STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA MICHIGAN POWER COMPANY, AN INDIANA CORPORATION, FOR AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A PHASE IN RATE ADJUSTMENT; AND FOR APPROVAL OF RELATED RELIEF INCLUDING: (1) REVISED DEPRECIATION RATES, INCLUDING COST OF REMOVAL LESS SALVAGE, AND UPDATED DEPRECIATION EXPENSE; (2) ACCOUNTING RELIEF, INCLUDING DEFERRALS AND AMORTIZATIONS; (3) INCLUSION OF CAPITAL INVESTMENT; (4) RATE ADJUSTMENT MECHANISM PROPOSALS, INCLUDING NEW GRANT PROJECTS RIDER AND MODIFIED TAX RIDER; (5) A VOLUNTARY RESIDENTIAL CUSTOMER POWERPAY PROGRAM; (6) WAIVER OR DECLINATION OF JURISDICTION WITH RESPECT TO CERTAIN RULES TO FACILITATE IMPLEMENTATION OF THE POWERPAY PROGRAM; (7) COST RECOVERY FOR COOK PLANT SUBSEQUENT LICENSE RENEWAL EVALUATION PROJECT; AND (8) NEW SCHEDULES OF RATES, RULES AND REGULATIONS	))	CAUSE NO. 45933

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
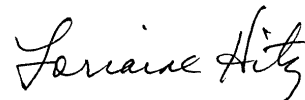
PUBLIC'S EXHIBIT NO. 8

TESTIMONY OF OUCC WITNESS

SHAWN DELLINGER

NOVEMBER 15, 2023

Respectfully submitted,

Lorraine Hitz
_____
Lorraine Hitz
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Deputy Consumer Counselor

TESTIMONY OF OUCC WITNESS SHAWN DELLINGER, CRRA
CAUSE NO. 45933
INDIANA MICHIGAN POWER COMPANY

I. INTRODUCTION

1 **Q: Please state your name and business address.**

2 A: My name is Shawn Dellinger, and my business address is 115 W. Washington St., Suite

3   1500 South, Indianapolis, IN 46204.

4 **Q: By whom are you employed and in what capacity?**

5 A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as a Senior

6   Utility Analyst. I primarily work in the Water/Wastewater division. My focus is on

7   financial issues.

8 **Q: Please describe your educational background and experience.**

9 A: My educational background and experience are described in Appendix A. I am a certified

10   rate of return analyst (CRRA designation), which is a professional designation awarded

11   from the Society of Utility and Regulatory Financial Analysts.

12 **Q: What is the purpose of your testimony?**

13 A: My testimony explains the OUCC's recommended 9.30% return on equity ("ROE") and

14   cost of equity ("COE"). It discusses various issues with Indiana Michigan Power ("I&M")

15   witness Ms. Ann E. Bulkley's ROE models, which inflate her recommended 10.50% ROE.

16 **Q: What did you do to prepare your testimony?**

17 A: I attended a pre-filing meeting with Petitioner on July 26, 2023. I read Ms. Bulkley's direct

18   testimony. I prepared discovery questions and reviewed discovery responses. I reviewed

19   previous I&M testimony and orders, as well as other testimony from Ms. Bulkley. I

1   reviewed and incorporated documents referenced throughout this testimony regarding

2   equity valuations, interest rates, growth rates, and general economic conditions.

3   **Q:**   **Do you have any attachments included with your testimony?**

4   A: Yes. My list of attachments may be found on Appendix B.

5   **Q:**   **To the extent you do not address a specific issue, item, or adjustment, should that be**
6   **construed to mean you agree with I&M's proposal?**

7   A: No. Not addressing a specific issue, item, or adjustment I&M proposes does not indicate

8   my agreement or approval. Rather, the scope of my testimony is limited to the specific

9   items addressed herein.

10   **Q:**   **How is your testimony organized?**

11   A: My testimony organization is shown below, with subsections as appropriate. I have

12   included Appendices A and B for my qualifications and a list of my attachments, and

13   Appendices C-H for additional technical testimony and analyses applicable to sections

14   included below.

15   1. Introduction

16   2. Summary of my Recommendations

17   3. Methods and Models Used for Calculating ROE, and the Inputs Required

18   a. Proxy Group

19   b. Discounted Cash Flow Models ("DCF")

20   c. Capital Asset Pricing Models ("CAPM")

21   d. Risk Premium Model

22   4. Flotation Costs

23   5. Recommendations

24   6. Appendices

1   a. Qualifications

2   b. List of Attachments

3   c. Discounted Cash Flow Analysis

4   d. General Concerns with Analyst Forecasts

5   e. Potential Bias in Analyst Forecasts

6   f. Use of Historical Growth Estimates

7   g. Capital Asset Pricing Model (CAPM) Analysis

8   h. Inflation

## II.   <u>SUMMARY OF MY RECOMMENDATIONS.</u>

9   **Q:**   **Please provide a summary of your recommendations for ROE.**

10   **A:**   My testimony discusses the return on equity component of I&M's weighted average cost

11   of capital. I ran multiple models to arrive at a recommendation of 9.30%. I also address

12   both large and small differences between my testimony and Ms. Bulkley's. The types and

13   results of these models are shown on table SD-1 below.

14   **Q:**   **What are some of the large differences you discuss?**

15   A: My testimony explains large analytical differences between Ms. Bulkley and me such as:

16   1) Using a limited number of Beta sources, which adds approximately 110 basis points

17   to Ms. Bulkley's ROE in one primary model;

18   2) An unreasonable market return, which adds approximately 393 basis points to ROE

19   in one of Ms. Bulkley's primary models; and

20   3) Only using a single stage discounted cash flow model, rather than a 2-stage model,

21   which results in a 74 basis points lower calculation.

Table SD-1

Summary of ROE Results
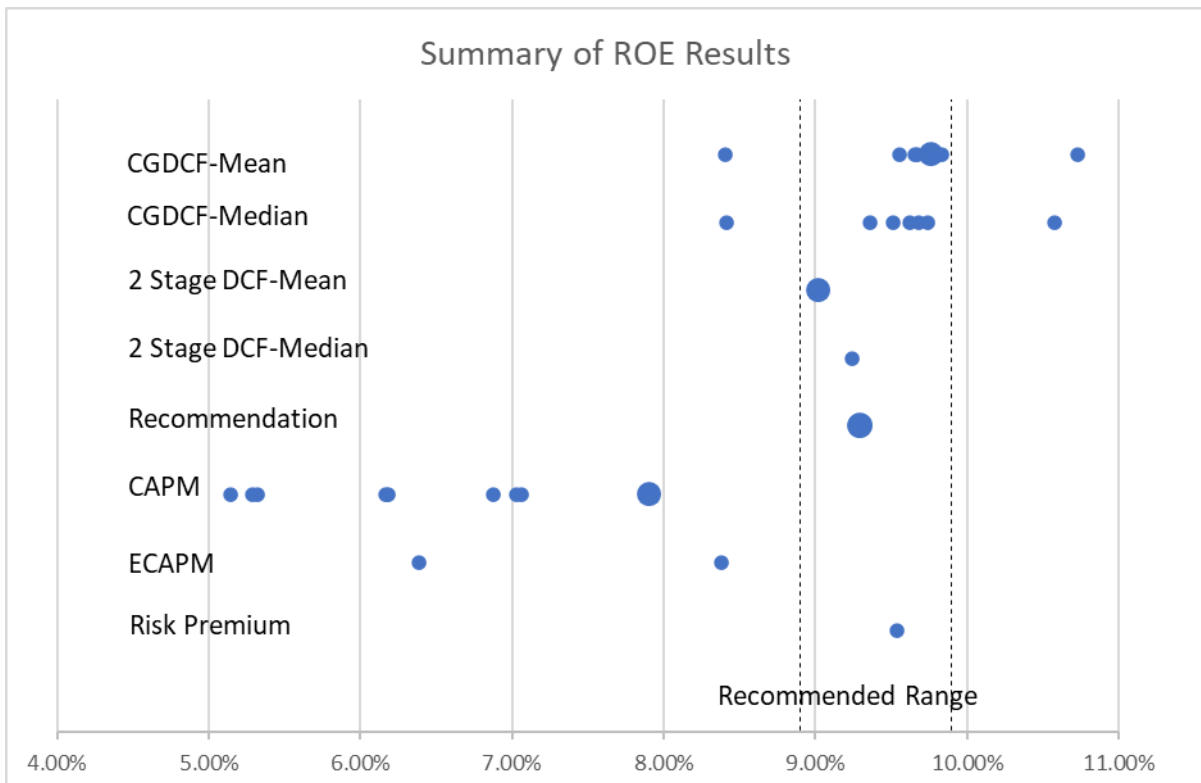
III. METHODS, MODELS AND REQUIRED INPUTS FOR CALCULATING ROE

1   **Q:**   **Broadly, what is the purpose of an ROE, and why is it important?**

2   A: ROE represents the profits that will accrue to the owners of a utility. ROE is a cost to the

3   utility (and therefore ratepayers), just as is the cost of debt. A *return* on equity is a term

4   used from the investor's perspective; a *cost* of equity is the corresponding term from the

5   utility's perspective. For purposes of this testimony, I will use the terms interchangeably

6   throughout my testimony.[1]

7   **Q:**   **What models are available for calculating ROE?**

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[1] Although I am not making a distinction in this case, there is a difference. The goal of this proceeding should be to align the return on equity (in this context, an authorized return from the Commission, not an accounting term) with the cost of equity. When I use these two terms interchangeably in this case, I am conflating the authorized return with the investor required return, which are not necessarily the same thing.

1	A:	In addition to the DCF, CAPM, and their derivatives discussed below, other methods
2		include comparable earnings, risk premium, arbitrage pricing, market to book, and earnings
3		price ratio analysis. Ms. Bulkley limited her analysis to versions of the DCF, the CAPM,
4		and the risk premium model. The Indiana Utility Regulatory Commission ("Commission")
5		has traditionally relied primarily on the DCF and the CAPM, although I also ran a risk
6		premium model to correct issues with Ms. Bulkley's analysis.
7	**Q:**	**What models did the OUCC use?**
8	A:	The OUCC used the Constant Growth DCF (calculated with both the Mean and Median
9		estimates incorporated), a 2-stage DCF, a CAPM, the ECAPM, and a risk premium model.
10		Other than the 2-stage DCF, Ms. Bulkley used each of these models.
11	**Q:**	**Please describe the models.**
12	A:	Broadly, the <u>DCF model</u> takes the dividends a company, or a group of companies, is
13		currently paying and grows this amount by a certain percentage each future year. A <u>CAPM</u>
14		takes the risk-free interest rate and adds a percentage (a premium or return due to risk)
15		based on the overall equity market excess return, modified by the riskiness of the individual
16		company (or group of companies). The <u>risk premium</u> model takes the risk-free rate of
17		interest and adds a spread (or a risk premium - basically a fixed percentage) to this to arrive
18		at the appropriate ROE.
19 20	**Q:**	**What inputs need to be determined to use the DCF, CAPM and risk premium models?**
21	A:	Each model requires a Proxy Group of companies reasonably comparable to Petitioner. As
22		used here, the Constant Growth DCF has two inputs - the current dividend rate and the
23		growth rate in the future. The 2-stage DCF also determines the time frame of the first stage,
24		and an appropriate growth rate for the 2nd stage. The CAPM relies on the risk-free interest

1   rate, the riskiness (or Beta) of the company or companies being reviewed, and the equity

2   market premium (or the excess return an investor receives for investing in equities rather

3   than risk-free bonds). The risk premium model incorporates the risk-free rate of interest

4   and the risk premium, which must be determined by the analyst.

5   **A.   Proxy Group**

6   **Q: What is the purpose of a proxy group in determining an appropriate cost of equity?**

7   A: A proxy group is a collection of similar companies that can be used to benchmark features

8   of the company being analyzed, such as growth, dividends, riskiness, and valuations. Proxy

9   groups also provide inputs for dividend yields, growth rates, and Betas (risk).

10   **Q: Describe the creation of an appropriate proxy group.**

11   A: Starting with a large list of publicly traded, similar companies, the group is filtered (by

12   industry, portion of that industry, size, geographic location, financial leverage, structure,

13   and potentially other factors) to target the best matches to the company being analyzed.

14   For some models, the presence of dividends should also be considered. It is better to have

15   more companies in the proxy group than fewer, although the robustness of the data set

16   gained by adding more companies must be balanced by the loss of focus and similarity of

17   expanding the proxy group by too significant of a degree.

18   **Q: How did you determine your proxy group?**

19   A: I accepted Ms. Bulkley's 13-member proxy group, then added three companies she

20   considered, but ultimately eliminated. Table SD-2 below sets out my proxy group.

21   **Q: Did Ms. Bulkley include American Electric Power, the parent company of I&M in**
22   **her proxy group?**

23   A: She did not. I agree with this non-inclusion in this case. Due to circularity issues, it is best

24   to not include the company under consideration in the proxy group, unless there is a

1   compelling reason to, or the circularity issues are not significant. In this case, neither of

2   these exceptions would apply.

Table SD-2

Company	Ticker
ALLETE, Inc.	ALE
Alliant Eergy Corporation	LNT
Ameren Corporation	AEE
Dominion	D
DTE Energy	DTE
Duke Energy Corporation	DUK
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Pinnacle West Capital	PNW
Portland General Electric	POR
Southern Co.	SO
Xcel Energy	XEL

3   **Q: Why did you add Dominion to your proxy group?**

4   A: Ms. Bulkley screened for the presence of companies that pay "consistent quarterly cash

5   dividends."[2] Ms. Bulkley eliminated Dominion from consideration due to this lack of

6   dividend payments. *See* OUCC Att. SD-2, an edited version of a discovery response

7   detailing the filters that Ms. Bulkley utilized.[3] As shown in Attachment SD-3, Dominion

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[2] Bulkley, p. 28, ll. 14-17. I believe there is a typographical error in Ms. Bulkley's testimony, as the actual quote reads that she "applied the following screening criteria to select companies that…pay consistent quarterly cash dividends because such companies cannot be analyzed using the constant growth DCF model." I believe she meant that companies that do NOT pay consistent quarterly dividends cannot be analyzed with the DCF model. A company that pays erratic dividends may be modeled with a DCF analysis, but the analysis is far more complex and of a different nature than what either Ms. Bulkley or myself are proposing in this cause.

[3] The edits involve only including two tabs, and not including some tabs that are confidential. No information I am presenting in this attachment has been edited, but there was information provided in the discovery response that was not germane to this issue, and I am not including those portions/tabs of the spreadsheet. This was included in the response to OUCC Data Request 2-29.

1   has *not* missed any quarterly dividend payments, and in its most recent press release

2   announcing dividends, Dominion stated "[t]his is the 382nd consecutive dividend that

3   Dominion Energy or its predecessor company has paid holders of common stock."[4] This

4   is nearly a 100-year record of consecutive dividend payments. The dividend payment was

5   reduced from $0.94 in September of 2020 to $0.63 in December of 2020, but the dividend

6   was still paid, and is therefore appropriately analyzed within the DCF model.[5] Dominion

7   currently yielded 5.88% in the seven-day period prior to October 1, 2023 that I used in my

8   analysis, significantly higher than the proxy group in general. Higher dividend yields in

9   this model increase the resultant ROE.

10   **Q: Why did you include DTE Energy Company in your proxy group?**

11   A: Ms. Bulkley eliminated DTE from her proxy group because like Dominion, it lacked

12   dividends, and because of DTE's failure to derive at least 80% of its operating profit from

13   regulated electric operations. DTE appears to have made consistent dividend payments

14   since at least 2006, although it did cut the dividend in September 2021.[6] In DTE's press

15   release announcing the most recent dividend, the first line of the release stated the

16   "Company continues more than 100-year history of issuing cash dividend."[7]

17   Use of the second screening factor regarding the 80% of regulated income is more

18   nuanced. In this case, the total operating income from regulated operations (which Ms.

19   Bulkley uses as a filter at a minimum of 60%), is 102% for DTE, and the percentage of

20   regulated electric income to total income is 78.03%. Because DTE's regulated electric

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[4] https://news.dominionenergy.com/2023-08-02-Dominion-Energy-Declares-Quarterly-Dividend-of-66-75-Cents.
[5] See OUCC Attachment SD-3.
[6] See OUCC Attachment SD-4.
[7] https://ir.dteenergy.com/news/press-release-details/2023/DTE-Energy-issues-dividend

1   income is below 80%, it fails Ms. Bulkley's screening criteria. While I respect the desire

2   to establish rules as to what companies should be in the proxy group and which should not,

3   in this case, DTE deserves to be included as a valid proxy. Nearly 80% of the total income

4   is represented by electric operations, which is sufficient.[8] Under Ms. Bulkley's criteria, a

5   company could theoretically have less than half of its income from regulated sources, and

6   DTE is significantly above this threshold.[9]

7   **Q:**   **Why did you include Southern Company in your proxy group?**

8   A: Southern Company met 8 of the 9 criteria Ms. Bulkley established for her proxy group.

9   Southern did not derive at least 80% of its regulated operating income from electric

10   sources; similar to DTE, Southern derives 94.89% of its total income from regulated

11   sources (well above the 60% threshold established by Ms. Bulkley), and 79.22% of its

12   regulated income is derived from electric operations. These numbers taken in combination

13   result in a high enough portion of total income coming from regulated electric sources that

14   inclusion in the proxy group is appropriate.

15 **Q:**   **Did you ask I&M regarding Dominion's and DTE's dividend payment histories and**
16   **whether the two companies met the criteria for removal from the Proxy Group?**

17 A: Yes. In Attachment SD-5, I&M's response to OUCC DR 12-5, I&M stated that the actual

18   screening criteria included a requirement that no dividend reductions in the past three

19   years were permitted in the proxy group.

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[8] I do find the threshold of 60% of total operating income to be from regulated sources to be far too low. AEP is 97.34% per Ms. Bulkley's data, and 31 out of the 36 potential proxy members were above 90% on this metric. Since only Otter Tail at 48% was eliminated solely for failing this screen, moving this threshold up to a more reasonable level would not have changed the proxy group and I am therefore not addressing it, other than obliquely through the addition of DTE and Southern.

[9] 60% from regulated operations and 80% of regulated income from electric, results in .6*.8=.48 as a theoretical minimum.

RESPONSE

Ms. Bulkley's application of the "pays consistent quarterly dividend" screen requires that a company have consistently paid a dividend that has not been reduced over the last three years. Since Ms. Bulkley relied on market data through April 30, 2023 to develop the results of her cost of equity estimation models, for inclusion in her proxy group, a company was required to consistently pay a dividend that was not reduced over the period of May 2020 through April 2023. Dominion, DTE Energy, Excelon and PPL Corporation each reduced their dividends between May 2020 and April 2023 and therefore did not meet Ms. Bulkley's "pays consistent quarterly dividend" screen.

1   I would reject this definition of suitable dividends. The constant growth DCF model is

2   agnostic in terms of a company's previous history of dividend payments. The DCF model

3   relies on a starting point of current dividends and a future growth rate, both of which are

4   not affected by past dividend payment amounts. Analyzing past dividend actions and

5   incorporating these changes into the proxy group only serves to screen any companies with

6   past earnings shortfalls (which presumably would lead to dividend cuts), which essentially

7   would serve to gold plate the proxy group.

8   **Q: What is the impact of Ms. Bulkley removing these companies?**

9   A: Based on the data from September 29, 2023 and my preferred metrics, removing these

10   companies had the effect of increasing the ROE by approximately 28 basis points. This is

11   discussed further later in my testimony. I recommend the Commission adopt the proxy

12   Group I have used.

      B. The DCF Model

13   **Q: Please briefly explain the DCF model.**

14   A: The DCF model takes dividends from the proxy group and increases those payments by a

15   fixed percentage in perpetuity.[10] Because a dollar in the future is not worth as much as a

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[10] This is a broad description of the DCF in the context of a utility rate case. Not all DCF models are structured in perpetuity, involve dividends, involved growth only, etc.

1   dollar today, it discounts those payments back to the present-day value by using a discount

2   rate, which is the return on equity in this context.

3 **Q: Do you have detailed discussions of the DCF model in your appendices?**

4 A: Yes. Appendix C details the DCF structure.

5 **Q: How does your DCF model compare to Ms. Bulkley's?**

6 A: Both Ms. Bulkley and I prepared two versions of the Constant Growth DCF model, one of

7   which used mean calculations and the other of which used median calculations.[11] These

8   are essentially different presentations of the same model.

