trajectory since the financial crisis, it
4 is then not surprising that the forecasts have tended to predict higher yields than were
5 eventually realized. However, when interest rates do rise, they may well do so more
6 dramatically or at a faster pace than anticipated by market participants.

7
8 Additionally, the futures traded on interest rates indicate that the market
9 expects the rates to increase. See Figure 13 below. While these Eurodollar futures traded
10 are traded on short-term interest rates and not the long-term rates relied upon in
11 Mr. Lawton’s (or my) CAPM they do imply the market are expected yields to increase.⁹⁵
12 In interpreting Figure 13 below, it is important to recognize that the level of interest rates
13 depicted have no bearing on the long-term risk-free rate used in the CAPM or risk
14 premium model.

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22 ⁹⁴ R.W. Hafer and Scott Hein, “Comparing Futures and Survey Forecasts of Near-Term Treasury
23 Bill Rates,” *Federal Reserve Bank of St. Louis*, May/June 1989.

24 ⁹⁵ Because the yield curve changes over time, the long-term interest rate may increase faster or
25 slower than the short-term interest rates.

Figure 13
Short-Term Interest Rate Futures and Trading Volume



Source: Bloomberg L.P. as of 9/7/2017.

Finally, it is not reasonable to completely ignore forecasts and suggest that they do not reflect market forces, particularly when traded futures suggest that the market expects treasury bond yields to rise as shown above. The financial institutions and economic experts that contribute projections to publications such as Blue Chip are both observers of and participants in financial markets. Their opinions are both informed by and exert influence over market forces in determining asset prices (including for government bonds).

Q57. How would Mr. Lawton’s CAPM and ECAPM estimates differ if he relied on a risk-free rate estimate in line with those employed by you and Mr. Gorman?

A57. If Mr. Lawton had relied on Mr. Gorman’s risk-free rate input of 3.70% rather than his historical input of 2.90%, his CAPM and ECAPM results would have been higher by

1 80 basis points for a raw CAPM / ECAPM estimate of 8.95% - 9.59%,⁹⁶ which result in a
2 range of 11.87% to 12.51% once an appropriate adjustment for financial leverage has
3 been applied.⁹⁷ These figures overlap my CAPM / ECAPM figures.
4

5 **Q58. Given these issues, should the Commission place any weight on Mr. Lawton's**
6 **testimony?**

7 A58. Yes, but the Commission must recognize the need to use the risk-free rate that is expected
8 during the time rates will be in effect and also recognize that MLP has substantially more
9 leverage than the sample groups, so that Mr. Lawton's adjustment is insufficient.
10

11 **Q59. Does this conclude your reply testimony?**

12 A59. Yes.
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22 ⁹⁶ Lawton Direct, Table 3 p. 6, CAPM ECAPM results plus 80 basis points.

23 ⁹⁷ The range is calculated as the revised CAPM / ECAPM estimates plus the 292 basis points
24 derived in Q/A 29 above.
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Exhibit BV-06:

FEA Responses to Discovery Requests

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Response:

(a) The revenue reduction of \$19 million was made to the Company’s total proposed revenue increase of \$39.48 million to arrive at Mr. Gorman’s proposed increase of \$20.48 million. The ML&P spreadsheet provided to measure the financial metrics included ML&P’s proposed revenue adjustment for the RSA of \$12.875 million. Mr. Gorman reversed ML&P’s RSA revenue adjustment and substituted his proposed revenue adjustment to measure the resulting revised projected financial metrics.

(b) Mr. Gorman proposed a revenue requirement that produces financial metrics outlined by ML&P’s EMP. Mr. Gorman did not propose adjustments to the cost of service, but rather proposed a more accurate revenue requirement that is necessary to recover ML&P’s requested cost of service, and support its target debt service coverage requirements, unrestricted cash balances, equity buildup, and other metrics included in ML&P’s EMP program. In effect, this is a more accurate revenue requirement needed in order to accomplish the EMP financial planning objectives.