9   Our respective reasonable ranges of outcomes overlap significantly. My preferred

10   method (based on the 7-day average stock price, a blended future and historical growth

11   rate and discarding outliers) results in a mean ROE of 9.76% (with a range of 8.40%-

12   10.73%). Ms. Bulkley provides a range of 8.56%-11.06%. Her mean result is 9.80%.

13 **Q: What factors cause different Constant Growth DCF results from the two analyses?**

14 A: Ms. Bulkley and I have different inputs in four primary areas.

15   First, we have different proxy groups. The inclusion of the three companies

16   discussed above and my data for my preferred metric decreases the ROE by 28 basis

17   points.[12]

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[11] Each stock in Ms. Bulkley's proxy group has an ROE determined by the expected dividend yield and the lowest of the three earnings growth estimates she used (among Value Line, Yahoo! Finance, and Zacks), the average of the three, and the highest of the three. This provided her range. She then took all resultant ROEs determined by a specific method and averaged them (the mean), or took the median of these results.

[12] This is determined simply by deleting the ROE results in column AJ for the constant growth model tab of OUCC Attachment SD-1. The change is from 9.74% (or 9.76% after removing the outliers) to 10.02% (or 9.84% after removing the outliers. The change is thus 28 basis points (10.02%-9.74%) or 8 basis points (9.84-9.76%). Since Ms. Bulkley did not remove any outliers from her results, I am using the non-outlier adjusted numbers above.

1   Second, we use different resources to determine our growth estimates. I add S&P,

2   in addition to Yahoo!, Zacks and Value Line. This results in a more robust data set from a

3   reputable source and increases the ROE results by 26 basis points.[13]

4   Third, I included historical growth factors including earnings, book value and

5   dividends growth over the past five and ten years and used a weighted average of the results

6   of the forecasted earnings growth and the historical earnings growth. Overall, this

7   decreases the ROE by 21 basis points.[14]

8   Fourth, I do not eliminate all negative data points, either historical or forecasted,

9   but consider each of these results on a case-by-case basis. This results in a decrease of 15

10   basis points.[15]

11   As a minor point of difference, even when we used the same sources, my sources

12   are more updated than Ms. Bulkley's because my testimony was prepared later than hers,

13   resulting in slight differences in growth rates and dividend yields overall.

14   Although I disagree on the specific expected dividends, this difference is minimal.

15   I am using more updated numbers, as well as focusing on a 7-day average stock price rather

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[13] Average Growth for my proxy group as found on the Constant Growth DCF tab of OUCC Attachment SD-1 is 5.22% for Value Line, 5.42% for Yahoo!, 5.71% for Zacks and 5.83% for S&P. Deleting the S&P data found in column V, while leaving all other inputs the same, reduces the ROE on my preferred metric from 9.74% including outliers and 9.76% removing outliers, to 9.67% and 9.50% respectively. Since Ms. Bulkley didn't remove outliers in her testimony, the appropriate difference is an increase from 9.50% to 9.76%, or 26 basis points.

[14] This is determined by changing the formula in column AJ to use the growth numbers from the future earnings growth rate in column W rather than the blended growth rate found in column AE in Attachment SD-1, tab Constant Growth DCF. This changes the ROE for my preferred metric from 9.74% including outliers and 9.76% with outliers removed to 9.95% and 10.18% respectively. Again, since Ms. Bulkley did not incorporate outliers into her testimony, I am taking the difference of 9.95% and 9.74%, or 21 basis points.

[15] This is determined by deleting all cells that have a negative value that were not previously deleted (the Yahoo! growth estimate for OGE discussed elsewhere), specifically the growth estimates for Dominion from Yahoo and S&P and the Value Line Earnings growth over the last 10 years for Entergy, on tab Constant Growth DCF in OUCC Attachment SD-1. This changes the ROE on my preferred metric from 9.74% including outliers and 9.76% with outliers removed to 9.89% and 9.73% respectively. Since Ms. Bulkley did not remove outliers in her testimony, I am comparing an ROE of 9.74% to 9.89%. Note, this is the change by removing them entirely; if the results are changed, there would be a smaller change.

1   than Ms. Bulkley's preferred metrics (although all the metrics are provided in my

2   attachments). Timing is also a factor in the growth estimates.

3 **Q:**   **How did you determine the dividend yields you incorporated into your model?**

4 A: I sourced annual dividend information from Yahoo! Finance and used stock prices on

5   the spot market (on September 29, 2023, in this case), and the seven days prior to the

6   spot price (September 25 through September 29, 2023), the previous month, the

7   previous three months, and the previous six months. The dividend yields are adjusted

8   for growth via the half year model, which is discussed in Appendix C, and future yields

9   are used. Both Ms. Bulkley and I use this convention.

Table SD-4[16]

Company	Ticker	Annualized Dividend	Dividend Yield-Spot	Expected Dividend Yield-Spot	Dividend Yield-1 Week	**Expected Dividend Yield-1 Week**	Dividend Yield-1 Month	Expected Dividend Yield-1 Month	Dividend Yield-3 Months	Expected Dividend Yield-3 Months	Dividend Yield-6 Months	Expected Dividend Yield-6 Months
ALLETE, Inc.	ALE	$2.68	5.08%	5.24%	4.99%	**5.15%**	4.87%	5.03%	4.76%	4.92%	4.53%	4.68%
Alliant Energy Corporation	LNT	$1.81	3.74%	3.86%	3.69%	**3.81%**	3.58%	3.70%	3.49%	3.61%	3.43%	3.55%
Ameren Corporation	AEE	$2.52	3.37%	3.47%	3.30%	**3.40%**	3.20%	3.29%	3.09%	3.19%	3.01%	3.11%
Dominion	D	$2.67	5.98%	6.01%	5.85%	**5.88%**	5.65%	5.68%	5.37%	5.40%	5.13%	5.16%
DTE Energy	DTE	$3.81	3.84%	3.94%	3.76%	**3.86%**	3.67%	3.77%	3.54%	3.63%	3.48%	3.57%
Duke Energy Corporation	DUK	$4.04	4.58%	4.70%	4.47%	**4.59%**	4.42%	4.54%	4.41%	4.52%	4.34%	4.46%
Entergy Corporation	ETR	$4.28	4.63%	4.73%	4.58%	**4.68%**	4.48%	4.57%	4.39%	4.48%	4.25%	4.34%
Evergy, Inc.	EVRG	$2.45	4.83%	4.96%	4.77%	**4.89%**	4.60%	4.71%	4.31%	4.42%	4.18%	4.29%
IDACORP, Inc.	IDA	$3.16	3.37%	3.45%	3.32%	**3.40%**	3.29%	3.36%	3.20%	3.27%	3.06%	3.13%
NextEra Energy, Inc.	NEE	$1.87	3.26%	3.41%	3.04%	**3.18%**	2.83%	2.96%	2.70%	2.82%	2.58%	2.70%
NorthWestern Corporation	NWE	$2.56	5.33%	5.44%	5.24%	**5.35%**	5.08%	5.19%	4.80%	4.90%	4.58%	4.68%
OGE Energy Corporation	OGE	$1.67	5.01%	5.13%	4.94%	**5.06%**	4.83%	4.94%	4.76%	4.87%	4.65%	4.75%
Pinnacle West Capital	PNW	$3.46	4.70%	4.82%	4.63%	**4.76%**	4.51%	4.63%	4.36%	4.48%	4.35%	4.47%
Portland General Electric	POR	$1.90	4.69%	4.83%	4.57%	**4.70%**	4.39%	4.52%	4.19%	4.31%	4.01%	4.12%
Southern Co.	SO	$2.76	4.26%	4.38%	4.15%	**4.26%**	4.04%	4.14%	3.98%	4.08%	3.91%	4.02%
Xcel Energy	XEL	$2.08	3.64%	3.74%	3.60%	**3.71%**	3.60%	3.71%	3.46%	3.56%	3.28%	3.38%
Mean			**4.39%**	**4.51%**	**4.31%**	**4.42%**	**4.19%**	**4.30%**	**4.05%**	**4.15%**	**3.92%**	**4.02%**
Median			4.60%	4.71%	4.52%	**4.63%**	4.41%	4.53%	4.25%	4.37%	4.09%	4.20%

10   The expected dividend yields for the proxy group as a whole range from 4.02% (calculated

11   on the six-month average stock price) to 4.51% (calculated on the spot stock prices) if

12   calculated on a mean basis. Calculating on a median basis results in a range of 4.20%

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[16] This table is a presentation of data on tab Constant Growth DCF in OUCC Attachment SD-1, with some columns hidden.

1   (calculated on stock prices over the previous 6 months) to 4.71% (calculated on the spot

2   price).

3 **Q: What are your inputs for the forecasted growth?**

4 A: Please see table SD-5 below.

Table SD-5

Company	Ticker	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	S&P Earnings Growth (Mean)	Average Future Earnings Growth Rate
ALLETE, Inc.	ALE	6.00%	8.10%	8.10%	7.76%	**7.49%**
Alliant Energy Corporation	LNT	6.50%	6.80%	6.47%	6.18%	**6.49%**
Ameren Corporation	AEE	6.50%	5.90%	6.43%	7.17%	**6.50%**
Dominion	D	2.50%	-3.44%	4.00%	-0.66%	**0.60%**
DTE Energy	DTE	4.50%	5.10%	6.00%	6.80%	**5.60%**
Duke Energy Corporation	DUK	5.00%	6.45%	6.09%	6.03%	**5.89%**
Entergy Corporation	ETR	0.50%	6.60%	5.65%	6.76%	**4.88%**
Evergy, Inc.	EVRG	7.50%	2.67%	5.20%	5.18%	**5.14%**
IDACORP, Inc.	IDA	5.00%	3.70%	3.68%	5.64%	**4.51%**
NextEra Energy, Inc.	NEE	9.50%	8.80%	8.38%	8.86%	**8.89%**
NorthWestern Corporation	NWE	3.50%	3.66%	5.16%	5.07%	**4.35%**
OGE Energy Corporation	OGE	6.50%		3.65%	3.70%	**4.62%**
Pinnacle West Capital	PNW	2.50%	7.50%	6.46%	6.48%	**5.74%**
Portland General Electric	POR	5.00%	5.90%	6.02%	6.76%	**5.92%**
Southern Co.	SO	6.50%	7.30%	4.00%	5.59%	**5.85%**
Xcel Energy	XEL	6.00%	6.30%	6.07%	5.98%	**6.09%**
Mean		**5.22%**	**5.42%**	**5.71%**	**5.83%**	**5.53%**
Median		5.50%	6.30%	6.01%	6.11%	**5.79%**

5 **Q: What are your inputs for your historical growth calculations?**

6 A: Please see Table SD-6 below.

Table SD-6

Company	Ticker	Value Line- Earnings Growth- Last 5 Years	Value Line- Earnings Growth- Last 10 Years	Value Line- Book Value Growth-Last 5 Years	Value Line- Book Value Growth- Last 10 Years	Value Line- Dividend Growth- Last 5 Years	Value Line- Dividend Growth- Last 10 Years	**Average Historical Growth Rate**
ALLETE, Inc.	ALE	0.50%	3.00%	3.00%	4.50%	3.50%	3.50%	**3.00%**
Alliant Energy Corporation	LNT	8.00%	6.00%	7.00%	6.00%	6.50%	6.50%	**6.67%**
Ameren Corporation	AEE	8.00%	4.00%	5.50%	2.00%	5.00%	3.50%	**4.67%**
Dominion	D	2.50%	3.00%	5.50%	4.50%	0.50%	4.00%	**3.33%**
DTE Energy	DTE	2.50%	4.00%	1.50%	3.00%	5.50%	5.50%	**3.67%**
Duke Energy Corporation	DUK	4.50%	3.00%	1.00%	2.00%	3.50%	3.00%	**2.83%**
Entergy Corporation	ETR	1.50%	-0.50%	4.00%	1.50%	2.50%	1.50%	**1.75%**
Evergy, Inc.	EVRG							
IDACORP, Inc.	IDA	4.00%	4.00%	4.50%	5.00%	6.50%	8.50%	**5.42%**
NextEra Energy, Inc.	NEE	11.00%	8.00%	7.50%	8.00%	12.00%	11.00%	**9.58%**
NorthWestern Corporation	NWE	1.00%	3.50%	4.50%	6.00%	4.00%	5.50%	**4.08%**
OGE Energy Corporation	OGE	4.50%	3.00%	1.50%	4.00%	6.50%	7.50%	**4.50%**
Pinnacle West Capital	PNW	3.50%	4.50%	4.00%	4.00%	5.50%	4.00%	**4.25%**
Portland General Electric	POR	5.00%	4.00%	3.00%	3.00%	6.00%	5.00%	**4.33%**
Southern Co.	SO	3.00%	3.00%	2.50%	3.00%	3.50%	3.50%	**3.08%**
Xcel Energy	XEL	6.00%	5.50%	5.50%	5.00%	6.00%	6.00%	**5.67%**
Mean		**4.37%**	**3.87%**	**4.03%**	**4.10%**	**5.13%**	**5.23%**	**4.46%**
Median		4.00%	4.00%	4.00%	4.00%	5.50%	5.00%	**4.25%**

1 **Q: What are your inputs for your overall growth calculations?**

2 A: Please see Table SD-7 below.

Table SD-7

Company	Ticker	Average Future Earnings Growth Rate	Average Historical Growth Rate	Overall Growth Rate (80% Future Earnings, 20% Historical)
ALLETE, Inc.	ALE	7.49%	3.00%	6.59%
Alliant Energy Corporation	LNT	6.49%	6.67%	6.52%
Ameren Corporation	AEE	6.50%	4.67%	6.13%
Dominion	D	0.60%	3.33%	1.15%
DTE Energy	DTE	5.60%	3.67%	5.21%
Duke Energy Corporation	DUK	5.89%	2.83%	5.28%
Entergy Corporation	ETR	4.88%	1.75%	4.25%
Evergy, Inc.	EVRG	5.14%		5.14%
IDACORP, Inc.	IDA	4.51%	5.42%	4.69%
NextEra Energy, Inc.	NEE	8.89%	9.58%	9.02%
NorthWestern Corporation	NWE	4.35%	4.08%	4.29%
OGE Energy Corporation	OGE	4.62%	4.50%	4.59%
Pinnacle West Capital	PNW	5.74%	4.25%	5.44%
Portland General Electric	POR	5.92%	4.33%	5.60%
Southern Co.	SO	5.85%	3.08%	5.29%
Xcel Energy	XEL	6.09%	5.67%	6.00%
Mean		5.53%	4.46%	5.33%
Median		5.79%	4.25%	5.29%

1 **Q:** **To estimate the dividend growth (g) for your DCF analysis, did you include negative**
2 **growth rates, or zero growth rates?**

3 A: Yes. There are three instances of forecasted negative earnings growth. Two of these are for

4 Dominion (Yahoo! projects -3.44% and S&P projects -0.66%). This is appropriate because

5 the other two also show a low growth rate (Value Line at 2.5% and Zacks at 4.0%), and

6 the overall projected growth rate of 0.60% is found by including all of the estimates. This

7 is more reasonable than eliminating the two negative numbers and using a growth estimate

1   of 3.25%, since the market is expecting growth of closer to 0.60% on average rather than

2   3.25%.

3   The other instance is more problematic. Yahoo! has an estimate of -12.34% growth

4   (negative growth) for OGE Energy Corporation, while Value Line is at 6.50% growth, and

5   Zacks and S&P are at 3.65% and 3.70% respectively. In Ms. Bulkley's data, the results

6   were 6.50% for Value Line, negative for Yahoo! (no number given) and 10.20% for Zacks.

7   Ms. Bulkley eliminated the negative number from consideration and used an average

8   growth rate of 8.35%. I delete the Yahoo! Forecast from consideration, and therefore use

9   an average growth rate of 4.62%. The change in ROE from this single adjustment is

10   approximately 21 basis points. Outliers like this show that these estimates are not meant to

11   be long term growth projections; in the case of Yahoo!, the estimate is 3-5 years.

12 **Q:**   **Has the Commission commented on what inputs parties should use in their analyses?**

13 A: Yes. In Cause No. 40103, the Commission encouraged parties to exercise sound judgment

14   when deciding which inputs to include in their analyses.[17] Instead of discouraging the use

15   of all negative growth rates, by encouraging the use of sound judgment, the Commission

16   discouraged cherry-picking inputs to reach a certain result. In this case, it is reasonable to

17   use negative forecasted growth numbers from one utility, where the overall average

18   remains positive.

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[17] In its final Order in Cause No. 40103, the Commission stressed the need to make sound judgments when selecting inputs in cost of equity analyses:

> In all cases, however, the Commission expects the parties to exercise sound judgment when deciding which inputs to include as part of their analysis. In this case, the inclusion of negative growth rates for certain earnings and book value per share data by the OUCC biased the derivation of its growth rates downward. On the other hand, the Petitioner's sole reliance on Value Line's 10-year dividend growth rate data had the opposite effect.

In re Ind. Amer. Water Co., Cause No. 40103, Final Order, pp. 40 - 41 (Ind. Util. Regul. Comm'n May 30, 1996) (emphasis in original).

1   There is also a negative growth rate incorporated into the historical growth numbers

2   for Entergy of -0.50% for earnings growth over the past 10 years. It is reasonable to include

3   this, especially since the overall historical growth rate for Entergy is 1.75%. I am also

4   keeping 11% and 12% historical growth rates for NextEra, since these are not outliers. I

5   used all available historical numbers in a wide range, reaching a reasonable result.

6   The negative number is only one of the 96 numbers that were combined for the

7   average historical growth rate. It is not sound judgment to remove certain, very limited

8   points of data simply because the data is slightly on the "wrong side" of zero.

9   However, when checking for outliers on the resultant ROEs for my preferred

10   metric, the anticipated 95% confidence interval is between 7.38% and 12.11%. Since both

11   Dominion (7.03%) and Next Era (12.21%) fall outside of this range, my recommended

12   results for the mean ROE based on the 7-day stock price and preferred inputs eliminated

13   these two companies from consideration. This results in an increase of 2 basis points to the

14   overall ROE for this calculation, from 9.74% to 9.76%.

15 **Q: Please explain your preferred inputs.**

16 A: I prefer using the following inputs:

17   (1) a 7-day average price to determine the yield of a stock;

18   (2) using all forecasted "long-term" earnings growth estimates on an equal

19   weighting;

20   (3) calculating historical growth measures equally weighted between dividends,

21   book values, and earnings for both 5- and 10-year historical periods (i.e. giving

22   each factor a 1/6 weighting); and

23   (4) blending the forecast and historical growth figures at an 80%/20% weighting.

1   Finally, the mean is a better approach to calculating the ROE, as the median is more

2   appropriate when outliers are present. In my professional opinion, analysts should discard

3   significant outliers, rather than relying on a median presentation of the results. Seven-day

4   stock prices reflect the best balance between the current market price, while addressing

5   day to day volatility that may result from using only the spot (or current) price. Using all

6   analysts as equally valid sources of forecasted growth is appropriate and alleviates

7   potential bias concerns, and incorporating historical growth numbers is consistent with past

8   Commission practice and provides a grounding to the forecasts. A 20% weighting of the

9   historical numbers is appropriate, because the purpose of this model is to forecast future

10   growth, not historical.

11 **Q: What are the results of your Constant Growth DCF model?**

12 A: My DCF results in a recommended ROE of 9.76% on a mean basis.[18] The same results

13   calculated in a median fashion result in a 9.68% ROE, and the overall range is 8.40%-

14   10.73%. I arrived at this range by incorporating extreme scenarios, i.e., taking only the

15   lowest growth rate from any of the four sources for each proxy company (so the lowest

16   may be S&P for one company but Zacks for another). I then took the lowest dividend yield

17   for all time periods for each individual company (which for each company may be the spot

18   price, a 1 week, a 1 month, a 3 month or a 6 month) to determine the low end of the range.

19   The high and low ranges are the result of torturing the data to arrive at the lowest possible

20   result regardless of consistency. A more reasonable range of results reviews the dot plot in

21   Table SD-1 above and sees where different assumptions on yields or interest rates lay. The

22   data on results other than my preferred metric may be found in OUCC Attachment SD-1.

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[18] This number also reflects the removal of outlier results in the data, as discussed elsewhere.

1   Please see table SD-3 below.

Table SD-3[19]

Company	Ticker	Annualized Dividend	Stock Price-7 Days	Expected Dividend Yield-1 Week	Average Future Earnings Growth Rate	Average Historical Growth Rate	Overall Growth Rate (80% Future Earnings, 20% Historical)	Mean ROE-7 Day Stock Price
ALLETE, Inc.	ALE	$2.68	$53.74	5.15%	7.49%	3.00%	6.59%	11.74%
Alliant Energy Corporation	LNT	$1.81	$49.07	3.81%	6.49%	6.67%	6.52%	10.33%
Ameren Corporation	AEE	$2.52	$76.36	3.40%	6.50%	4.67%	6.13%	9.53%
Dominion	D	$2.67	$45.65	5.88%	0.60%	3.33%	1.15%	7.03%
DTE Energy	DTE	$3.81	$101.25	3.86%	5.60%	3.67%	5.21%	9.07%
Duke Energy Corporation	DUK	$4.04	$90.29	4.59%	5.89%	2.83%	5.28%	9.87%
Entergy Corporation	ETR	$4.28	$93.48	4.68%	4.88%	1.75%	4.25%	8.93%
Evergy, Inc.	EVRG	$2.45	$51.38	4.89%	5.14%		5.14%	10.03%
IDACORP, Inc.	IDA	$3.16	$95.05	3.40%	4.51%	5.42%	4.69%	8.09%
NextEra Energy, Inc.	NEE	$1.87	$61.43	3.18%	8.89%	9.58%	9.02%	12.21%
NorthWestern Corporation	NWE	$2.56	$48.85	5.35%	4.35%	4.08%	4.29%	9.65%
OGE Energy Corporation	OGE	$1.67	$33.79	5.06%	4.62%	4.50%	4.59%	9.65%
Pinnacle West Capital	PNW	$3.46	$74.71	4.76%	5.74%	4.25%	5.44%	10.20%
Portland General Electric	POR	$1.90	$41.60	4.70%	5.92%	4.33%	5.60%	10.30%
Southern Co.	SO	$2.76	$66.47	4.26%	5.85%	3.08%	5.29%	9.56%
Xcel Energy	XEL	$2.08	$57.70	3.71%	6.09%	5.67%	6.00%	9.72%
Mean				**4.42%**	**5.53%**	**4.46%**	**5.33%**	**9.74%**
Median				4.63%	5.79%	4.25%	5.29%	9.68%
Mean-Less Outliers								9.76%

2   **Q: What is the biggest weakness of the Constant Growth DCF model, and how did you**
3   **compensate for that weakness?**

4   A: The primary issue when implementing the Constant Growth DCF model is selecting the

5   appropriate growth rate. First, there can be significant differences in the inputs used to

6   determine the current growth rate. Second, the "long-term" earnings estimates are intended

7   by analysts to cover forecasts between three and five years. However, the model projects

8   those earnings estimates indefinitely. This constant growth is a simplifying assumption,

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[19] This table is a presentation of select data on tab Constant Growth DCF of OUCC Attachment 1, with some columns hidden for presentation purposes.

1   but it is obviously flawed if it forecasts a company to grow faster than the entire U.S.

2   economy in perpetuity.[20] I addressed this weakness by using a 2-stage model.

3 **Q: Please explain the 2-stage DCF model.**

4 A: A 2-stage DCF model addresses the tension between the intermediate term analyst

5   projections and the long-term to which those projections are applied and which the model

6   uses to determine a value.[21] The model does this by using one growth rate for the initial

7   stage, and a second growth rate for the terminal (or long-run) stage.

8 **Q: Did you run a 2-stage DCF model?**

9 A: I calculated three different 2-stage DCF models. I created two models with the

10   assumptions described below, calculated with both mean and median inputs. I also

11   calculated a model modifying Ms. Bulkley's single stage inputs - specifically those

12   that she used to calculate the market return for her CAPM analysis.

13 **Q: What assumptions did you make for the 2-stage DCF model?**

14 A: I used the same initial dividends and growth inputs I used for the constant growth model,

15   based on appropriate inputs of dividends calculated over 7-day average stock prices, the

16   weighted growth rate incorporating forecasts, and historical data. I set the period of the

17   first (initial) phase for 15 years. I used the current estimates of nominal GDP growth for

18   growth in the second (terminal) phase. Appendix C offers further details. The results are

19   as follows.

Table SD-9

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[20] This is addressed in more detail later in my testimony. I will also acknowledge that it is also inherently flawed to assume that at a specific point in the future, the growth will suddenly change to a different growth rate, which it will maintain exactly in perpetuity. Simplifying assumptions are present in each of these models, but the 2-stage model is more reflective of reality as it must be than the constant growth model.

[21] By intermediate term, I am referring to the 3- to 5-year time period that these earnings forecasts are generally covering. Long-term means periods beyond that, but especially out beyond 15-20 years, to hundreds of years in the future.

	Median OUCC Recommended Inputs	Mean OUCC Recommended Inputs	
Price	100.00	100.00	
Current DPS	4.52	4.31	Current Dividend percentage , mean, based on one week average stock price
Growth rate, 1st Stage	5.29%	5.33%	Overall Weighted Growth Rate
Growth rate, 2nd Stage	3.86%	3.86%	Nominal GDP growth
Years in 1st stage	15	15	Number of Years the 1st Stage Growth Rate applies
COE (r)	9.24%	9.02%	

1 **Q: Please explain the inputs in your 2-stage DCF models.**

2 A: For the first calculation I used the mean dividend per share of 4.31% established in my

3 Constant Growth (single-stage) DCF model previously. This was based upon the one-

4 week average stock price and the annualized current dividends sourced from Yahoo!

5 Finance for my proxy group.

6 Then I used an overall growth rate of 5.33%, which is the overall growth rate I

7 used in the Constant Growth DCF model previously derived. The Constant Growth

8 DCF model was calculated with mean inputs from an 80% weighting of earnings

9 growth estimates from four different sources and a 20% weighting for historical

10 growth factors (5 and 10 years, for earnings, book value, and dividends, respectively)

11 from Value Line.

12 I assumed the first phase of my 2-stage model lasted for 15 years,

13 approximately 3-4 times as long as the time period the analysts covered. It is

14 reasonable to assume that these estimates will not immediately fall to a lower rate.

15 Therefore, 15 years would be reasonable and would represent a substantial amount of

16 time for the first stage before the growth rates transition to the second stage. There is

17 research that shows the market treats these estimates as covering a period of

18 approximately 5-10 years, or approximately half the number of years I am assuming,

19 so the assumption of 15 years is longer than may be supported (and would lead to a

1   higher ROE than a shorter first period).[22]

2   My long-term growth rate was assumed to be 3.86%, approximately the rate of

3   long-term nominal GDP growth, which serves as a theoretical growth ceiling in the

4   long-term for company growth.[23] The inputs resulted in a k value (ROE) of 9.02%.

5   For the second calculation, the process was the same, except the inputs were based on

6   the median values for dividend yield (4.52%) and growth (5.29%). This results in a k

7   value (ROE) of 9.24%.[24]

8 **Q:**   **You also completed a 2-stage DCF analysis based on Ms. Bulkley's preferred**
9   **inputs for her CAPM. Please explain your methodology.**

10 A: Ms. Bulkley's CAPM analysis used an estimated market return of 12.00%, which consisted

11   of a dividend yield of 1.73% and a growth estimate of 10.19% (see Attachment AEB-7).

12   This growth estimate is far in excess of long-term nominal GDP growth and is thus

13   unsustainable in the long run. Using her inputs of a 10.19% growth and 1.73% dividend

14   yield, with a 15-year term for the first stage and a 3.86% growth for the terminal phase,

15   results in an ROE of 7.56%. *See* Attachment SD-1, tab "2 Stage DCF for Market Return".

16   This return is much more reasonable and in line with the estimates from other market

17   forecasters (7.04% as discussed in the CAPM portion of my testimony).

18 **Q:**   **Please summarize your disagreements with Ms. Bulkley's DCF analysis.**

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[22] "The estimated coefficients on consensus long-term growth forecasts suggest that the market applies these forecasts to an average horizon somewhere in the range of 5 to 10 years. Thus, these growth forecasts are more important for valuation than assumed in the many applications that treat them as 3-to-5 year forecasts, though far less influential than forecasts of growth into perpetuity." "How does the Market Interpret Analyst's Long-term Growth Forecasts?" p, 2, Steven Sharpe, Division of Research and Statistics of the Federal Reserve Board, April, 2004.

[23] The CBO estimates 3.7% nominal GDP growth from 2023-2052, in Long-Term Economic Projections, found here: https://www.cbo.gov/data/budget-economic-data#4. The Federal Reserve estimates 3.8%, from figure 1 "Longer Run change in GDP" median estimate of 1.8% for real GDP and 2.0% for PCE longer run inflation, here : https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20230614.pdf. The average of these two estimates is 3.75%.

[24] Calculations may be found in Attachment SD-1, tab "Two-Stage DCF."

1   A: Ms. Bulkley and I both use only two inputs to the DCF analyses. Ms. Bulkley provides

2   30-day, 90-day, and 180-day stock prices to calculate dividend yield and treats these all

3   equally in her calculations.

4   However, I provide these data points, the spot price, and the one-week inputs. I

5   provide a recommendation based upon preferential inputs, as opposed to Ms. Bulkley

6   offering a range.

7   For the single phase DCF, a dividend yield based on a full week of stock prices is

8   more appropriate. Furthermore, the stock prices in November of last year are not relevant

9   in a significant way to the determination of the current dividend yield. Although my data

10   is more current since my testimony has been prepared later, the gap in this case is five

11   months (Ms. Bulkley's data was selected as of April 30, 2023, and mine as of September

12   29, 2023; the November 2022 reference is to data included in her analysis). Consistent with

13   the efficient market hypothesis, a full week of stock prices is sufficient to alleviate

14   significant volatility and arrive at the market's best estimate of the future estimated yield.

15   Using a 7-day average in this case results in a higher yield than using a 6-month average,

16   or a 1-month or 3-month average. The dividend yield difference between a 7-day and a 6-

17   month calculation in this case is 40 basis points (expected yield of 4.42% vs. 4.02%).

18   While we both express both a mean and median for the DCF, I prefer the mean,

19   because it is a more appropriate way to reflect the inputs. (If there is a very significant

20   outlier, the analyst should address that, rather than accepting the median as the proper

21   result.) One purpose of using a median as opposed to a mean is that it eliminates aberrations

22   caused by outliers. In this process, outliers are excluded by another method. They are not

23   included in the proxy group, or the outlier may be addressed by another means.

1   In her rebuttal in another case,[25] Ms. Bulkley argued that outliers should be treated

2   via a statistical method (95% confidence interval). I accept this as constructive feedback

3   and have implemented that change in my ROE calculations, resulting in the removal of

4   Next Era on the high end and Dominion on the low end in both my preferred metric and in

5   some others (specifically the spot and 1-month calculations; in the 3-and 6-month

6   calculations, only Dominion was removed as an outlier). Ms. Bulkley did not remove the

7   outliers in her analysis, and her DCF incorporates outliers (as she defined in Commission

8   Cause No. 45870) of a 95% confidence interval. Doing so would have altered her DCF

9   model on a mean basis for the 30-day constant growth for the low ROE from 8.52% to

10   8.85% (by eliminating the outlier of Entergy), her Mean ROE from 9.76% to 9.49% (by

11   eliminating the outlier of OGE), and her high ROE from 11.03% to 11.00% (by eliminating

12   the outliers of both IDACORP and OGE Energy). *See* Attachment SD-1.

13   Finally, I calculated extreme ranges of my potential ROE by incorporating on the

14   low end both the lowest dividend yield (based on the average price of the individual stocks

15   over various time periods) and the lowest estimated growth rate. This is an extremely

16   conservative approach, but it provides a range. I did the opposite for the high end of the

17   range. Ms. Bulkley based her high and low estimates on the 30-day, 90-day, and 180-day

18   ranges, and used the lowest growth. This method should produce similar results for both

19   of us, although since I used additional time periods, my range would potentially be wider.

20   This is because I considered the lowest or highest results from a wider variety of potential

21   inputs; since the lowest result was the spot price, it did lower the range in my analysis.

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[25] *In re Ind. Amer. Water*, Cause No. 45870. As of the date of this testimony, the case has been fully briefed and is awaiting a decision before the Commission.

1   Due to the method of calculating this range, the usefulness of the extremes of this

2   range are significantly limited. Further, Ms. Bulkley did not use historical growth rates in

3   her calculation. While the earnings forecasts are more important, historical results carry

4   weight. So, I weighted these with 20% of my estimate of growth. The Commission in the

5   past has encouraged the use of historical inputs (as shown in Appendix F). Ms. Bulkley

6   and I also disagree on the appropriate composition of the proxy group, which will affect

7   the results.

8   **Q:** **What range of estimated costs of equity does Ms. Bulkley propose for her DCF**
9   **models and how does this contrast to your outputs?**

10 A: Ms. Bulkley proposes a range of estimated cost of equity of 8.56% to 11.06%. Based on the

11   average growth rate, her estimate is 9.80% for her mean model and 9.68% for her median

12   model. My results recommend 9.76% for the mean (my preferred metric) and 9.68% for the

13   median. My range is between 8.40%-10.73% for the mean and 8.42% to 10.58% for the

14   median. I also used 2-stage modeling, which results in a recommendation of 9.02% based on

15   mean inputs and 9.24% based on median inputs.

16 **Q:** **Summarize your comments on Ms. Bulkley's estimates of growth (g).**

17 A: The goal in estimating growth (g) in the DCF model is to derive a reasonable long-term

18   or sustainable estimate of growth in dividends. Ms. Bulkley's DCF analysis relies

19   exclusively on intermediate term forecasts in EPS to estimate the growth in her DCF

20   model. Even assuming that there is no upward bias in analyst estimates, the estimates

21   used by Ms. Bulkley are still intermediate, not long-term forecasts, and therefore are

22   more likely to be unsustainable over the longer term. Ms. Bulkley's overly optimistic

23   growth rates (g) overstate the results of her DCF analysis. I used these same estimates,

1   but tempered this data with historical results, and addressed this concern by also using

2   a 2-stage model, which Ms. Bulkley did not perform.

3   **Q:**   **Is it outdated to say that analysts' forecasts are optimistic?**

4   A: No. See Appendix D and E for a further discussion on potential bias in analyst forecasts.

5   **Q:**   **Does Ms. Bulkley make any statements about the current valuation of utility stocks?**

6   A: Yes. Ms. Bulkley expresses concerns that utility stocks are currently overvalued, making

7   her DCF analysis not as reliable as it otherwise would be.[26]

8   **Q:**   **Do you agree with Ms. Bulkley's opinion?**

9   A: I do not. I do not fundamentally disagree that interest rates will affect utility stocks, as they

10   are traditionally considered low-risk stocks that are owned for their yield. However,

11   generally, market participants understand this relationship, and it is the movement of

12   interest rates that cause this, not the absolute level. If Ms. Bulkley is arguing that utility

13   stocks will continue to drift lower because interest rates will remain elevated, she fails to

14   recognize that the market can respond to changes instantaneously; it doesn't take months,

15   especially not for an intuitive phenomenon. The Commission should not give weight to an

16   analyst's statement that the market is wrong on a market sector. For every seller of a utility

17   stock, there is a buyer. Presumably, for each trade, a seller believes the stock is overvalued

18   and a buyer believes the stock is undervalued. A market price balances these opinions. Ms.

19   Bulkley may fall on the side of the seller who believes the stocks are overpriced, but her

20   opinion carries no more weight than all the current utility stockholders.

21   I reviewed analyst estimates for the stocks in my proxy group. These results are in

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[26] Ms. Bulkley's Direct Testimony, section V.D, page 20-27. I am paraphrasing, but Ms. Bulkley discusses how utility stocks are over-valued and are primed for a decline. She concludes that "expected change in market conditions supports consideration of the higher end of the range of cost of equity results produced by the DCF models. Moreover, prospective market conditions warrant consideration of forward-looking cost of equity estimation models, such as the CAPM and ECAPM, which may better reflect expected market conditions." *Id.*, pp. 26-27.

1   Attachment SD-1, at the tabs for Value Line, Yahoo! Finance and S&P. To summarize,

2   there are 16 companies in my proxy group. Value Line considers the average "Timeliness"

3   rating on these stocks to be 3.38 out of five, which is basically average. S&P provides an

4   average recommendation of 2.34 (2 being outperform and 3 being hold), or generally

5   slightly closer to an outperform rating than a hold. Yahoo! Finance has an average rating

6   of 2.43 (similar to S&P, although slightly lower). For Yahoo!, the lowest analyst target for

7   a stock price is above the current stock prices, and the average analyst target stock price is

8   12.04% higher than the current stock price. It is hard to reconcile average to above-average

9   stock ratings with being clearly overvalued and potentially invalidating one of our core

10   models for determining cost of equity.

11   Further, interest rates have risen since Ms. Bulkley's testimony was prepared, and

12   potentially for this reason, the stock prices of the utility sector as a whole are down

13   significantly. As an overview of the utility sector and using the price of the Vanguard

14   Utilities Index Fund (VPU), the price has fallen from $149.97 on April 28, 2023 (Ms.

15   Bulkley used stock prices from April 30, which is a Sunday) to $127.54 on September 29,

16   2023, when I locked in the prices for my testimony.[27] This is a drop of approximately 15%.

17   In this same period of time, the S&P 500 (as represented by the SPY stock ticker) increased

18   approximately 3.5%.[28] Although I disagree with Ms. Bulkley about the reasons for this

19   divergence, utility stocks have fallen significantly vs. the market. The drops in stock prices

20   are reflected in the DCF models via higher dividends, and it is unreasonable to authorize a

21   higher return on equity based on the assumption that this trend will continue.

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[27] https://finance.yahoo.com/quote/VPU/history?p=VPU
[28] https://finance.yahoo.com/quote/SPY/history?p=SPY, the relevant numbers are $412.93 in April and $427.48 in September.

1   **Q:**   **Are there any other differences in approach to market price determination between**
2   **Ms. Bulkley and yourself?**

3   A: Yes. Ms. Bulkley relies on longer time frames for "the market price." I place more reliance

4   on the efficient market hypothesis ("EMH"), which states that, in essence, all publicly

5   available information is reflected in a security's price.[29] Ms. Bulkley implicitly disregards

6   this principal by stating that utility stocks are overvalued, the prices will eventually come

7   down, and that this therefore means the DCF models cannot be relied upon.[30]

8   It is perhaps coincidence that the DCF models produce the lowest ROE calculations

9   in her testimony. Regardless, Ms. Bulkley's assumption that utility stock prices are

10   overvalued should not be used as a basis to discredit or discount the DCF model, or be used

11   as a basis for a decision on an appropriate, reasonable ROE. The efficient market

12   hypothesis is a bedrock principal upon which both the DCF model and the CAPM rest.

13   Without this assumption, these models lose their validity. If one does not believe the

14   market provides rational pricing, it follows there cannot be reliance on those models. It is

15   illogical to rely on the DCF model and CAPM without consistently following their

16   precepts.[31] Further, utility prices have fallen when compared to the market since Ms.

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[29] I do not subscribe to the strongest form of this model, but what is generally referred to as the semi-strong form, which is the belief that prices reflect not only past prices but all other published information, such as earnings and dividends announcements, forecasts of earnings, accounting changes and mergers. This does not mean the price discovery is instantaneous (which is why I use 7 days as my preferred threshold for pricing metrics), but I do not believe this price discovery mechanism would take months.

[30] See, for instance, Ms. Bulkley's Direct Testimony, page 6, line 13. "[I]t is likely that utility share prices will decline.", and page 24, line 8-10 "if the prices of utility stocks decline, then the DCF model, which relies on historical averages of share prices to calculate the dividend yield, is likely to understate the dividend yield and thus the cost of equity.", or page 26, line 18-20 "The expected underperformance of utilities means that DCF models using recent historical data likely underestimate investor's required returns over the period that rates will be in effect."

[31] "Modern Academic finance is built on the proposition that markets are fundamentally rational. The foundational model of market rationality is the CAPM. The Implications of rejecting market rationality as encapsulated by the CAPM are very considerable. In capturing the idea that markets are inherently rational, the CAPM has made finance an appropriate subject for econometric studies." Dempsey, Michael J. "The Capital Asset Pricing Model (CAPM): The History of a Failed Revolutionary Idea in Finance?" *Abacus* 49, Supplement (2013): 7.