(c) Mr. Gorman’s proposed revenue level will remain in effect until the Company can demonstrate that the revenues produced under approved rates are not adequate to meet the financial metric targets outlined in its EMP.

Person(s) Supplying Information: Michael P. Gorman

1 **MLP-FEA-3-2:** Looking at Mr. Gorman’s primary recommendation as stated on
2 page 4, lines 17 through 19, of Mr. Gorman’s Prefiled Direct Testimony:

3 (a) Please confirm that the recommendation would result in an allowed Rate
4 of Return on Rate Base for ML&P of 4.41%, calculated as ML&P’s 7.15% requested Rate of
5 Return minus \$19 million “Gorman Proposed Revenue Reduction” divided by \$694.1 million
6 ML&P Rate Base (shown in the table below)?
7

8	ML&P Requested Rate of Return on Rate Base	[1]	7.15%
9	Gorman Proposed Revenue Reduction	[2]	\$19,000,000
9	ML&P Rate Base	[3]	\$694,120,079
10	Gorman Proposed Rate of Return on Rate Base	[4] = [1] - ([2] / [3])	4.41%

11 Sources:

12 [1]: TA357-121, Exhibit 7 at 3.

13 [2]: Mr. Gorman's workpapers to Exhibit MPG-2, tab [Electric], cell AA3.

[3]: TA357-121, Exhibit 7 at 2.

14 (b) If the answer to part (a) is anything other than an unqualified
15 “Confirmed,” please explain and calculate the implied Rate of Return on Rate Base for ML&P in
16 Mr. Gorman’s primary recommendation.

17 **Response:**

18 (a) Disagree.

19 (b) The projected operating income under Mr. Gorman’s reduced revenue
20 requirement in 2017 is shown in his workpaper “MPG-2.xlsx” under tab “Electric” under column
21 “Budget 2017” as a net operating income of \$36.58 million. This operating income divided by
22 the rate base produces a rate of return of 5.27%.
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Person(s) Supplying Information: Michael P. Gorman

1 **MLP-FEA-3-3:** In Mr. Gorman’s primary recommendation as stated on
2 page 4, lines 17 through 19, of Mr. Gorman’s Prefiled Direct Testimony:

3 (a) Please confirm that the implied Rate of Return on Equity for ML&P
4 would be 5.29%, calculated as Mr. Gorman’s 4.41% proposed rate of return minus the
5 2.54% weighted cost of ML&P debt divided by ML&P’s 35.4% equity ratio (shown in the table
6 below)?

Gorman Proposed Rate of Return on Rate Base	[1]	4.41%
ML&P Weighted Cost of Debt	[2]	2.54%
ML&P Rate Base	[3]	35.4%
Gorman Proposed Rate of Return on Equity	[4] = ([1] - [2]) / [3]	5.29%

11 Sources:

12 [2]: TA357-121, Exhibit 7 at 3.

13 [3]: TA357-121, Exhibit 7 at 3.

14 (b) If the answer to part (a) is anything other than an unqualified
15 “Confirmed,” please explain and calculate the implied Rate of Return on Equity for ML&P in
16 Mr. Gorman’s primary recommendation.