1   Bulkley filed her testimony, which would tend to invalidate any residual credence the

2   reader might give to this assumption. This issue is discussed in more depth later in my

3   testimony.

4   Although Ms. Bulkley relies on the DCF model (and thus, implicitly the EMH)

5   when determining her growth rate for the S&P 500 in her CAPM calculations, she insists

6   it should be disregarded in the context of utilities because of her premise that utility stocks

7   are "overvalued." I disagree with this premise. When buying and selling, market

8   participants make judgments as to what individual stocks they believe are overvalued or

9   undervalued. For every buyer, there is a seller, and hence, generally for everyone who

10   believes a stock is overpriced and is thus willing to sell, there is someone willing to buy

11   that stock, and hence believes the stock is underpriced. This is what makes a market; buyers

12   and sellers arriving at a market clearing price.

C. Capital Asset Pricing Model

13 **Q: Please explain the Capital Asset Pricing Model (CAPM).**

14 A: Briefly, the CAPM takes the current risk-free rate of interest and adds an amount based on

15   the expected additional return for holding equity vs. risk-free debt. This excess return is

16   then modified by the riskiness of the equity (or equities) being examined vs. the market.

17 **Q: Do you have detailed discussions of the CAPM in your appendices?**

18 A: Yes. Appendix G details the structure of the CAPM and the calculation of specific inputs.

19 **Q: What inputs are required for the CAPM?**

20 A: The CAPM relies on (1) a determination of the risk-free rate of interest; (2) the equity risk

21   premium (i.e., the amount of excess returns an investor expects investing in equities instead

1   of risk-free bonds), and (3) Beta, which is a measure of risk relative to the market as a

2   whole.[32]

3   **Q: How did you determine the risk-free rate of interest?**

4   A: I calculated the risk-free rate of interest for a variety of time periods and for both ten-year

5   and thirty-year maturities.

Table SD-10

Interest Rates-as of September 29, 2023

	Spot	7-Day	Average Yield Over			
			1 Month	3 Month	6 Month	Long Term Forecast
10 Year Treasury Yield	4.59%	4.58%	4.35%	4.14%	3.87%	3.54%
30 Year Treasury Yield	4.73%	4.71%	4.45%	4.23%	4.02%	3.83%

6   **Q: What is your preferred risk-free rate?**

7   A: Although it is the second highest interest rate in Table SD-10, I prefer the 7-day average

8   yield on the 30-year U.S. treasury because it captures the market's best price of a long-

9   term risk-free rate, and due to other reasons discussed in Appendix G. This is 4.71%

10   currently.[33]

11 **Q: Did you incorporate the long-term forecasted rates in your model?**

12 A: Yes. The forecasted interest rates are included in my calculations and do result in an ROE

13   estimate. This is not my preferred metric, so it is given to show the results if this rate was

14   used. I use forecasted rates for both 10-year and 30-year yields from a variety of sources.

15   Generally, the best estimate of future rates is the current market yield, which is why a 7-

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[32] As stated earlier I am using the Market Risk Premium and the Equity Risk Premium as interchangeable, however the CAPM actually uses the market risk premium, which includes things like real estate, precious metals, private companies, basically the entire potential universe of investments. The OUCC is using the S&P 500 as a proxy from this investible universe when we use the Equity Risk Premium.

[33] Currently means the 7 days prior to October 1, 2023. Since October 1 was a Sunday, I used data as of the previous Friday, or September 29, 2023, and downloaded the data over the weekend. There is always a tension of getting the most up to data information vs. having enough time to prepare testimony after having fixed numbers. Ms. Bulkley used numbers from April 30, 2023, which was over 3 months before the filing data of August 9, 2023.

1   day average is my preferred metric, and therefore forecasted rates are of limited utility in

2   most cases. However, in this present case, they have even less utility than would normally

3   be the case, due to the recent increases in interest rates. The most recent forecasts I have

4   are not updated as recently as the market yield, which is problematic because the forecasts

5   may not be updated for the current economic situation. Currently, the forecasted rates are

6   significantly below the current market yields.

7   **Q: Should analysts use current or forecasted interest rates at this time?**

8   A: I present both forecasted yields and current yields, but I have a strong preference for the

9   current, actual market yields. In this case, the forecasted yields are significantly below

10   those of the current market. This may be because this is a genuine expectation of analysts

11   but may also be because these forecasts are not updated as frequently and are reflecting

12   older data. The forecasts I have access to at the time of this testimony show the forecasted

13   rates are lower than current rates. This is an accurate reflection of investor expectations

14   and not due to a lag in forecasts, as supported by items such as the Bank of America Global

15   Fund Manager Survey from October 2023. That survey shows that 56% of respondents

16   anticipate that long-term borrowing costs will decrease over the next 12 months, which is

17   the highest this percentage has been in the survey's history. The percentage tops such

18   previous peaks as 40% in the financial crisis in 2008 and 30% in August 2019, when large

19   amounts of debt globally were priced at negative yields.[34] Regardless, I reiterate my

20   preference for the use of current market rates in lieu of forecasted rates.

21   **Q: How did you calculate Beta?**

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[34] https://www.hedgefundtips.com/october-2023-bank-of-america-global-fund-manager-survey-results-summary/ for this information that is not behind a paywall. Also see https://www.grantspub.com/resources/commentary.cfm for October 17, 2023, again for information on this survey that is not behind a paywall.

1   A: I used six different sources for Beta: Value Line, Bloomberg, Yahoo! Finance, Zacks, S&P,

2   and NYSE. With the exception of the NYSE and Standard and Poor's, Ms. Bulkley used

3   these same sources on different inputs (Value Line, Bloomberg, Yahoo! Finance, and

4   Zacks for growth and/or Beta estimates). Ms. Bulkley used only Value Line and

5   Bloomberg for Betas. These two sources produce the two highest average values, which

6   are on average 60% higher than the average of the four additional sources, and more than

7   33% greater than the mean average of all six sources.[35] Therefore, Ms. Bulkley's decision

8   to use only these two sources unreasonably skews her Beta upward. I used the average of

9   all of these sources of Beta for the CAPM calculation, which produces a reasonable result.

10   The 110 basis point difference between the OUCC's and Ms. Bulkley's CAPM results are

11   because of the Beta sources she selected.[36]

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[35] Average of all betas for my proxy group is 0.63, average of just Value Line and Bloomberg is 0.85, and average of the unadjusted betas (Yahoo!, Zacks, S&P and NYSE) is 0.53.

[36] Keeping all of my other inputs the same, and using my preferred inputs, the ROE changes from 7.95%% to 9.05%, the Beta changes from .63 (including all 6 sources) to .85 (including just Value Line and Bloomberg).

Table SD-11

Company	Ticker	Value LineBeta (β)	Bloomberg Beta (β)	Yahoo! Beta (β)	Zacks Beta (β)	S&P Beta (β)	NYSE Beta (β)	Mean Beta
ALLETE, Inc.	ALE	0.90	0.82	0.73	0.73	0.57	0.73	0.75
Alliant Energy Corporation	LNT	0.85	0.79	0.55	0.57	0.45	0.57	0.63
Ameren Corporation	AEE	0.85	0.75	0.46	0.46	0.45	0.45	0.57
Dominion	DUK	0.85	0.71	0.47	0.48	0.43	0.46	0.57
DTE Energy	DTE	0.95	0.82	0.61	0.61	0.47	0.61	0.68
Duke Energy Corporation	DUK	0.85	0.72	0.44	0.43	0.39	0.43	0.54
Entergy Corporation	ETR	0.95	0.86	0.65	0.65	0.52	0.47	0.68
Evergy, Inc.	EVRG	0.90	0.78	0.51	0.53	0.47	0.51	0.62
IDACORP, Inc.	IDA	0.80	0.80	0.61	0.60	0.48	0.61	0.65
NextEra Energy, Inc.	NEE	0.95	0.82	0.47	0.51	0.72	0.47	0.66
NorthWestern Corporation	NWE	0.95	0.86	0.46	0.45	0.46	0.45	0.60
OGE Energy Corporation	OGE	1.05	0.92	0.70	0.72	0.55	0.72	0.78
Pinnacle West Capital	PNW	0.90	0.82	0.47	0.49	0.47	0.48	0.61
Portland General Electric	POR	0.90	0.79	0.57	0.57	0.50	0.56	0.65
Southern Co.	SO	0.90	0.78	0.52	0.53	0.45	0.52	0.62
Xcel Energy	XEL	0.85	0.74	0.43	0.41	0.47	0.42	0.55
Mean		0.90	0.80	0.54	0.55	0.49	0.53	0.63
Median		0.900	0.795	0.515	0.530	0.470	0.495	0.623

1 **Q: Please discuss how Ms. Bulkley estimated her Beta coefficient for the calculation of**
2 **her CAPM analyses.**

3 A: Ms. Bulkley used both Value Line and Bloomberg inputs.

4 **Q: Do you agree with Ms. Bulkley's use of these two sources?**

5 A: Yes, but additional sources should also be used. Both Value Line and Bloomberg are

6 adjusted Betas, meaning they will always be higher (and thus result in a higher ROE) then

7 an unadjusted Beta for low-risk stocks. Other sources I used (including Standard and

8 Poor's, NYSE, Zacks, and Yahoo! Finance) also provide Betas that are unadjusted. These

9 are just as valid as the adjusted Betas - if it were otherwise, these reputable sources would

10 not publish these results - and they should be used as well. I am using these four sources

11 because I am aware that they are publicly available and not behind paywalls (Yahoo!,

1   Zacks and NYSE), or that the source is subject to a subscription (i.e., S&P). I am not

2   eliminating from consideration any sources that are freely available.

3 **Q:** **What about literature that states Betas trend towards one over time?**

4 A: I am aware of academic literature that shows Betas tend to trend toward 1.0 over time.

5   However, that does not apply to utilities; the articles commonly cited for this proposition

6   (for instance, Blume) do not discuss utilities specifically. It is important to step back and

7   realize what an ever-increasing Beta implies about risk in the future for utilities

8   specifically. If we are using Beta as a proxy for risk (which we are), the assumption that

9   utility Betas are going to eventually be at 1.0 means that at some point in the relatively

10   near future, regulation will produce utilities that are just as risky as the average company.

11   This appears to be a forecasted failure of the regulatory system, if we assume that future

12   utilities will have the same risk as an average non-utility company. This seems unlikely,

13   because the utility industry is inherently different than the rest of the economy due to the

14   regulatory environment it operates under. There is an entire regulatory regime in place, in

15   large part, to ensure utilities do not become too risky.

16 **Q:** **Please describe raw versus adjusted Betas.**

17 A: There are many different methods of calculating Betas with an almost unlimited cocktail

18   of inputs - frequency (daily, weekly, monthly, annual); time period (a week, a month, a

19   year, three years, five years, ten years, etc.); and the index you are comparing the stock

20   price to (the S&P 500, the NYSE composite, the NASDAQ, etc.). Once those decisions

21   are made, a monthly data point could be determined in the middle of the month, the end of

22   the month, the average of the entire month, etc. These sources, which are all nationally

23   recognized and reputable, have determined that the Beta they publish is "the best" – if they

1   did not, they would choose a "better" model. If the data was all sourced from a third party,

2   the results would be identical, which they are not. Given that this is the case, all of these

3   sources are equally valid, and should be given equal weight in any average.

4   **Q:**   **Are there any other sources of difference in the Betas Ms. Bulkley and you used in**
5   **your calculations?**

6   A: Yes. Betas will differ because of the composition of our respective proxy groups.[37]

7   Because Ms. Bulkley and I presented our data differently, we used Beta in different ways.

8   Ms. Bulkley ran an analysis consisting of only Value Line Beta, whereas I never ran an

9   analysis with anything other than average Betas. Using multiple sources of Beta is

10   advantageous, but the presentation of the results and how those are incorporated is the

11   choice of the analyst, and I do not criticize Ms. Bulkley for her decision on how to present

12   this data.

13   **Q:**   **Please explain the Equity Risk Premium ("ERP").**

14   A: The Equity Risk Premium is the excess return an investor expects by investing in equities

15   rather than a risk-free investment.[38] In other words, the equity risk premium would be the

16   expected return on "the stock market" (the market rate of return), less the return on a

17   treasury bond (the risk-free rate).

18   **Q:**   **How did Ms. Bulkley calculate the ERP?**

19   A: Ms. Bulkley applied a single phase DCF model to market analyst estimates for certain

20   stocks in the S&P 500 index. Her calculations resulted in an expected annual market return

21   of 12.0%, which significantly exceeds what other sources estimate.

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[37] Mine will also be slightly more updated, although that difference should be very minimal.

[38] I treat the equity risk premium ("ERP") and the market risk premium ("MRP") terms as interchangeable in this testimony. In theory, a market risk premium is the premium over the risk-free rate for investing in all available assets, including things such as real-estate, artwork, precious metals, etc. in addition to equities. The equity risk premium is the excess return for investing in equities vs. the risk-free rate. For utility ratemaking purposes, it is common to use the S&P 500 index as "the market", and I am adopting that convention here.

1 **Q:** **Do you agree with this forecast?**

2 A: No. First, Ms. Bulkley states the DCF cannot be fully trusted because utility stocks are

3 overvalued,[39] but then she uses the DCF to calculate a generous Equity Risk Premium

4 ("ERP"), which is a critical input for the CAPM.

5 Second, the calculation she performs is a single-phase model, which produces

6 problematic results when extrapolated over the long-term. Specifically, if a 2-phase model

7 is used where the estimated growth occurs over the next fifteen years, and then nominal

8 GDP is used as the growth function beyond this time, the result is an ROE of 7.56%.[40] In

9 other words, 2-stage DCF that incorporates the same intermediate term forecasts Ms.

10 Bulkley used with the same modifications she made to the stocks selected. The initial

11 period would be approximately 4 times the timeframe of the estimates Ms. Bulkley used,

12 to which the theoretical ceiling of long-term growth after that point would apply. The result

13 of this would reduce Ms. Bulkley's expected annual market return by 444 basis points, in

14 addition to the Beta reduction discussed earlier. Using Ms. Bulkley's Beta numbers, this

15 would reduce her ROE from 11.04% to 7.11% for the mean calculation, or a total of 393

16 basis points. [41]

17 It should be stressed that these growth estimates are not meant to be truly long-term

18 estimates. They are intermediate term estimates prepared for Value Line. I applaud the

---

[39] Ms. Bulkley discusses the expected return of Utility Stocks in section V.D. of her testimony, from pages 20-26. She concludes on page 26, lines 6-9 "The expected underperformance of utilities means that DCF models using recent historical data likely underestimate investor's required return over the period that rates will be in effect."

[40] Nominal GDP sources are from the CBO of 3.70%, the Federal Reserve of 3.80%, and the Social Security Administration of 4.08%. The average of these three numbers is 3.86%. Please see OUCC Attachment SD-1, tab "Nominal GDP Growth" for details and links to the sources.

[41] This is simply changing her column F (Market Return) in AEB-5 to 7.28% and leaving all other inputs the same. For this example, I used the Current Risk-Free Rate and Value Line Beta inputs, which is the first model presented on this tab from lines 1-31. The other adjustments would be slightly different, but very similar.

1   decision to eliminate the 102 companies that had growth estimates of either below 0% (11

2   companies) or above 20% (and 44 for which Value Line doesn't provide a growth

3   estimate).[42] However, this implicitly acknowledges the broader point that these estimates

4   are not meant to be taken as long-term estimates, but should be read as what they are, which

5   are intermediate term growth estimates of approximately 4 years. Eliminating companies

6   above 20% growth eliminates such absurd results of annual growth rates for Walt Disney

7   at 65%, Molson Coors at 50%, Chevron at 45%, Ford at 27.50%, or a company like Lincoln

8   National growing 30.5% per year while yielding 8.28%. It's not that these estimates are

9   wrong - they are being misused and extrapolated far beyond their original intent (taking an

10   estimate over approximately 4 years and extrapolating it forever).

11   As an example, Google is projected to grow, from today, at a rate of 18.50% in

12   perpetuity based on this model.[43] Since sales are currently estimated at approximately $306

13   Billion, in 35 years, Google would have revenues of $116 trillion annually, which will be

14   larger than estimated US GDP by this time.[44] This is just Google, not including any of the

15   other 501 companies given in Ms. Bulkley's raw index, nor all the companies and

16   governments not included in an index such as this.

17   Third, estimates of long-term market returns are readily available from several

18   reputable, national sources, which invest considerable expertise and effort in creating this

---

[42] From a non-comprehensive review of the Value Line data as of April 30, 2023 (the date Ms. Bulkley gives as the date she sourced this information) it appears that most of these "NMF" results are due to negative numbers in the starting years, which would render growth rates meaningless.

[43] All numbers for Google are sourced from the Value Line report February 3, 2023. Revenues are the estimate for 2023.

[44] There are various estimates of US GDP growth, as discussed elsewhere in my testimony; a growth rate of 3.86% is appropriate. Starting with a baseline of $25.5 trillion in 2022 ($25.46 trillion per the BLS), and growing by a rounded-up estimate of 4.0% per year, in 35 years, nominal GDP would be $100.5 trillion. Per the CBO (https://www.cbo.gov/system/files/2023-06/59014-LTBO.pdf) GDP would be $79.50 trillion in 2053, or 30 years from now. The specific amounts are not important to the general point, however.

1   forecast.[45] Ms. Bulkley's reliance on her own calculated market return is both less reliable

2   and less transparent for several reasons. Ms. Bulkley's calculated market return is

3   ultimately reliant on only one input (Value Line) for growth estimates. Further, it projects

4   growth rates in perpetuity that are only meant to cover the next four years. (Value Line

5   estimates represent the estimated growth from the average of 2020-2022 to the average of

6   2026-2028, or a midpoint of 2027, which is four years from today.)

1. **Market Risk Premium**

7 **Q: Please discuss how Ms. Bulkley estimated 8.10%-8.31% market risk premiums.**

8 A: In her Attachment AEB-5, Ms. Bulkley uses the DCF model to estimate the cost of equity

9   for the S&P 500. She multiplies each company's "Current Dividend Yield" and its

10   estimated "Long Term Growth Est" by its weight in the modified S&P 500 index to

11   determine a "Cap Weighted Dividend Yield" and its "Cap-weighted Long term Growth

12   Est." Ms. Bulkley sums each figure to produce a 10.19% "Estimated Weighted Average

13   Long-term Growth Rate" and a 1.73% "Estimated Weighted Average Dividend Yield."

14   These two figures produce an "Estimated Required return for the S&P 500" of 12.00%.

15   Ms. Bulkley then subtracts various 30-year U.S. Treasury Bond yields to estimate her risk

16   premiums.

17 **Q: Please summarize your disagreements with Ms. Bulkley's CAPM analyses.**

18 A: Ms. Bulkley's CAPM analyses produce estimated costs of equity of 10.02% (Long-Term

19   average Beta, and 30-day average of the 30-Year Treasury yield) to 11.07% (the Current

20   Value Line Beta and the Longer Term Forecasted 30-year Treasury yield). As discussed

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[45] These estimates are not in perpetuity but are significantly longer than the intermediate term forecasts provided by Value Line, Zacks, S&P or Bloomberg.

1 above, the primary concern with Ms. Bulkley's CAPM analyses is her use of an estimated

2 market return of 12.00%, rather than a more reasonable return, as well as utilizing only the

3 highest Betas available for her analysis.

4 **Q:** **Did you use multiple sources to determine the Equity Risk Premium?**

5 A: Yes. Some sources estimated the market return, and some estimated the ERP directly, as

6 described below.

7 **Q:** **What sources did you use to determine the estimated market return?**

8 A: I used twelve (12) sources that provided information for an expected long-term market

9 return. (See OUCC Attachment SD-1.)