17 **Response:**

18 (a) Disagree

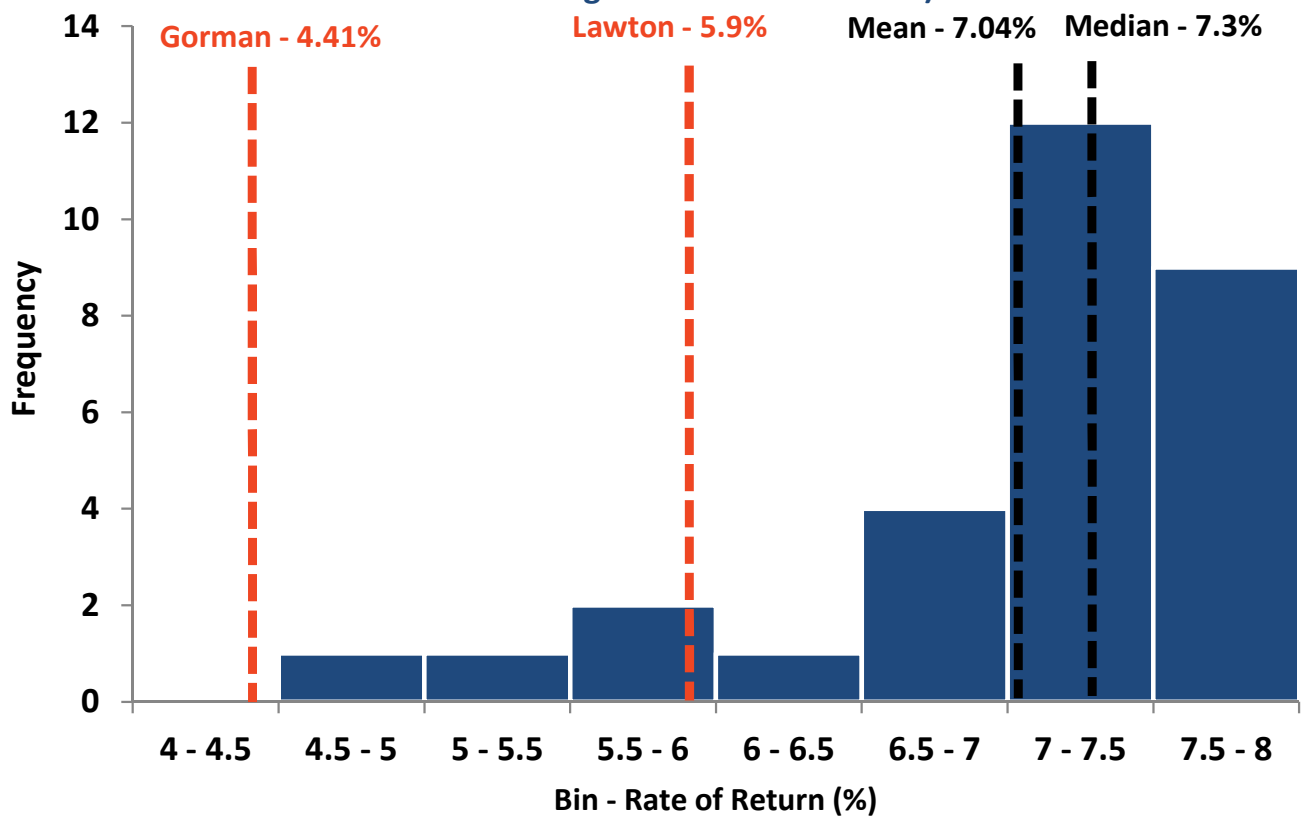
19 (b) Using the overall rate of return of 5.27% from MLP-FEA-3-2, cost of debt
20 of 2.54%, and an equity ratio of 35.4%, would produce an implied return on equity of 7.71%.

21 **Person(s) Supplying Information:** Michael P. Gorman

Exhibit BV-07:

Electric Utility Allowed Returns

Figure 2: Histogram of Authorized Rate of Returns since 2016 (Vertically Integrated Electric Utilities)



Source: SNL Financial.

Figure 5
Illustrative WACC Calculation for Average Authorization since 2016

	Ratio	Cost	Weighted Cost
	[1]	[2]	[3]
Debt	51.7%	3.93%	2.03%
Equity	48.3%	9.70%	4.68%
Rate of Return			6.71%

Sources:

Equity Ratio and Cost from SNL Financial.

Debt Cost from Municipal Light & Power from Exhibit 7, Schedule 3 Cost of Capital.