Table SD-12

Source:	Forecast
Blackrock	6.90%
BNY Mellon	6.50%
Damodoran	7.63%
Fidelity	6.60%
Horizon Actuarial Services	7.37%
INPRS	7.70%
Invesco	7.70%
JP Morgan	7.90%
Richmond Federal Reserve/CFO Survey	8.70%
Charles Schwab	6.10%
Vanguard	5.10%
Verus	6.30%
Average	7.04%

10 **Q:** **Did you ask I&M for a return estimate from the pension fund?**

11 A: I did. The final follow-up question is included as OUCC Attachment SD-7 (Data Request

12 Response 13-2). I&M's parent company AEP uses a return estimate of 9.28%, but this is

13 benchmarked against a global index, and there is no further breakdown. This means the

14 return for U.S. Large Cap stocks, the number to focus on, is embedded in that figure but

1   by no means obvious. For practical purposes, U.S. large cap stocks are always at a lower

2   estimated return than small caps, international companies, or other components of the

3   equity "basket." Therefore, the return on U.S. large caps embedded in the 9.28% number

4   is certainly lower than 9.28%.[46] Even at 9.28%, however, this is significantly below the

5   market return Ms. Bulkley is using for her CAPM analysis.

6 **Q:**   **How do you need to modify the above numbers to determine the ERP?**

7 A: As previously described, to calculate an equity risk premium, one subtracts the risk-free

8   rate from the market return. For instance, if we use a risk-free rate based on the 7-day

9   average yield of the 30-year U.S. Treasury, which was 4.71% as of September 29, 2023,

10   and subtract it from the OUCC's recommended estimated market return from Table SD-

11   12 of 7.04%, this results in an equity risk premium of 2.33% (7.04%–4.71%). In

12   comparison, substituting Ms. Bulkley's partial S&P 500 12.0% estimated market return

13   would result in an equity risk premium of 7.29% (12.00%-4.71%), or 3

14   (7.29%/2.33%=3.13) times greater. Ms. Bulkley's estimate of investor required returns is

15   significantly higher than the expected returns of market participants such as Blackrock,

16   Fidelity, INPRS, and even I&M's own pension funds. This overly inflated estimate drives

17   the bulk of the different results between the CAPM estimated in our respective testimonies.

18 **Q:**   **Are there informed sources that project the ERP directly?**

19 A: Yes. For instance, Kroll currently estimates the ERP at 5.50% (as of September 18,

20   2023).[47] KPMG estimates the MRP at 5.5%, updated September 30, 2023. Professor

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[46] For instance, Verus has a return of 6.3% for U.S. Large cap stocks, but a return of 8.5% for the Global Equity (MSCI ASWI Index Proxy) forecast for the next 30 years. This is a geometric return, which is preferred. For the arithmetic returns, the relevant numbers are 7.4% for U.S. Large Cap (S&P 500) and 9.8% for Global Equity (MSCI ACWI).

[47] On September 18. 2023, Kroll released an update confirming that the MRP was 5.50%, although it did not update the report, which is dated June 8, 2023.

1   Aswath Damodoran at the New York University Stern School of Business publishes well-

2   known datasets, including updated ERPs. His update as of October 1, 2023, listed an

3   implied 4.47% ERP (based on adjusted payouts), or 4.84% ERP based on the cash yield of

4   the market. (See OUCC Attachment SD-1 for a summary table. See OUCC Attachment

5   SD-9 for the actual reports.)

Table SD-13

Source	Estimate
KPMG	5.00%
Kroll	5.50%
Damodoran	4.84%
	5.11%

6 **Q: Did you utilize these three estimates of the equity risk premium into your models?**

7 A: Yes, resulting in my preferred metric. These current estimates are designed specifically to

8   answer what the Equity Risk Premium is right now.

9 **Q: Please summarize the results of your CAPM analyses.**

10 A: The results of my CAPM analyses are shown on OUCC Attachment SD-1. The cost of

11   equity based on my CAPM analyses (using my preferred inputs of the 7-day average of

12   30-year treasury yields as the risk-free rate, the Forecasted ERP, the mean Beta from all

13   six sources results and removing outliers) is 7.90%. The results would have been

14   significantly lower had I utilized the equity risk premium generated by using the average

15   of market forecasters of 7.04% less the risk-free rate of 4.71%, which results in an ROE of

16   6.17%. My analyses' preferred result uses a forecasted risk premium is 5.11%.

17 **Q: What is your recommended ROE based on the CAPM?**

18 A: My recommended CAPM ROE is 7.90% calculated on the mean of the ROEs for each

19   member of the proxy group. This is based on the 7-day average yield for the 30-year

1   treasury of 4.71%, plus the product of the mean Beta from all six sources of 0.63, multiplied

2   by the ERP of 5.11%. It also removes the statistical outliers; the result is 7.95% before

3   making this adjustment. As with the DCF model, the mean is a more appropriate result to

4   use and is my preferred result.

5   **Q: Did you also run an ECAPM analysis?**

6   A: I did. I do not find the ECAPM compelling as a model, and the Commission explicitly

7   rejected the use of ECAPM in at least two previous Causes (Cause Nos. 40003 and 42359).

8   The Commission reaffirmed that ECAPM is unreliable for ratemaking purposes in its Final

9   Order in Cause No. 42359:

10   With respect to the ECAPM analysis performed by Dr. Morin we
11   note that the Commission rejected this model in Cause No. 40003,
12   and found that: "the Empirical CAPM is not sufficiently reliable for
13   ratemaking purposes." Cause No. 40003 at 32. We went on to
14   conclude that the ECAPM ". . . would adjust, in essence, future
15   expectations with regard to investor perceptions of relative risks for
16   further change which may occur years hence." The Commission
17   concluded that ". . . we do not believe exercises in approximating
18   future cost of capital are conducive to such precise estimation as the
19   Empirical CAPM would suggest." Id. We find that nothing
20   presented in this Cause has changed our prior determination that
21   ECAPM is not sufficiently reliable for ratemaking purposes and
22   hereby reject the model in this proceeding.[48]

23   However, I did run the calculations. The ECAPM adjusts the Betas up toward one

24   for low-risk companies, such as utilities that have a Beta below one. Since some of the

25   Betas utilized above (and all of them in Ms. Bulkley's CAPM, namely Value Line and

26   Bloomberg) are already adjusted, this results in using twice-adjusted Betas in the ECAPM.

27   I accepted Ms. Bulkley's convention of assigning a 25% weight to "the market" as the

---

[48] *In re PSI Energy*, Cause No. 42359, Final Order, p. 56 (Ind. Util. Regul. Comm'n May 18, 2004).

1   adjusting factor in the ECAPM. This results in an ROE of 8.38% on a mean basis for the

2   ECAPM.

3 **Q:** **Please summarize your results for the CAPM and ECAPM calculations.**

4 A: For the CAPM, my result is 7.90% ROE. I do not recommend use of the ECAPM, but the

5   result is an 8.38% ROE.

D. Risk Premium

6 **Q:** **Please explain the Risk Premium Model.**

7 A: The risk premium model's base proposition is that common stocks are riskier than debt

8   and, as a result, investors require a higher expected return on stocks than bonds. This

9   assumes that investors consider bonds as an alternative investment to stocks on a risk

10   adjusted basis, that the equity risk premium is constant over time, the return differential

11   between stocks and bonds is measurable, investors follow the present value theory of

12   investment, and the markets are efficient. The model simply takes the cost of debt plus the

13   risk premium to determine the cost of equity. The higher the risk premium, or spread, the

14   higher the return for investors and conversely, the higher the cost for ratepayers.

15 **Q:** **What is the appropriate cost of debt?**

16 A: I utilize the risk-free rate of interest as used in the other models, namely the 7-day average

17   yield of the 30-year US treasury, which is 4.71% as of October 1, 2023. Ms. Bulkley's

18   analysis also uses the 30-year treasury rate.

19 **Q:** **What is the appropriate risk premium?**

20 A: At a 4.71% risk free interest rate, the appropriate risk premium is 4.83%, which results in

21   an ROE of 9.54%.

22 **Q:** **How did you determine the appropriate risk premium is 4.83%?**

23 A: I performed a regression analysis that incorporated both the date and the spread between

1   1980 and 2023. This provided a higher explanatory value than Ms. Bulkley's model. When

2   the model was updated with current interest rates and the current date, the result was the

3   4.83% risk premium.

4 **Q: What differences are there between your model and Ms. Bulkley's?**

5 A: I used the time period of the Commission orders that awarded a return of equity in addition

6   to the Treasury Yield at the time of the order and the awarded ROE. Ms. Bulkley used only

7   the Treasury Yield and the awarded ROE. Ms. Bulkley provided the following graph in
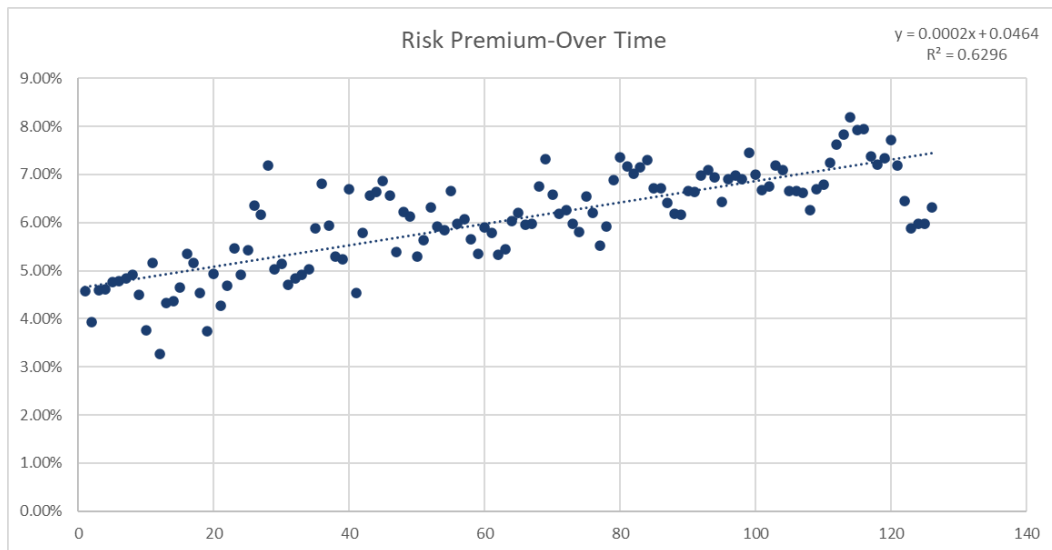
8   her testimony:

9

Table SD-14
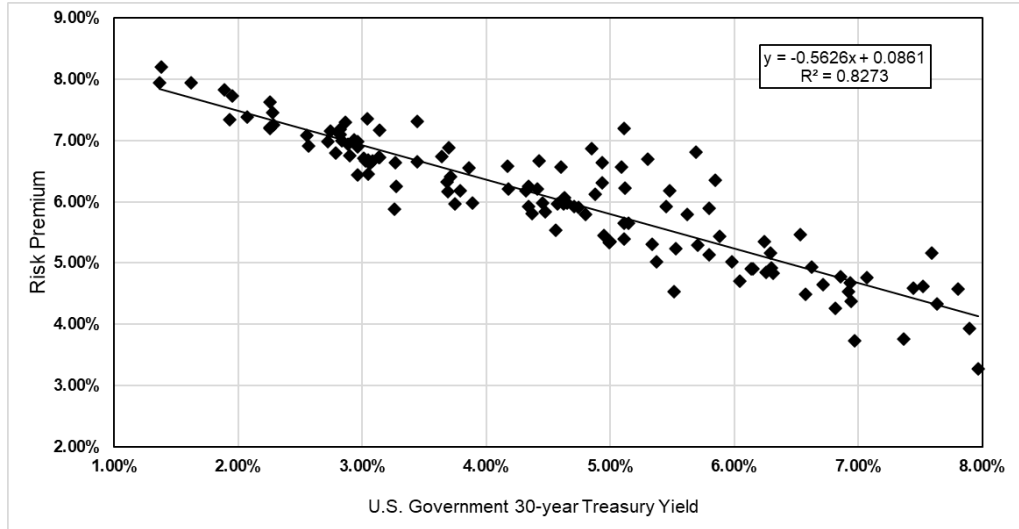
1   This shows the relationship between the interest rate and the risk premium. However, the

2   same information may be presented sequentially instead, and this provides the following

3   data.

Table SD-15

1   These two factors are clearly moving in opposite directions. The spread is increasing over

2   time, which is counter to one of the basic assumptions of the risk premium model.

3 **Q:** **Are both factors (date of the order and the interest rate at the time of the order)**
4   **important?**

5 A: Yes. Both factors have clear trendlines that have forecasting value. I ran a regression

6   analysis incorporating both factors, and this provided a higher "fit" than either of Ms.

7   Bulkley's models. Since this regression analysis results in different outputs depending on

8   the inputs, the table below shows the updated treasury rate in my testimony, as well as the

9   two other inputs Ms. Bulkley used in her analysis (the Blue Chip forecasts). For simplicity

10   I used only those forecasts, rather than the more robust forecasts used in other sections.

11   **Table SD-16**

	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield	4.71%	4.83%	9.54%
Blue Chip Near-Term Projected Forecast (Q3 2023 - Q3 2024)	3.80%	5.66%	9.46%
Blue Chip Long-Term Projected Forecast (2024-2028)	3.90%	5.57%	9.47%
AVERAGE			9.49%

12   For comparison, Ms. Bulkley provided a risk premium result of 6.53% for the assumed

13   interest rate of 3.69%, and a premium of 6.49% and 6.41% for the Blue Chip estimates, for

14   an ROE range of 10.22%-10.31%. If we use an updated interest rate of 4.71%, Ms.

15   Bulkley's model results in a risk premium of 5.96% and an ROE of 10.67%.

16 **Q:** **Do you believe the risk premium model should be used in this case?**

17 A: No. The risk premium model is not appropriate to use in this case, primarily because the

18   risk premium does not appear to be stable over time, a requirement of using this model. I

19   am presenting this model's results in my summary but am not assigning any significant

20   weight to its results.

**E. Summary of ROE Analysis Results and Resulting Recommended ROE**

1 **Q:** **Please summarize the results of the Constant Growth DCF model, 2-stage DCF**
2 **model, CAPM and ECAPM analyses.**

3 A: Table SD-17 below shows both the range and the recommendation based on seven models

4 I calculated. This includes a "model" in two cases as a presentation of the same data as a

5 median rather than a mean. This table also shows the average of all the models; the average,

6 less the two models least relevant and useful; the average, less the Median results, the

7 ECAPM and the risk premium.

Table SD-17

Model	Low	Recommendation	High
DCF-Constant Growth-Mean	8.40%	9.76%	10.73%
DCF-Constant Growth-Median	8.42%	9.68%	10.58%
DCF-2 Stage-Mean		9.02%	
DCF-2 Stage-Median		9.24%	
CAPM	5.14%	7.90%	7.92%
ECAPM		8.38%	
Risk Premium		9.54%	
Average:	7.32%	9.08%	9.74%
Average (less ECAPM and Risk Premium)		9.12%	
Average (Mean DCF, 2-stage DCF and CAPM)		8.89%	

8 The results of each individual set of inputs can be seen below. This is the same

9 information presented in table SD-17 above, but incorporating results attained by using

10 data other than my preferred inputs.

Table SD-18
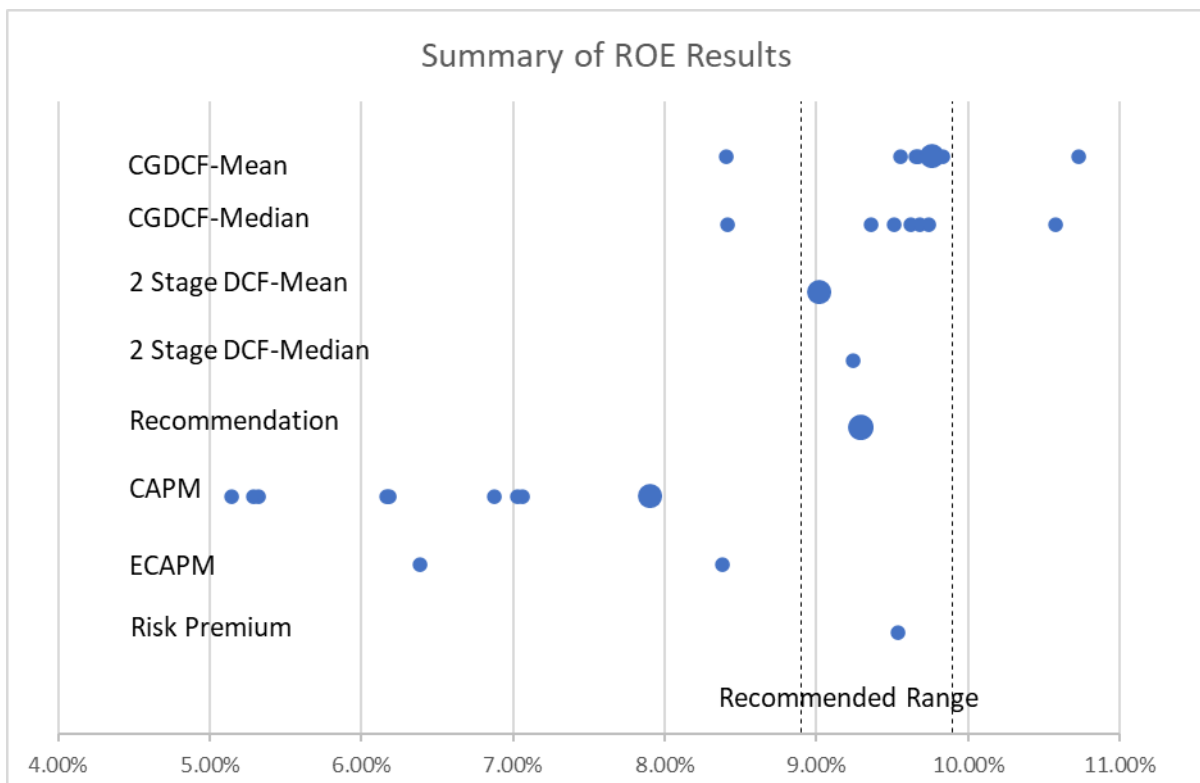
1 **Q: The resulting estimates provided by your models are significantly lower than those of**
2 **Ms. Bulkley. Why are your resulting estimates and recommended ROE more**
3 **reasonable?**

4 A: There are several reasons, including academic research showing that returns on utilities are

5   generally higher than justified by the risk adjusted return standard.[49] Also, the market-to-

6   book ratio of the proxy group indicates that the required risk adjusted returns for that group

---

[49] A recent article entitled "Rate of Return Regulation Revisited" from Werner (of the U.S. Treasury) and Jarvis (of the London School of Economics) stated that estimated current (as of September 2022) average returns on equity could be around 0.5-5.5 percentage points higher than various benchmarks and historical relationships would suggest. *See also:* "Based on a database of U.S. electric utility rate cases spanning nearly four decades, the returns on equity authorized by regulators have exhibited a large and growing premium over the riskless rate of return. This growing premium does not appear to be explained by traditional asset-pricing models, often in direct contrast to regulators' stated intent. We suggest possible alternative explanations drawn from finance, public policy, public choice, and the behavioral economics literature. However, absent some normative justification for this premium, it would appear that regulators are authorizing excessive returns on equity to utility investors and that these excess returns translate into tangible profits for utility firms." "Regulated Equity Returns, a Puzzle" abstract, Rode and Fischbeck (Carnegie Mellon 2019).

1   is lower than the awarded ROE on a national basis.

2   **Q: Please elaborate on your statement that the market-to-book ratio of the proxy group**
3   **would indicate that the required risk-adjusted returns for these companies is lower**
4   **than what is being awarded nationally regarding the return on equity component.**

5   A: The basic theory behind an ROE in a regulatory framework is that an investor may invest

6   his or her money in a multitude of potential investments, and the return on a utility

7   investment should equal what he or she could get from an alternative investment of similar

8   risk. Once that investment is made, the value of the investment is still $1.00, meaning a

9   dollar of equity is earning an appropriate risk-adjusted return. This is what the market to

10   book ratio measures - the market price compared to the book value of a company.

11   Generally, we make the simplifying assumption that the book value of a utility stock is

12   approximately equal to the equity component of its capital structure, so the market-to-book

13   ratio should be generally measuring the market price of a dollar of equity. The current

14   market-to-book price of the proxy group I selected is 1.62.[50] This means the market values

15   of a dollar of equity investment in rate base is $1.62 for the "average" electric utility.[51]

16   This strongly implies that the risk-adjusted returns being enjoyed by the average electric

17   utility are currently higher than necessary to compensate the investors for the risk they are

18   incurring, as shown by the value of a dollar of rate base being valued by the market at 62%

19   higher, or $1.62.

---

[50] Based on S&P reports on June 1, 2023. These numbers may be found on Attachment SD-2, tab "S&P Data" and consists of the price/book ratio average of my proxy group.
[51] I acknowledge there may be subtleties in the holding company structure that result in discrepancies in the representation of the book value as equal to the rate base assumption, but those discrepancies should not be of the scale we are discussing here. Also, this is not really an analysis of the electric utility industry as a whole, but rather just the proxy group that I am using. There is no reason to think this proxy group is materially different from that of the proxy group, but I did not do that analysis.

1 **Q:** **Has the recent move in interest rates affected your proposal?**

2 **A:** Yes. The change in interest rates directly affects the models via a change in the risk-free

3 rate incorporated into the CAPM, or the DCF as it also affects utility stock prices indirectly

4 as utility stocks trade as a bond surrogate in some ways. The value of the stocks is inversely

5 related to the prevailing level of interest rates, and this affects the dividend yields, which

6 increases the ROE.[52] This also impacts the 2-stage DCF via the inputs into the starting

7 conditions, so all of these models produce higher results as interest rates increase (and

8 although I do not give significant weight to these results, the ECAPM and the risk premium

9 models also produce higher ROE's due to the higher current interest rates).

10 **Q:** **What is your recommendation for the authorized return on equity for I&M?**

11 **A:** I recommend an ROE of 9.30%. The average result of my models for my preferred inputs

12 is 9.08%. Using the three strongest models, (the constant growth DCF-Mean, the 2 stage

13 DCF-Mean and the CAPM) provides an average of 8.89%. My recommendation takes into

14 account these results and leans towards the higher end of the results of the three strongest

15 models, although it is not a result that flows only from a mathematical average or a

16 formulaic output. Taking into account the results of all the models, giving more or less

17 weight to each model as is appropriate, considering the *Hope* and *Bluefield* standards, and

18 the general economic environment, this is a reasonable return to balance financial concerns

19 for the investors and affordability for ratepayers.

IV. FLOTATION COSTS

20 **Q:** **Did I&M present flotation costs in this cause?**

---

[52] To say a stock acts as a bond surrogate is the same thing as saying a stock moves inversely to interest rates; when a bond falls, the interest rate rises. Obviously, a utility stock is not a bond - if it were, the returns would be significantly lower and there would be a much tighter relationship between interest rates and prices. However, an average utility stock trades more like a bond than an average stock in the S&P 500.

1 A: Yes. I&M has not requested recovery of a specific amount, instead requesting flotation

2 costs be considered in the determination of cost of equity.

3 **Q: What is I&M 's request for flotation costs based upon?**

4 A: I&M is basing its request upon the most recent equity issuances from its parent company,

5 which were 14 and 20 years ago (issuances in April 2009 and February 2003, respectively).

6 The amounts of costs I&M claims are 12-14 basis points, depending on the calculation

7 method. I&M is not explicitly including this amount in a mathematical model or

8 presentation, instead including this cost as part of the overall reasoning for a 10.5% ROE.

9 **Q: Do you agree with the inclusion of flotation costs in this case?**

10 A: No. First, there have been no equity issuances since the last rate case, and there is no reason

11 to think that 14+ year old costs should now be included in the return on equity to the

12 detriment of ratepayers. Doing a search of the previous order establishing an ROE, there

13 is no indication that the Commission included flotation costs in its calculation of the

14 appropriate ROE.[53]

15 Second, the vast majority of equity would not be subject to flotation costs, since it

16 consists of retained earnings which have no flotation costs. The current equity for the

17 parent company is over $20 billion, and the total issuances 14+ years ago that are used in

18 support of these costs is approximately $2.5 billion (approximately ten percent of the

19 equity). Total financing costs were approximately $77 million. Using a $77 million

---

[53] Cause 45576, order dated July 1, 2021 was a settled case (which for ROE purposes adopted the previous ROE). The reference here is to the previous litigated case, 45235, (Final Order March 11, 2020). A search for the word flotation shows only one instance, in the summary of I&M's testimony. "In addition to the methods noted above, Mr. Hevert calculated the costs of issuing common stock (that is, 'flotation' costs) and considered evolving capital market and business conditions, including changes in Federal Reserve monetary policy and increases in current and projected government bond yields. He stated that although those factors are very relevant to investors, their effect on I&M's COE cannot be directly quantified; therefore, although he did not make explicit adjustments to his COE estimates, he considered these factors in determining where I&M's COE falls within the range of analytical results." There is no further evidence that flotation costs were considered in the Commission's order.

1   expense (of which under $1 million was a cash expense) from 14-20 years ago and stating

2   that this now amounts to a 0.12% additional cost on a rate base of over $20 billion every

3   year is unreasonable.[54] If this flotation cost is one of the reasons for Ms. Bulkley's

4   recommendation of a 10.50% ROE, the recommendation is overstated.[55]

5 **Q: Does the market already account for flotation costs?**

6 A: Yes. Investors are well aware of underwriters' fees and know a portion of the amount they

7   are paying for the shares does not go directly to the company.[56] Since it is a well-known

8   fact, investors adjust the stock's market price to account for this. The market price of the

9   stock impacts other calculations; for instance, the dividend yield would rise if the market

10   price fell. This directly impacts the dividend yield used to calculate the DCF (and thus,

11   increases the resulting ROE).[57]

V.   SUMMARY AND RECOMMENDATIONS

12 **Q: Please provide a summary of your testimony.**

13 A: I ran multiple models to determine an appropriate ROE. These models include a constant

14   growth DCF model, which resulted in a recommended ROE of 9.76%, a 2 Stage DCF

15   which resulted in a recommended ROE of 9.02%, and a CAPM that resulted in a

16   recommended ROE of 7.90%. It also included two models which I discussed but did not

17   strongly consider in my final recommendation, namely the ECAPM with a recommended

---

[54] Acknowledging that AEP is not requesting this amount on the entirety of its rate base, but only on the Indiana portion in this case. However, if the parent company only proposes to collect this cost from Indiana, that is more problematic. Also, the 0.12% would only apply to the equity component of the WACC.

[55] I also have issues with incorporating this cost via the proxy group through a constant growth DCF model, when no analysis has been done on the flotation costs for any members of that proxy group.

[56] It is, in fact, a federal requirement this information to be shared on the first page of a prospectus, see Regulation S-K, 17 C.F.R. §229.501(b)(3).

[57] If the market price falls by 1% and dividends stay the same (there would be no reason for dividends to change based on an equity issuance), the yield will increase by 1% (for example, from 2% to 2.02%).

1   ROE of 8.38% and a risk premium model with a recommendation of 9.54%. The three

2   strongest models result in an average ROE of 8.89%, but taking into account other

3   macroeconomic factors, as well as the Hope and Bluefield standards, my final

4   recommendation is 9.30%.

5   **Q: Please summarize your recommendations.**

6   A: I recommend the Commission authorize a return on equity of 9.30%.

7   **Q: Does this complete your testimony?**

8   A: Yes.

Appendix A

QUALIFICATIONS

1   **Q:**   **Please describe your educational background.**

2   A: I graduated from Indiana University with a degree in Biology, a minor in Economics and

3   a certificate from the Liberal Arts and Management Program (LAMP) which is an honors

4   certificate program through the Kelley School of Business and the College of Arts and

5   Sciences. I received my MBA from Indiana University with a concentration in finance. I

6   am a member of Phi Beta Kappa honor society for my undergraduate studies and Beta

7   Gamma Sigma honor society for my master's program. I have a certificate from Stanford

8   University for the Energy Innovation and Emerging Technologies Program. I am a certified

9   rate of a return analyst (CRRA designation) from the Society of Utility Regulatory

10   Financial Analysts. Although not specifically related to my educational background, I am

11   a member of Mensa.

12   **Q:**   **Please describe your work experience.**

13   A: Upon graduating college, I moved to New York and worked at Grant's Interest Rate

14   Observer, which is a financial newsletter and Lebenthal and Co., which was a municipal

15   bond brokerage. I moved back to Indianapolis and worked at RCI Sales in Indianapolis,

16   which was a manufacturer's representative/distributor in commercial and institutional

17   construction, ultimately becoming the owner and leaving when I sold the company and

18   merged it into a competitor. I then worked at Amazon as a financial analyst in its fulfillment

19   division.

20   **Q:**   **How long have you been at the OUCC?**

21   A: I started at the OUCC in the Water/Wastewater Division in December 2019 as a Utility

1   Analyst II and was promoted to a Senior Utility Analyst in May 2022. My focus is financial

2   issues, such as ROEs, Capital Structures, Debt Issuances, Cost of Debt, etc.

3 **Q:**   **Have you previously testified before the Indiana Utility Regulatory Commission?**

4 A: Yes, I have testified before the Commission regarding various aspects of finance in

5   multiple cases.

Appendix B

LIST OF ATTACHMENTS

SD-1   Spreadsheet with DCF, CAPM, RP Models, and Inputs

SD-2   Screening Criteria for Proxy Group by Ms. Bulkley

SD-3   Dominion Dividend History

SD-4   DTE Energy Dividend History

SD-5   Discovery Response regarding dividend screening criteria

SD-6   Analysis of Ms. Bulkley's Outliers

SD-7   Discovery Response regarding pension returns, DR-13-2

SD-8   INPRS Report

SD-9   Equity Risk Premium Reports

APPENDIX C

DISCOUNTED CASH FLOW ("DCF") ANALYSIS

A. Introduction to DCF Model

1 **Q:** **Please describe the Discounted Cash Flow Model.**

2 **A:** The DCF model is typically used by investors to determine the appropriate price to pay for

3 a security. This model assumes that the price of a security should be determined by its

4 expected cash flows, discounted by the company's cost of equity. On a one-year horizon,

5 the price of a stock (P_0) is equal to the anticipated dividends paid during the year (D_1)

6 plus the anticipated price of the stock at the end of the year (P_1) divided by one plus the

7 company's cost of equity (k). The year-end price (P_1) is determined by adding next year's

8 anticipated dividends (D_2) and next year's anticipated year-end price (P_2) divided by

9 one plus the company's cost of equity (k).

$$P_0 = \frac{(D_1 + P_1)}{(1 + k)} \quad \text{and} \quad P_1 = \frac{(D_2 + P_2)}{(1 + k)}$$

10 Because investors may plan to hold securities for many periods, the DCF equation can be

11 restated for an infinite or unknown number of periods as follows:

12 $$P_0 = D_1/(k-g)$$

13 (Where the price of a security (P_0) equals the anticipated dividends paid over the current

14 period (D_1) divided by the company's cost of equity (k) minus the expected growth rate of

1   dividends (g)). The company's cost of equity must be greater than its expected dividend

2   growth rate for this model to be valid. By rearranging the above formula, the DCF formula

3   regularly used in regulatory proceedings can be derived as follows:

4    $$k = (D_1/P_0) + g$$

5   This formula reflects the cost of equity (k) equals the forward dividend yield
6   (D_1/P_0) plus the expected growth rate in dividends per share (g). To estimate the
7   cost of equity (k), the forward yield (D_1/P_0) and the expected growth rate in
8   dividends (g) must be estimated).

B. Dividend Yield

9   **Q: How did you calculate the forward yields (D_1/P_0)?**

10   A: To calculate a forward yield (D_1/P_0), the current yield (D_0/P_0) must be calculated first. A

11   company's current yield equals its current annual dividends (D_0) divided by its current

12   stock price (P_0). The current annual dividend is calculated by multiplying the company's

13   most recent quarterly dividend by four.

14   **Q: How do you convert current yields (D_0/P_0) into forward yields (D_1/P_0)?**

15   A: The following equation is used to convert a current yield to a forward yield: (D_1/P_0) =

16   $(D_0/P_0) * (1 + .5g)$. For example, if Company X had a current dividend yield of 4.0% and

17   an expected growth rate of 6.0%, the formula multiplies the 4.0% current dividend yield

18   by 1 plus 3.0% or 1.03, (3.0% is one half of the 6.0% expected growth rate). This results

19   in a forward dividend yield of 4.12% or an increase of 12 basis points over the current

20   dividend yield. This is the method I used.

21   **Q: Has the Commission supported the use of the one-half-year's growth methodology to**
22   **convert current yields to forward yields?**

23   A: Yes. Although there is no universally accepted methodology, the one-half-year growth

1   methodology to convert current yields to forward yields has been regularly accepted by

2   this Commission.

3   We are well aware of the advantages and limitations of the various
4   approaches used by each of the witnesses. For example, the half-
5   year method used by the OUCC for calculating the forward dividend
6   yield is the most frequently used approach in this jurisdiction, and it
7   is rarely a point of contention in DCF analysis. We believe that it
8   fairly represents the dividend payments expected and received by
9   investors, while the full year method employed by Petitioner
10   overstates the dividend yield.
11
12   *In re Ind. Amer. Water*, Cause No. 40103, Final Order at 40 (Ind. Util. Regul. Comm'n

13   May 30, 1996.)

14   I do not expect the calculation of the forward dividend yield in this cause to be

15   controversial. The inputs and calculation will likely change as more current data becomes

16   available, but the methodology is generally accepted by the parties.

C. **Dividend Growth Rate**

17   **Q: How did you estimate the long-run dividend growth component (g) of the DCF**
18   **model?**

19   A: The Constant Growth, or single stage, DCF model assumes investors expect cash flows to

20   grow at a constant rate into perpetuity. I relied on earnings growth estimates from various

21   sources including Value Line, Yahoo! Finance, Zacks and Standard and Poors. Also, I

22   incorporated historical data from Value Line for the last ten years and the last five years,

23   respectively, for earnings per share, dividends per share, and book value per share.

24   The formula relies on an estimate for future growth, so while historical results

25   provide a ballast to the estimates and inform the forecasts, the estimates of future growth

1   are more important for our purposes, which is estimating future growth.[58]

D. 2-Stage DCF Model

2 **Q: Do you use a 2-stage DCF model in your analysis?**

3 A: Yes. I explain in detail below.

4 **Q: Can short to intermediate-term forecasts lead to unreasonably high estimated growth**
5 **   rates (g) in a DCF analysis?**

6 A: Yes. In fact, intermediate term forecasts are not long-term forecasts making it inappropriate

7   to mechanically incorporate them into a DCF analysis. The DCF model requires a growth

8   rate that is sustainable into perpetuity. Thus, even if intermediate term forecasts are

9   accurate, they are not meant to reflect growth beyond the time period the analysts who

10   created the estimates are considering. The long-term growth rates from different sources

11   in some cases may not even extend through the life of rates in a case before the

12   Commission.

13   By way of example, Value Line uses an estimate of long-term growth comparing

14   the average of earnings from 2020-2022 to the average of earnings from 2026-2028, or to

15   approximately four years in the future. Yahoo! Finance uses a long-term growth estimate

16   of the next five years, and Zacks and S&P use expected EPS Growth for a 3-5-year

17   period.[59]

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[58] In the long-run, dividends should mirror earnings growth. In the utility context, book value growth should also mirror earnings growth in the long run, since that is the ultimate source of profits for a regulated utility.

[59] From S&P Global, explanation of long-term growth rates. "Long Term Growth Rate (LTG) is a compound annual growth rate based on current and projected EPS values provided directly by the analysts. S&P Capital IQ does not calculate the growth rate based on available EPS Estimates. Most analysts define LTG as an estimated average rate of earnings growth for the next 3-5 years. The exact time frame differs from broker to broker. Since the analysts providing LTG may differ from the analysts providing fiscal year estimates and the variation in time periods of 3-5 years, it is not possible to reconcile LTG with fiscal year estimates." https://spglobal.my.site.com/s/article/10000747

1   Also of note, any growth rate above nominal GDP growth, applied in perpetuity,

2   means that the company, at some point, would be estimated to become larger than that

3   economy's GDP, since it would, at some point, surpass that economy.[60]

4   Finally, there are well documented findings that intermediate term forecasted

5   growth rates in EPS (forecasted by analysts) tend to be optimistic.

6 **Q: Are you aware of any financial articles that support your position that intermediate**
7 **term forecasted growth rates tend to be optimistic?**

8 A: Yes. I include these sources in my discussion on General Concerns with Analyst Forecasts

9   found in Appendix D.

10 **Q: How can intermediate-term forecasts in EPS be used while addressing concerns that**
11 **these growth rates are not sustainable to estimate cost of equity?**

12 A: Due to the methodology, using a 2-stage DCF model can incorporate current forecasted

13   growth rates in the near term (over the forecasted period), while still using a sustainable

14   growth rate over the long term. A National Regulatory Research Institute (NRRI) article

15   (discussed in Appendix E) explains long-term sustainable growth for the utility industry

16   cannot exceed the long-term sustainable growth rate in the US economy. Therefore,

17   applying a second stage to the DCF model and incorporating a forecasted growth rate of

18   the U.S. economy (as measured by growth in nominal GDP) as a long-term sustainable

19   growth rate for the second stage, can result in a more accurate estimate of the cost of equity

20   for the DCF model.

21 **Q: Explain the mechanics of the 2-stage DCF Model.**

---

[60] Nominal long-term growth rates in excess of long-term nominal GDP growth imply that the business will eventually grow larger than the economy itself, even if that takes a number of years. A company with $10,000 annual revenue in the year 1906 (when AEP was founded), could easily grow at 20% a year for some period of time. However, that growth rate over the intervening 117 years would result in current sales of $18.3 trillion, or about three quarters of current GDP of around $25 trillion. This number would be increasing next year by an additional $3.6 trillion next year. This shows the absurdity of excessive growth rates over long periods of time. The formula is $10,000*(1.2).[117]

1   A: A 2-stage DCF model is similar to the more traditional single-stage DCF model except that

2   it uses two growth rates (g) instead of a single growth rate. Because two growth rates are

3   used, the equation is more complex than the traditional single stage DCF model $P_o = D_1 /$

4   (k- g). Instead, the equation for the 2-stage DCF model is as follows:

5

$$P_0 = \frac{DPS_0(1+0.5g_1)(1-\frac{(1+g_1)^n}{(1+k)^n})}{k-g_1} + \frac{DPS_0+(1+g_1)^n(1+g_2)}{(k-g_2)(1+k)^n}$$

6   Where:

7   DPS_0 = expected dividends per share in year 0
8   k = required rate of return (cost of equity) during forecast period
9   P_0 = price of stock at year 0
10   g_1 = growth rate during the first stage
11   g_2 = growth rate during the second stage
12   n = length of the first stage (in years)

13   Unlike the single-stage DCF model, due to its complexity, this equation cannot

14   simply be rearranged to solve for k (the cost of equity [$k = (D_1/P_0) + g.$]).

15   Instead, one must assume or pick a "target" price (P_0) and, through "successive

16   iterations," determine (with given growth rates and a dividend yield) what cost of equity

17   (k) produces the assumed "target" price. In layman's terms, successive iterations mean

18   inserting different costs of equity into the equation until it produces the assumed "target"

19   price.

20   Hypothetically, assuming a price of $100.00 per share, with annual dividends of

21          $3.00 per share (a dividend yield of 3.0%), and a growth rate of 6.0% during the first stage,

22   (5 years), with a long run growth rate of 5.0% during the second stage, the rate of return

23   necessary to produce a price of $100.00 per share is 8.29%. Mechanically, this is done by

1   plugging in different rates of return (costs of equity or "k") into the above equation until it

2   calculates the cost of equity (k) that produces a price of $100.00 per share.

3   Fortunately, the "goal-seek" function in Excel can run the iterations and can be

4   used to determine what cost of equity produces a price of $100.00 share (a target price).

5   Therefore, I used the "goal-seek" function in Excel to calculate the result.

6   **Q: Why is it necessary to complete a 2-Stage DCF analysis in a mature industry such as**
7   **the electric utility industry?**

8   A: Dealing with a mature industry does not, in any way, negate the benefits of completing a

9   2-Stage DCF model. No company, whether it be a high growth company like Apple, Tesla,

10   or Nvidia, or relatively low growth companies such as utilities can grow over the long run

11   at rates exceeding the growth rate of the economy as a whole. This would ultimately result

12   in nonsensical situations where companies which are the components of an economy are

13   estimated to be larger than the economy itself. The higher the short-term growth, the more

14   dramatic the adjustment when growth rates in perpetuity are adjusted downwards. Nominal

15   GDP is a theoretical ceiling on growth in the long run. Industries cannot realistically grow

16   at that rate, since new industries come into existence which make up some percentage of

17   the economy in the future.