Figure 6
Implied Cost of Equity at ML&P Capital Structure for 6.7% Rate of Return

	Ratio	Cost	Weighted Cost
	[1]	[2]	[3]
Debt	64.5%	3.93%	2.53%
Equity	35.5%	11.77%	4.18%
Rate of Return			6.71%

Source:

Debt Cost from Municipal Light & Power from Exhibit 7, Schedule 3 Cost of Capital. Capital Structure from ML&P 1/17/17 Response to Staff Questions submitted on 1/6/17.

**Allowed Rate of Return for Electric Utilities
Since 2016**

State	Company	Case Identification	Service	Case Type	Date	Return on Rate Base (%)	Return on Equity (%)	Common Equity /Total Cap (%)
Arkansas	Entergy Arkansas Inc.	D-15-015-U	Electric	Vertically Integrated	2/23/2016	4.52	9.75	28.46
Arkansas	Oklahoma Gas and Electric Co.	D-16-052-U	Electric	Vertically Integrated	5/18/2017	5.42	9.5	36.38
Arizona	Arizona Public Service Co.	D-E-01345A-16-0036	Electric	Vertically Integrated	8/15/2017	7.85	10	55.8
Arizona	Tucson Electric Power Co.	D-E-01933A-15-0322	Electric	Vertically Integrated	2/24/2017	7.04	9.75	50.03
Arizona	UNS Electric Inc.	D-E-04204A-15-0142	Electric	Vertically Integrated	8/18/2016	7.22	9.5	52.83
California	Liberty Utilities CalPeco Ele	A-15-05-008	Electric	Vertically Integrated	12/1/2016	7.51	10	52.5
Colorado	Black Hills Colorado Electric	D-16AL-0326E	Electric	Vertically Integrated	12/19/2016	7.43	9.37	52.39
Idaho	Avista Corp.	C-AVU-E-16-03	Electric	Vertically Integrated	12/28/2016	7.58	9.5	50
Indiana	Indianapolis Power & Light Co.	Ca-44576	Electric	Vertically Integrated	3/16/2016	6.51	9.85	37.33
Indiana	Northern IN Public Svc Co.	Ca-44688	Electric	Vertically Integrated	7/18/2016	6.74	9.98	47.42
Michigan	Consumers Energy Co.	C-U-17990	Electric	Vertically Integrated	2/28/2017	5.94	10.1	40.75
Michigan	DTE Electric Co.	C-U-18014	Electric	Vertically Integrated	1/31/2017	5.55	10.1	37.49
Michigan	Upper Peninsula Power Co.	C-U-17895	Electric	Vertically Integrated	9/8/2016	7.47	10	53.49
Minnesota	Northern States Power Co. - MN	D-E-002/GR-15-826	Electric	Vertically Integrated	5/11/2017	7.08	9.2	52.5
Minnesota	Otter Tail Power Co.	D-E-017/GR-15-1033	Electric	Vertically Integrated	3/2/2017	7.51	9.41	52.5
Missouri	Kansas City Power & Light	C-ER-2016-0285	Electric	Vertically Integrated	5/3/2017	7.43	9.5	49.2
North Carolina	Virginia Electric & Power Co.	D-E-22, Sub 532	Electric	Vertically Integrated	12/22/2016	7.37	9.9	51.75
North Dakota	MDU Resources Group Inc.	C-PU-16-666	Electric	Vertically Integrated	6/16/2017	7.36	9.65	51.4
New Mexico	El Paso Electric Co.	C-15-00127-UT	Electric	Vertically Integrated	6/8/2016	7.67	9.48	49.29
New Mexico	Public Service Co. of NM	C-15-00261-UT	Electric	Vertically Integrated	9/28/2016	7.71	9.58	49.61
Nevada	Sierra Pacific Power Co.	D-16-06006	Electric	Vertically Integrated	12/22/2016	6.65	9.6	48.03
Oklahoma	Oklahoma Gas and Electric Co.	Ca-PUD201500273	Electric	Vertically Integrated	3/20/2017	7.69	9.5	53.31
Oklahoma	Public Service Co. of OK	Ca-PUD201500208	Electric	Vertically Integrated	11/10/2016	6.94	9.5	44
South Carolina	Duke Energy Progress LLC	D-2016-227-E	Electric	Vertically Integrated	12/7/2016	7.21	10.1	53
Tennessee	Kingsport Power Company	D-16-00001	Electric	Vertically Integrated	8/9/2016	6.18	9.85	40.25
Washington	Avista Corp.	D-UE-150204	Electric	Vertically Integrated	1/6/2016	7.29	9.5	48.5
Washington	PacifiCorp	D-UE-152253	Electric	Vertically Integrated	9/1/2016	7.3	9.5	49.1
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-121 (Elec)	Electric	Vertically Integrated	11/9/2016	7.89	9.8	57.16
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-120 (Elec)	Electric	Vertically Integrated	11/18/2016	7.91	10	52.2
Wyoming	MDU Resources Group Inc.	D-2004-117-ER-16	Electric	Vertically Integrated	1/18/2017	7.25	9.45	50.99
Mean						7.04	9.70	48.26
Median						7.30	9.63	50.02