APPENDIX D

GENERAL CONCERNS WITH ANALYST ESTIMATES

1 On page 106 of his book, <u>The Equity Risk Premium-The Long Run Future of the Stock Market</u>,

2 Bradford Cornell states as follows:

3 The practical problem raised by relying on analysts' forecasts is that
4 such forecasts typically have short horizons. Services that aggregate
5 such forecasts, including those by IBES and Zack's Investment
6 Research, do not provide forecasts beyond 5 years. *From the*
7 *standpoint of the DCF model, which extends into perpetuity, this*
8 *horizon is too short.*

9 Emphasis added.

10 Mr. Cornell goes on to discuss the problems with assuming that the forecasted growth rate can

11 be maintained in perpetuity.

12 In most cases, the IBES forecasts are greater than the long-run
13 economic growth rates. Such growth rates clearly cannot be
14 maintained forever. Although it is possible that a company's
15 dividends can grow significantly faster than the general economy
16 for 5 years, if such a growth rate were maintained indefinitely, the
17 company would eventually engulf the entire economy.

18 Also, <u>Cost of Capital - Estimation and Application 2nd edition</u> by Shannon Pratt makes

19 the following assertions about using analyst forecasts to estimate cost of equity:

20 It is theoretically impossible for the sustainable perpetual growth
21 rate for a company to significantly exceed the growth rate in the
22 economy. Anything over a 6-7% perpetual growth rate should be
23 questioned carefully.

1   A common approach to deriving a perpetual growth rate is to obtain
2   stock analysts' estimates of earnings growth rates. The advantage of
3   using these growth estimates is that they are prepared by people who
4   follow these companies on an ongoing basis. These professional
5   stock analysts develop a great deal more insight on these companies
6   than a causal investor or valuation analyst not specializing in the
7   industry is likely to achieve.

8   There are however, three caveats when using this information:

9   1.   These earnings growth estimates typically are for only the
10   next three to five years; they are not perpetual. Therefore, any use
11   of these forecasts in a single-stage DCF model must be tempered
12   with a longer-term forecast.

13   2.   Most published analysts' estimates come from "sell-side"
14   stock analysts who work for firms that are in the business to sell
15   stocks. Thus, although their earnings forecasts fall within the range
16   of "reasonable" possibilities, they may be on the high end of the
17   range.

18   3.   Usually, these estimates are obtained from firms that provide
19   consensus earnings forecasts; that is, they aggregate forecasts from
20   a number of analysts and report certain summary statistics (mean,
21   median, etc.) on these forecasts. For a small publicly traded firm,
22   there may be only one or even no analyst following the company.
23   The potential for forecasting errors is greater when the forecasts are
24   obtained from a very small number of analysts. These services
25   typically report the number of analysts who have provided earnings
26   estimates, which should be considered in determining how much
27   reliance to place on forecasts of this type.

28   Many of the problems inherent in using a single-stage model to
29   estimate cost of capital are addressed by using a multistage model.

30   These texts explain how analyst forecasts can overstate long term growth in earnings. Analyst

31   growth forecasts are for 3-5 years and are not long-term estimates. The texts also explain why

32   growth rates greater than the growth rate of the U.S. economy are highly questionable. Ms. Bulkley

33   uses growth rates that exceed growth in the U.S. economy in both her DCF analyses and her DCF-

34   driven CAPM analyses. Because both are based on overstated and unsustainable forecasted growth

1   rates in EPS, they overstate cost of equity.

<u>**APPENDIX E**</u>

<u>**POTENTIAL BIAS IN ANALYST FORECASTS**</u>

1   The National Regulatory Research Institute (NRRI) Journal of Applied Regulation

2   supports both of my concerns about using unreasonably high growth rates in a DCF analysis

3   with the following:[61]

> 4   Financial research has made it clear that no company, especially a
> 5   utility, can sustain a growth rate over the long run that exceeds the
> 6   growth rate of the economy.[62] Since 1959 the long-term sustainable
> 7   real growth rate in the economy has been about 3.5%.[63] If long-
> 8   term inflation is expected to be about 2.5%, the maximum long-term
> 9   sustainable nominal growth for any company today is about 6.0%.
> 10   Since utilities are amongst the slowest growing firms in the
> 11   economy, a utility today would be expected to have a long-term
> 12   sustainable growth rate that is significantly below 6%.

13   The article also notes a tendency toward upside bias in analyst forecasts:

> 14   The other problem with using analyst forecasts as the long-term
> 15   growth rate in the DCF model is such forecasts are biased to the
> 16   upside. <u>The evidence on this issue is overwhelming.</u>[64] The forecast
> 17   bias persists year after year in large part due to the incentive
> 18   structures in place at many Wall Street firms that tend to reward
> 19   more optimistic projections and to discourage the incorporation of
> 20   potentially negative views in analysts' forecasts.[65]

21   Emphasis added.

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[61] <u>How improper risk assessment leads to overstated required returns for utility stocks,</u> by Steven G. Kihm
NRRI Journal of Applied regulation-Volume 1, June 2003, p. 98.
[62] Robert D. Arnott and Peter L. Bernstein "What Risk Premium is Normal? Financial Analysis Journal, 58 (2) March/April 2022; 64-85.
[63] Council of Economic Advisors, Economic Report of the President, 2002.
[64] See for example, Vijay Kumar Chopra, "Why so much error in analysts' Earning Forecasts?" Financial Analysts Journal, 54 (6) November/December 1998); 35-42.
[65] See Masakao N. Darrough and Thomas Russal, "A Positive Model of Earnings Forecasts: Top Down Versus Bottom Up." Journal of Business, 75 (1) (January 2002) 127-52.

1   The Wall Street Journal published an article on January 27, 2003, titled <u>Analysts: Still Coming up</u>

2   <u>Rosy</u>. The article discusses how, despite a $1.5 billion settlement pending with regulators over

3   stock research conflicts, analysts are unshaken in their optimism that most of the companies they

4   cover will have above average double-digit growth rates during the next several years. The article

5   asserts that such growth is unlikely:

6   Historically, growth in corporate earnings has slightly lagged
7   nominal growth in gross domestic product. In other words, profits
8   can only grow as fast as the economy. Right now, optimistic Wall
9   Street analysts expect earnings to defy history and grow far faster
10   than that.

11   And:

12   Those overly optimistic growth estimates also show that, even with
13   all regulatory forces on too-bullish analysts allegedly influenced by
14   their firms' investment-banking relationships, a lot of things haven't
15   changed: Research remains rosy and many believe it always will.

16   The concern regarding bias in intermediate term analyst forecasts, such as those relied upon by

17   Ms. Bulkley, is also mentioned in <u>The Real Cost of Equity</u> by Marc H. Goedhart, Timothy M.

18   Koller, and Zane D. Williams (McKinsey Quarterly Autumn 2002):

19   Some theorists have attempted to meet this challenge by surveying
20   equity analysts, but since we know that analyst projections almost
21   always overstate the long-term growth of earnings or dividends,[66]
22   analyst objectivity is hardly beyond question.

23   In a more recent article, <u>Equity analysts: Still too bullish</u> by Marc H. Goedhart, Rishi Raj

24   and Abhishek Saxena (McKinsey Quarterly - April 2010) the authors reiterated the concern

25   regarding analyst forecast bias:

---

[66] See Marc H. Goedhart, Brendan Russel and Zane Williams, "Prophets and profits?" McKinsey on Finance, Number 2, Autumn 2001.

1 No executive would dispute that analysts' forecasts serve as an
2 important benchmark of the current and future health of companies.
3 To better understand their accuracy, we undertook research nearly a
4 decade ago that produced sobering results. Analysts, we found, were
5 typically overoptimistic, slow to revise their forecasts to reflect new
6 economic conditions, and prone to making increasingly inaccurate
7 forecasts when economic growth declined.[67]

8 Alas, a recently completed update of our work only reinforces this
9 view - despite a series of rules and regulations, dating to the last
10 decade, that were intended to improve the quality of the analysts'
11 long-term earnings forecasts, restore investor confidence in them,
12 and prevent conflicts of interest.[68] For executives, many of whom
13 go to great lengths to satisfy Wall Street's expectations in their
14 financial reporting and long-term strategic moves, this is a
15 cautionary tale worth remembering.
16

17 Also, the abstract of Do Analyst Conflicts Matter? Evidence from Stock Recommendations

18 by Anup Agrawal and Mark Chen (Journal of Law and Economics, 2008, V 51), includes

19 the following statement:

20 However, evidence from the response of stock prices and trading
21 volumes to upgrades and downgrades suggests that the market
22 recognizes analyst conflicts and properly discounts analyst options.

23 While it predates the October 31, 2003, final judgment in the Global Research Analyst

24 Settlement ("GRAS"), the following article: Stock Analysts Still Put Their Clients First,

25 Financial Analysts Journal, Volume 59 Issue 3, May 1, 2003, discusses the separation of

26 research and investment banking services and its influence on analyst estimates. The article

27 concludes that the separation of research and investment banking services has not resolved

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[67] *Id.*
[68] SEC Regulation Fair Disclosure (FD) passed in 2000, prohibits the selective disclosure of material information to some people but not others. The Sarbanes-Oxley Act of 2002 includes provisions specifically intended to help restore investor confidence in the reporting of securities analysts, including a code of conduct for them and a requirement to disclose knowable conflicts of interest. The Global Settlement of 2003 between regulators and ten of the largest US investment firms aimed to prevent conflicts of interest between their analyst and investment businesses.

1   the concern that analyst forecasts are still upwardly biased.

2   The new requirements *imply* that independent research (brokerage
3   research without investment banking ties) is better for investors. But
4   why independent analysts will be less vulnerable than brokerage
5   firm analysts to the same pressures for optimism is unclear. Analysts
6   themselves have remarked that one source of strong pressure for
7   <u>"optimism biases" in recommendations is the need to keep access to</u>
8   <u>the managers of the companies they cover; in other words, issue</u>
9   <u>positive research or expect to be cut off from management guidance.</u>
10   Unfortunately, the Sarbanes-Oxley bill, which mandated many
11   improvements in corporate managers' financial practices, did
12   nothing to reduce the unethical practice by many managers of
13   communicating only with those analysts who "cooperate" with
14   management's implicit (and usually positive) forecasts of the future.
15   Finding a way to fix this blind spot may be more important than all
16   the other "sticks" regulating analysts combined.

17   Interestingly, the *Wall Street Journal* reported in April 2003 that
18   after reviewing disclosure reports issued as a result of the new
19   requirements, they concluded that the brokerage firms of the top
20   investment banks <u>are still more likely to give optimistic research</u>
21   <u>recommendations to their own banking clients.</u> Of course, the new
22   disclosure requirements attempt to protect investor clients by
23   making them aware of investment research's potential as an
24   advising medium, but the attempt works only if investors read and
25   understand the disclosures. Institutional investors are probably more
26   likely than retail investors to read, put into context, and fully
27   appreciate these new disclosures.
28   <u>Emphases added.</u>

29   While the GRAS may have reduced some of the causes of analyst bias, the problem of

30   optimistic analyst forecasts has not been eliminated. Moreover, the <u>Equity Analysts: Still Too</u>

31   <u>Bullish</u> article by Goedhart, Raj, and Saxena and <u>Do Analyst Conflicts Matter? Evidence from</u>

32   <u>Stock Recommendations</u> by Agrawal and Chen were both published several years after the GRAS.

33   Both articles support my professional viewpoint that concerns about analyst optimism still exist.

34   When using analyst forecasts of EPS to estimate growth (g) in a DCF analysis, both the

35   potential for analyst bias and the intermediate term nature of the forecasts may make these

1   estimates unreliable. Even assuming no analyst bias, unsustainable growth rates should be

2   adjusted or given reduced weight. This is particularly emblematic in the DCF analysis Ms.

3   Bulkley conducts on companies in the S&P 500 to calculate her estimated market growth where

4   more than half the companies with estimates have a 3-5 year forecasted growth rate in EPS

5   10.0% or above.[69]

---

[69] Of the 397 companies that Ms. Bulkley used to calculate a 10.65% growth rate, 201 of them had growth of 10% or higher.

APPENDIX F

USE OF HISTORICAL GROWTH ESTIMATES

1   **Q:**   **What data should the Commission use to estimate growth (g) in a DCF analysis?**

2   A: Just as this Commission has done in past cases, such as Cause No. 43860 (Indiana American

3   Water Co.), it should review and give weight to both historical and forecasted data of

4   growth rates in EPS, DPS, and BVPS.

5   **Q:**   **Has the Commission supported the use of DPS, BVPS, and EPS data in estimating**
6   **the growth (g) component of the DCF calculation?**

7   A: Yes. In Gary-Hobart Water Corporation (acquired by Indiana American), Cause No.

8   39585, in its final order dated December 1, 1993, at page 17, this Commission stated

9   that "although we agree historical and projected dividend information are important

10   considerations when estimating future rates of growth for the DCF model, we do not

11   believe that book value and earnings data should be ignored." In Cause No. 42029, the

12   Commission stated that it "has consistently sanctioned the use of both historical and

13   forecasted per share data" and that it "continue[s] to believe that both historical and

14   forecasted earnings, dividends and book value per share data are useful when

15   employing the DCF model." *Ind. Amer. Water Co.,* Cause No. 42029, Final Order p.

16   32 (Ind. Util. Regul. Comm'n Nov. 6, 2002).

17   The Commission has more recently affirmed its determination that historical

18   and forecasted earnings and dividends and book value per share data are useful when

19   employing the DCF model in Cause No. 43680:

20   The Commission expects the parties to exercise sound judgment
21   when deciding which inputs to include as part of their analysis.

1   We have concerns regarding Mr. Moul's sole reliance on
2   analysts' intermediate-term forecasts in his DCF model. The
3   Commission believes that both historical and forecasted earnings
4   and dividends and book value per share data are useful when
5   employing the DCF Model. Although Mr. Gorman agreed with
6   Mr. Moul's forecasted growth rates, Mr. Gorman recommended
7   adjustments that modify Mr. Moul's outcomes to be much more
8   in line with Mr. Kaufman's and Mr. Gorman's results. We agree
9   with Mr. Kaufman that Mr. Moul's reliance on intermediate-term
10   forecasts result in a growth rate that is unrealistically high.

11   We also agree with Mr. Gorman that the constant growth DCF return
12   used by Mr. Moul for the Water Proxy Group is not reasonable
13   and represents an inflated return for Indiana-American at this
14   time. The constant growth DCF results for the Water Proxy
15   Group are based on growth rates of 7.29% (Mr. Gorman) and
16   7.5% (Mr. Moul). The Commission finds these growth rates to
17   be unsustainable for the long-term, which is required by the
18   constant growth model.

19   *Ind. Amer. Water Co.,* Cause No. 43680, Final Order, p. 47 (Ind. Util. Regul. Comm'n Apr.
20   30, 2010).

APPENDIX G

CAPITAL ASSET PRICING MODEL (CAPM) ANALYSIS

1   **Q:**   **Does the CAPM give a better indication of the required returns than the DCF model?**

2   A: No. If the DCF is used with a reasonable estimated growth rate of dividends, it produces

3   results at least as reasonable as the CAPM. The CAPM is typically more controversial and

4   less reliable than the DCF model.

5   Brigham and Louis Gapenski comment on the lack of precision in the CAPM on

6   page 64 of their text Intermediate Financial Management (2nd Edition):

7   Although the CAPM appears to provide neat precise answers to
8   important questions about risk and required rates of return, the
9   answers are really quite fuzzy. The simple truth is that we do not
10   know precisely how to measure any of the inputs required to
11   implement the CAPM. These inputs should all be ex ante, yet we
12   have available only ex-post data. Further as we shall see in chapter
13   4, historical data such as k_M and k_{RF} and Beta vary greatly depending
14   on the time period studied and the methods used to estimate them.
15   Thus, although the CAPM may appear precise, its inputs cannot be
16   estimated with any precision at all, and hence the estimate of k_i
17   found through the use of CAPM are subject to large errors.
18
19   **Q:**   **Please describe your CAPM analysis.**

20   A: The Capital Asset Pricing Model, or CAPM, is a form of risk premium analysis used to

21   estimate the cost of capital. The CAPM is based on the premise that investors require a

22   higher return for assuming additional risk. Total risk is divisible into two categories:

23   systematic risk and unsystematic risk. Systematic risk is risk that affects the entire market,

24   including inflation, monetary policy, fiscal policy, or politics. Unsystematic risk is risk

25   unique to the company and may include the characteristics of the industry in which the

26   company operates as well as factors involving the individual company being examined,

1   such as strikes, management errors or ability, merger activity, or individual financing

2   policy.

3   Investors can mitigate unsystematic risk through diversification. Because returns

4   of individual securities of a portfolio do not usually move in the same direction at the same

5   time, the total risk of a portfolio is less than the risk of the individual securities that make

6   up the portfolio. Because investors can eliminate unsystematic risk through diversification,

7   the market does not compensate investors for assuming unsystematic risk. Conversely,

8   systematic risk, sometimes referred to as market risk, cannot be eliminated through

9   diversification. However, because investments will move with different relationships to

10   the market, investors can form a portfolio to assume the amount of market risk they wish.

11   An investor's required return depends on the market risk that the investor assumes.

12   **Q: How is systematic (market) risk measured?**

13   A: Beta is the measurement of an investment's relationship to the market. More specifically,

14   Beta measures an asset's price volatility compared to the market. By definition, the market

15   has a Beta of one. The market refers to the returns on all assets. Because it is very difficult

16   to measure the return on all assets, analysts typically rely on a market index, such as the

17   Standard & Poor's 500 Index, as a proxy for the market. Assets more volatile than the

18   market will have a Beta greater than one and, thus, they are considered riskier than the

19   market. Similarly, assets that are less volatile will have a Beta less than one and are

20   considered less risky than the market. Utility stocks would be considered low-risk, and

21   almost always have a Beta less than one, and that is true in the present cause.

22   The CAPM formula can be stated as follows:

1   **K**   **=**   **Rfc + β*(Rm-Rf) where,**

2   K   =   Cost of Equity

3   Rfc   =   Current Risk Free Rate of Return

4   β   =   Beta

5   Rm-Rf=   Expected Market Equity Risk Premium

6   Rm   =   Market Equity Return

7   Rf   =   Risk Free Rate of Return

8   The return on an asset (K) equals the risk-free rate of return (Rfc) plus its Beta (β)

9   multiplied by the market equity risk premium (Rm - Rf). The market equity risk premium

10   equals the market equity return minus the risk-free rate of return.[70]

11   **Q:**   **What is your expert opinion of the CAPM?**

12   A: In the initial introduction to the CAPM in <u>Cost of Capital</u>,[71] this textbook quotes the

13   following from Michael Dempsey: "[n]evertheless, we consider that in choosing to

14   attribute CAPM rationality to the markets, we are imposing a model of rationality that is

15   firmly contradicted by the empirical evidence of academic research." As an introduction

16   to the model, this is not a full-throated endorsement. However, the very next sentence states

17   "[d]espite its many criticisms, the CAPM in its pure form is still one of the most widely

18   used models for estimating the cost of equity capital[.]"[72]. The CAPM is typically more

19   controversial and less reliable than the DCF model. Different applications of CAPM may

20   result in vastly different cost of equity estimates. For example, the source of Beta can

21   influence the results of a CAPM analysis. If a market risk premium of 5.0% is used, a

22   difference in Beta of only 0.10 changes the results of a CAPM analysis by 50 basis points.

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[70] I refer to the Market Risk Premium or the Equity Risk Premium as interchangeable concepts throughout my testimony, the difference between the two concepts is not relevant for purposes of establishing a Utility ROE, since there is a general understanding that by "market" we mean the stock market and not other investable assets.

[71] <u>Cost of Capital, Applications and Examples</u>, Fifth Edition. Shannon P. Pratt and Roger J. Grabowski, page 190.

[72] *Id*.

A. **Forecasted Equity Risk Premium**

1 **Q:** **Do you propose to use forecasted information to determine the equity risk premium?**

2 A: Yes. Both historical and forecasted equity risk premiums provide relevant insight to

3 estimate cost of equity. A hard to dismiss critique came from Roger Ibbotson's dissertation

4 advisor, Eugene Fama. In a series of papers written with Dartmouth College's Kenneth

5 French, Fama has argued that the capital asset pricing model, or at least its 1970s corollary,

6 that the risk premium is constant doesn't match the facts. "My own view is that the risk

7 premium has gone down over time basically because we have convinced people that it's

8 there." Fama says. Ibbotson's stock market forecasting model is thus a victim of its own

9 success.