Source: SNL Financial as of 9/5/2017.

Exhibit BV-08:

PHS Responses to Discovery Requests

1 Please admit that the IRP did not state who would pay the cost of achieving those capacity
2 savings.

3 **Response:** Providence admits that the 2009 IRP (p. 41) says, “These estimates
4 make no assumptions about who would pay the cost of the conservation measures,” but notes
5 that the 20 MW includes “only measures with a real levelized unit cost below ML&P’s expected
6 avoided cost[.]”

7 **Person(s) Supplying Information:** Richard Beam

8
9 **D. Direct Testimony of Daniel J. Lawton.**

10 **MLP-PHS-2-149:** In regard to exhibits DJL-7 through DJL-9 of the Direct
11 Testimony of Daniel J. Lawton, please explain why 7.75% is chosen as the minimum threshold
12 for excluding ROE estimates in the “Adjusted” ROE columns.

13 **Response:** Mr. Lawton employed judgment combined with the fact that recent
14 authorized equity returns have not been below 8%. Further, the 7.75% threshold minimum is
15 475 basis points above the 30-year U.S. Treasury bond average, which is in line with the
16 historical US Treasury – authorized equity return spread of about 500 basis points shown on
17 Schedule (DJL-10).

18 **Person(s) Supplying Information:** Daniel J. Lawton

19
20 **MLP-PHS-2-150:** In regard to the comparable group selection described in
21 Section VI of the Direct Testimony of Daniel J. Lawton and the seven screening criteria
22 identified on page 30, please explain which screening criteria caused the following companies to
23 be excluded from Mr. Lawton’s comparable group:

Exhibit BV-09:

Revision of PHS Financial Risk Adjustment

Revision of PHS Financial Risk Adjustment

	PHS Sample Companies	Company in ML&P sample [1]	Market Value Common Equity Ratio [2]
[a]	ALLETE	*	61.9%
[b]	Alliant Energy	*	59.2%
[c]	Amer. Elec. Power	*	53.0%
[d]	Ameren Corp.	*	54.5%
[e]	Avista Corp.		59.7%
[f]	Black Hills Corp.		47.2%
[g]	CMS Energy Corp.	*	46.5%
[h]	DTE Energy	*	56.9%
[i]	IDACORP Inc.	*	58.8%
[j]	Northwestern Corp.		59.0%
[k]	OGE Energy	*	66.1%
[l]	Otter Tail Corp.	*	64.0%
[m]	Pinnacle West Capital	*	60.2%
[n]	PNM Resources Inc.		49.0%
[o]	Portland General	*	52.5%
[p]	SCANA Corp.	*	52.5%
[q]	WEC Energy Group, Inc.		64.2%
[r]	Xcel Energy Inc.	*	54.4%
Revised PHS Adjustment			
[s]= Avg. of [a]-[r]	Average Market Value Equity Ratio		56.7%
[t]	ML&P Equity Share		35.5%
[u]= [s]-[t]	Difference in Equity Share		21.2%
[v]	Upper end of Morin Adjustment (bps)		13.8
[w]= [u]*[v]	Revised Adjustment (bps)		292.0
Revised PHS CAPM Return on Equity			
[x]= 8.36% + [w]	Low end		11.3%
[y]= 8.79% + [w]	High end		11.7%

Sources:

Bloomberg L.P. and Value Line.

[t]: ML&P 1/17/17 Response to Staff Questions submitted on 1/6/17.

[v]: Morin, 'New Regulatory Finance,' 2006, p. 469.

[x][y]: PHS CAPM Range from Ex. DJL-9.

Notes:

[2]: If company not in ML&P sample (as per column [1]) then market value equity share based on Value Line data.

Capital Structure Summary (PHS Companies in ML&P Sample)

Company	5-Year Average Capital Structure			2Q 2016 Market & Book Debt		
	Common Equity Market Value Ratio	Preferred Equity Market Value Ratio	Debt Market Value Ratio	Market Value of Debt (US\$ mm)	Book Value of Debt (US\$ mm)	Market to Book Multiple
	[1]	[2]	[3]	[4]	[5]	[6]
ALLETE	61.9%	0.0%	38.1%	\$1,634	\$1,563	1.05
Alliant Energy	59.2%	2.0%	38.7%	\$4,624	\$4,123	1.12
Amer. Elec. Power	53.0%	0.0%	46.9%	\$22,597	\$20,968	1.08
Ameren Corp.	54.5%	0.0%	45.5%	\$7,980	\$7,441	1.07
CMS Energy Corp.	46.5%	0.0%	53.5%	\$9,988	\$9,514	1.05
DTE Energy	56.9%	0.0%	43.1%	\$10,058	\$9,508	1.06
IDACORP Inc.	58.8%	0.0%	41.2%	\$1,833	\$1,746	1.05
OGE Energy	66.1%	0.0%	33.9%	\$2,632	\$2,876	0.92
Otter Tail Corp.	64.0%	0.4%	35.7%	\$611	\$546	1.12
Pinnacle West Capital	60.2%	0.0%	39.8%	\$4,542	\$4,256	1.07
Portland General	52.5%	0.0%	47.5%	\$2,575	\$2,324	1.11
SCANA Corp.	52.5%	0.0%	47.5%	\$7,413	\$6,965	1.06
Xcel Energy Inc.	54.4%	0.0%	45.5%	\$14,854	\$13,907	1.07
Average						1.06

Source:

Exhibit BV-03, Table No. BV-ELEC-3 and BV-ELEC-4.

Value Line Capital Structure (PHS Companies not in ML&P Sample)

Value Line Capital Structure (as of 3/31/16) (US\$ bn)					
Market Cap	Preferred Stock	Total Book Value of Debt	Implied Market Value of Debt	Market Value Equity Share	
[1]	[2]	[3]	[4]	[5]	
Avista Corp.	\$2.7	None	\$1.7	\$1.8	60%
Black Hills Corp.	\$3.2	None	\$3.4	\$3.6	47%
Northwestern Corp.	\$3.0	None	\$2.0	\$2.1	59%
PNM Resources Inc.	\$2.7	\$0.0	\$2.6	\$2.8	49%
WEC Energy Group, Inc.	\$19.0	\$0.0	\$9.9	\$10.5	64%

Source: Value Line Summer 2016 Business Reports.

Notes:

[4]= 1.06*[3]. The average ratio of market to book value of debt is 1.06 for PHS companies in the ML&P sample. This multiple is applied to calculate an implied market value of debt for the above companies.