10 Ibbotson agrees that Fama has a point, and that he can no longer bank on the

11 historical equity premium to predict the future.

12 Importantly, even <u>Dr. Ibbotson has now expressed concerns about</u>
13 <u>using historical data to estimate the risk premium</u>. At the time of this
14 article Dr. Ibbotson had forecasted a long-run equity--return forecast
15 of 9.27% compared to an annual return on stocks from 1925 to the
16 [then] present day of 10.31%.
17
Emphases added.

B. **Risk-free rate of return**

18 **Q:** **Is the risk-free rate of return also controversial?**

19 A: Aside from the market risk premium controversy, financial analysts do not agree on the

20 determination of the risk-free rate. Theoretically, the risk-free rate is the rate of return on

21 a completely risk-free asset. In practice, analysts typically use yields on United States

22 Treasury Securities as a proxy for the risk-free rate. An analyst could use the yield on very

23 short term 91-day Treasury Bills as a proxy for the theoretical risk-free rate of return.

1   However, the volatility of 91-day Treasury Bill rates has led many analysts to use longer

2   term Treasury instruments as an estimate of the risk-free rate.

3   **Q: How did you estimate the risk-free rate?**

4   A: I analyzed the 10-year and 30-year Treasury long-term yields from both a current and a

5   forecasted time frame. For the current results, I calculated yields based on the spot yield

6   (as of the date I selected to procure my data), the 7-day average yield (prior the date

7   selected), and 1-month, 3-month and 6-month average yields.

8   **Q: What metric do you use?**

9   A: My preferred metric is the 30-year 7-day average yield because at this point in time, the

10   30-year yield is the most reliable (meaning the most market driven and the least influenced

11   by the short-term gyrations and manipulations of the Federal Reserve). Further, the

12   Treasury market is so deep and robust that the market will have minimal volatility from

13   day to day that is not explained by relevant information, and that since the purpose of using

14   longer time frames for calculation of current yields is to remove this volatility, this is of

15   minimal value in the treasury market.

C. Beta

16 **Q: What source did you review to estimate Beta?**

17 A: Like Ms. Bulkley, I relied on Value Line and Bloomberg as two sources of Beta. In addition

18   to those two sources, I used Yahoo! Finance, Zacks, NYSE, and Standard and Poor's

19   (S&P).

20 **Q: Is there a difference in the Betas calculated from different sources?**

21 A: Yes. Although Beta is a mathematical construct, the choice of time frames, data points,

22   and indexes can result in a significant difference of calculated Betas. Further, both

1   Bloomberg and Value Line use adjusted Betas, meaning that the mathematical results are

2   adjusted towards one. For utilities which are low risk (a Beta below one) this means that

3   both Value Line and Bloomberg will result in an increased Beta (and hence a higher

4   resultant ROE when inputted into the CAPM formula). None of the other sources of Beta

5   are adjusted. The adjustment results in a very significant difference in Beta between the

6   adjusted and the unadjusted sources.

APPENDIX H

INFLATION

1   **Q: Have you incorporated inflation projections as an input in any of your models?**

2   A: Yes. Most of the estimates are implied, but there are various places where the estimates

3   and forecasts are explicit. This portion of my testimony is meant to highlight some specific

4   forecasts that were either provided by the Petitioner or that I am utilizing within my

5   models.

6   **Q: Where would projected inflation be implied within your projections and models?**

7   A: The most obvious place is as a component of interest rates. For instance, a 10-year Treasury

8   yield implicitly includes the markets estimates of inflation over the next ten years. There

9   are readily available interest rates without this component, specifically a security called a

10   TIPS (Treasury Inflation-Protected Securities). A standard 10-year Treasury yield would

11   be considered a nominal interest rate, as opposed to a real rate (which is a nominal rate of

12   interest less the inflation rate). Since interest rates indirectly affect stock prices changes in

13   implied inflation forecasts also affect stock prices. General inflation may also affect

14   equities more directly, if inflation impacts are uneven, or as equities respond to the

15   depreciation of the currency in which they are denominated.[73]

16 **Q: Are explicit inflation projections available?**

17 A: Yes. There are long-term inflation forecasts provided by the Federal Reserve and the

18   Congressional Budget Office. There are inflation estimates included with the projections

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[73] This is just another definition of inflation, that inflation instead of measuring the increase in prices measures the decrease in value of the currency in which those prices are being measured. They are two sides of the same coin.

1   that the Indiana Public Retirement System (INPRS) uses as part of its market return

2   estimates. There are multiple other sources from companies to surveys of professional

3   forecasters. Please find (14) separate projections for long-term inflation assumptions

4   below. These are all nationally recognized, well-respected sources.

Table SD-19

Source:	Forecast	Notes	Date
Blue Chip	2.20%	CPI Consensus, 2030-2034	1-Jun-23
BNY Mellon	2.90%	10 Year Annualized, p. 12	2023 Report
Congressional Budget Office	2.30%	Growth of CPI-U, Average of Growth from 2024-2053, Long-Term Economic Projections	1-Jul-23
Congressional Budget Office	2.00%	Long-Run Inflation trendline	1-Feb-23
Federal Reserve	2.00%	Longer run	6/14/2023
Fidelity	2.70%	Page 5, 20 Year Assumptions	8/17/2023
Horizon Actuarial Services	2.46%	Inflation-All Survey Respondents, 20 year, page 4	1-Aug-23
INPRS	2.00%	30-Year inflation assumption, page 66	20-Sep-23
JP Morgan	2.60%	US Inflation, page 112	2023 Report
Philadelphia Fed	2.36%	Long-Term Average 2023-2032, Headline CPI Q2 Survey of Professional Forecasters	8/11/2023
Schwab	2.50%	Annualized Forecasted (2023-2032)	4-Jan-23
Vanguard	2.50%	Midpoint of range of 2.0%-3.0%, 10 year average forecast, page	18-May-23
Verus	2.50%	10-Year Inflation Forecast, page 12	1-Nov-22
Verus	2.10%	30-Year Inflation Assumption, page 37	1-Nov-22
Average	2.37%		

Cause No. 45933
OUCC Attachment SD-1 ROE Worksheet
Excel Spreadsheet

Proxy Group Screening

Company		Include/ Exclude	TOTAL	Pays Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources	Generation Assets Included in Rate Base	% Company-Owned Generation > 40%	% Regulated Operating Income > 60%	% Regulated Electric Operating Income > 80%	Announced Merger	Other Consideration
ALLETE, Inc.	ALE	Include	9	1	1	1	1	1	1	1	1	1	
Alliant Energy Corporation	LNT	Include	9	1	1	1	1	1	1	1	1	1	
Ameren Corporation	AEE	Include	9	1	1	1	1	1	1	1	1	1	
American Electric Power Company, Inc.	AEP		8	1	1	1	1	1	1	1	1	1	-1
Avangrid, Inc.	AGR		8	1	1	1	1	1	1	1	1		
Avista Corporation	AVA	Include	9	1	1	1	1	1	1	1	1	1	
Black Hills Corporation	BKH		8	1	1	1	1	1	1	1		1	
CenterPoint Energy, Inc.	CNP		8	1	1	1	1	1	1	1		1	
CMS Energy Corporation	CMS		8	1	1	1	1	1	1	1		1	
Consolidated Edison, Inc.	ED		7	1	1	1	1	1		1		1	
Dominion Resources, Inc.	D		8	1	1	1	1	1	1	1	1		
DTE Energy Company	DTE		7	1	1	1	1	1	1	1			
Duke Energy Corporation	DUK	Include	9	1	1	1	1	1	1	1	1	1	
Edison International	EIX		8	1	1	1	1	1		1	1	1	
Entergy Corporation	ETR	Include	9	1	1	1	1	1	1	1	1	1	
Eversource Energy	ES		8	1	1	1	1	1		1	1	1	
Evergy, Inc.	EVRG	Include	9	1	1	1	1	1	1	1	1	1	
Exelon Corporation	EXC		6	1	1	1	1			1		1	
FirstEnergy Corporation	FE		8	1	1	1	1	1		1	1	1	
Hawaiian Electric Industries, Inc.	HE		8	1	1	1	1	1	1	1	1	1	-1
IDACORP, Inc.	IDA	Include	9	1	1	1	1	1	1	1	1	1	
MGE Energy, Inc.	MGEE		7	1	1	1	1	1	1	1		1	-1
NextEra Energy, Inc.	NEE	Include	9	1	1	1	1	1	1	1	1	1	
NorthWestern Corporation	NWE	Include	9	1	1	1	1	1	1	1	1	1	
OGE Energy Corporation	OGE	Include	9	1	1	1	1	1	1	1	1	1	
Otter Tail Corporation	OTTR		8	1	1	1	1	1	1	1	1		
PG&E Corporation	PCG		6	1	1	1	1			1		1	
Pinnacle West Capital Corporation	PNW	Include	9	1	1	1	1	1	1	1	1	1	
PNM Resources, Inc.	PNM		8	1	1	1	1	1	1	1	1		
Portland General Electric Company	POR	Include	9	1	1	1	1	1	1	1	1	1	
PPL Corporation	PPL		7	1	1	1	1	1		1		1	
Public Service Enterprise Group Inc.	PEG		7	1	1	1	1	1		1		1	
Sempra Energy	SRE		7	1	1	1	1	1		1		1	
Southern Company	SO		8	1	1	1	1	1	1	1		1	
Wisconsin Energy Corporation	WEC		8	1	1	1	1	1	1	1		1	
Xcel Energy Inc.	XEL	Include	9	1	1	1	1	1	1	1	1	1	

Notes:
[1] HE was excluded from the proxy group due to its unique geographical risk operating in Hawaii.

Proxy Group Selection Data

Company	Ticker	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	Generation Assets Included in Rate Base	Company-Owned Generation / Total Income	Regulated Operating Income / Total Income	Regulated Electric Income / Total Income	M&A Activity or Other Significant Event	Date Announced	Date Completed	Notes
ALLETE, Inc.	ALE	Yes	BBB	Yes	Yes	Yes	41.54%	102.84%	97.70%	No			
Alliant Energy Corporation	LNT	Yes	A-	Yes	Yes	Yes	70.97%	96.96%	90.66%	No			
Ameren Corporation	AEE	Yes	BBB+	Yes	Yes	Yes	76.04%	100.00%	84.34%	No			
American Electric Power Company, Inc.	AEP	Yes	A-	Yes	Yes	Yes	52.91%	97.34%	100.00%	No			
Avangrid, Inc.	AGR	Yes	BBB+	Yes	Yes	Yes	50.44%	99.29%		Yes	10/21/2020	Pending	Avangrid, Inc. to acquire PNM Resources, Inc.
Avista Corporation	AVA	Yes	BBB	Yes	Yes	Yes	59.38%	100.00%	100.00%	No			
Black Hills Corporation	BKH	Yes	BBB+	Yes	Yes	Yes	40.82%	94.70%	49.91%	No			
CenterPoint Energy, Inc.	CNP	Yes	BBB+	Yes	Yes	Yes	84.35%	101.54%	54.51%	No			
CMS Energy Corporation	CMS	Yes	BBB+	Yes	Yes	Yes	41.36%	99.71%	65.80%	No			
Consolidated Edison, Inc.	ED	Yes	A-	Yes	Yes	Yes	8.75%	90.49%	72.46%	No			
Dominion Resources, Inc.	D	No	BBB+	Yes	Yes	Yes	58.01%	99.39%	83.32%	No			
DTE Energy Company	DTE	No	BBB+	Yes	Yes	Yes	77.51%	101.96%	78.03%	No			
Duke Energy Corporation	DUK	Yes	BBB+	Yes	Yes	Yes	82.34%	99.66%	91.34%	No			
Edison International	EIX	Yes	BBB	Yes	Yes	Yes	15.54%	98.93%	100.00%	No			
Entergy Corporation	ETR	Yes	BBB+	Yes	Yes	Yes	68.34%	98.74%	99.57%	No			
Eversource Energy	ES	Yes	A-	Yes	Yes	Yes	0.06%	92.38%	85.35%	No			
Evergy, Inc.	EVRG	Yes	A-	Yes	Yes	Yes	62.52%	100.00%	100.00%	No			
Exelon Corporation	EXC	No	BBB+	Yes	Yes	No	0.00%	61.21%	91.36%	No			
FirstEnergy Corporation	FE	Yes	BBB-	Yes	Yes	Yes	18.52%	100.00%	100.00%	No	11/7/2021	5/31/2022	Brookfield Infrastructure Partners L.P. to acquire 19.9% of FirstEnergy Transmission, LLC
Hawaiian Electric Industries, Inc.	HE	Yes	BBB-	Yes	Yes	Yes	54.40%	79.05%	100.00%	No			
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	Yes	68.95%	99.91%	100.00%	No			
MGE Energy, Inc.	MGEE	Yes	AA-	Yes	Yes	Yes	69.48%	72.55%	73.16%	No			
NextEra Energy, Inc.	NEE	Yes	A-	Yes	Yes	Yes	96.85%	92.16%	100.00%	No			
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	Yes	56.48%	99.75%	84.49%	No			
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	Yes	55.06%	100.00%	100.00%	No			
Otter Tail Corporation	OTTR	Yes	BBB	Yes	Yes	Yes	55.70%	48.07%	100.00%	No			
PG&E Corporation	PCG	Yes	BB-	Yes	Yes	Yes	36.20%	99.54%	57.04%	No			
Pinnacle West Capital Corporation	PNW	Yes	BBB+	Yes	Yes	Yes	77.40%	100.00%	100.00%	No			
PNM Resources, Inc.	PNM	Yes	BBB	Yes	Yes	Yes	49.60%	100.00%	100.00%	Yes	10/21/2020	Pending	Avangrid, Inc. to acquire PNM Resources, Inc.
Portland General Electric Company	POR	Yes	BBB+	Yes	Yes	Yes	60.82%	100.00%	100.00%	No			
PPL Corporation	PPL	No	A-	Yes	Yes	Yes	28.07%	100.00%	94.55%	No	3/18/2021	5/25/2022	PPL Energy Holdings, LLC to acquire Narragansett Electric Company
Public Service Enterprise Group Inc.	PEG	Yes	BBB+	Yes	Yes	Yes	0.11%	90.73%	79.79%	No			
Sempra Energy	SRE	Yes	BBB+	Yes	Yes	Yes	11.98%	74.47%	62.86%	No	12/21/2021	6/1/2022	Black River B 2017 Inc. to acquire 10% of Sempra Infrastructure Partners, LP
Southern Company	SO	Yes	BBB+	Yes	Yes	Yes	77.81%	94.89%	79.22%	No			
Wisconsin Energy Corporation	WEC	Yes	A-	Yes	Yes	Yes	66.33%	99.53%	53.49%	No			
Xcel Energy Inc.	XEL	Yes	A-	Yes	Yes	Yes	57.64%	100.00%	86.47%	No			

Dominion Energy Stock
Source: Nasdaq.com
https://www.nasdaq.com/market-activity/stocks/d/dividend-histor

Ex/EFF DATE	TYPE	CASH AMOUNT	DECLARATION DATE	RECORD DATE	PAYMENT DATE
8/31/2023	CASH	$0.67	8/2/2023	9/1/2023	9/20/2023
6/1/2023	CASH	$0.67	5/10/2023	6/2/2023	6/20/2023
3/2/2023	CASH	$0.67	2/8/2023	3/3/2023	3/20/2023
12/1/2022	CASH	$0.67	11/3/2022	12/2/2022	12/20/2022
9/1/2022	CASH	$0.67	8/3/2022	9/2/2022	9/20/2022
6/2/2022	CASH	$0.67	5/11/2022	6/3/2022	6/20/2022
3/3/2022	CASH	$0.67	1/28/2022	3/4/2022	3/20/2022
12/2/2021	CASH	$0.63	11/3/2021	12/3/2021	12/20/2021
9/2/2021	CASH	$0.63	8/4/2021	9/3/2021	9/20/2021
6/3/2021	CASH	$0.63	5/5/2021	6/4/2021	6/20/2021
3/4/2021	CASH	$0.63	1/22/2021	3/5/2021	3/20/2021
12/3/2020	CASH	$0.63	11/4/2020	12/4/2020	12/20/2020
9/3/2020	CASH	$0.94	7/30/2020	9/4/2020	9/20/2020
6/4/2020	CASH	$0.94	5/6/2020	6/5/2020	6/20/2020
2/27/2020	CASH	$0.94	1/24/2020	2/28/2020	3/20/2020
12/5/2019	CASH	$0.92	11/1/2019	12/6/2019	12/20/2019
9/5/2019	CASH	$0.92	8/1/2019	9/6/2019	9/20/2019
6/6/2019	CASH	$0.92	5/8/2019	6/7/2019	6/20/2019
2/28/2019	CASH	$0.92	12/15/2018	3/1/2019	3/20/2019
12/6/2018	CASH	$0.84	11/1/2018	12/7/2018	12/20/2018
9/6/2018	CASH	$0.84	8/1/2018	9/7/2018	9/20/2018
5/31/2018	CASH	$0.84	5/9/2018	6/1/2018	6/20/2018
3/1/2018	CASH	$0.84	1/26/2018	3/2/2018	3/20/2018
11/30/2017	CASH	$0.77	10/12/2017	12/1/2017	12/20/2017
8/30/2017	CASH	$0.76	8/1/2017	9/1/2017	9/20/2017
5/31/2017	CASH	$0.76	5/10/2017	6/2/2017	6/20/2017
3/1/2017	CASH	$0.76	1/24/2017	3/3/2017	3/20/2017
11/30/2016	CASH	$0.70	10/28/2016	12/2/2016	12/20/2016
8/31/2016	CASH	$0.70	8/2/2016	9/2/2016	9/20/2016
6/1/2016	CASH	$0.70	5/11/2016	6/3/2016	6/20/2016
3/2/2016	CASH	$0.70	1/21/2016	3/4/2016	3/20/2016
11/23/2015	CASH	$0.65	10/22/2015	11/25/2015	12/20/2015
8/26/2015	CASH	$0.65	8/4/2015	8/28/2015	9/20/2015
5/27/2015	CASH	$0.65	5/13/2015	5/29/2015	6/20/2015

2/25/2015	CASH	$0.65	2/9/2015	2/27/2015	3/20/2015
11/25/2014	CASH	$0.60	10/15/2014	11/28/2014	12/20/2014
8/27/2014	CASH	$0.60	8/8/2014	8/29/2014	9/20/2014
5/28/2014	CASH	$0.60	5/19/2014	5/30/2014	6/20/2014
2/26/2014	CASH	$0.60	1/17/2014	2/28/2014	3/20/2014
12/4/2013	CASH	$0.56	10/25/2013	12/6/2013	12/20/2013
9/4/2013	CASH	$0.56	8/13/2013	9/6/2013	9/20/2013
6/5/2013	CASH	$0.56	5/3/2013	6/7/2013	6/20/2013
2/26/2013	CASH	$0.56	1/25/2013	2/28/2013	3/20/2013
11/28/2012	CASH	$0.53	10/18/2012	11/30/2012	12/20/2012
8/29/2012	CASH	$0.53	8/10/2012	8/31/2012	9/20/2012
5/30/2012	CASH	$0.53	5/8/2012	6/1/2012	6/20/2012
2/29/2012	CASH	$0.53	1/20/2012	3/2/2012	3/20/2012
11/30/2011	CASH	$0.49	10/21/2011	12/2/2011	12/20/2011
8/24/2011	CASH	$0.49	8/5/2011	8/26/2011	9/20/2011
5/25/2011	CASH	$0.49	5/12/2011	5/27/2011	6/20/2011
3/2/2011	CASH	$0.49	1/21/2011	3/4/2011	3/20/2011
11/24/2010	CASH	$0.46	10/22/2010	11/29/2010	12/20/2010
8/25/2010	CASH	$0.46	7/21/2010	8/27/2010	9/20/2010
5/26/2010	CASH	$0.46	5/18/2010	5/28/2010	6/20/2010
2/24/2010	CASH	$0.46	1/22/2010	2/26/2010	3/20/2010
11/25/2009	CASH	$0.44	10/16/2009	11/30/2009	12/20/2009
8/26/2009	CASH	$0.44	8/6/2009	8/28/2009	9/20/2009
5/27/2009	CASH	$0.44	5/5/2009	5/29/2009	6/20/2009
2/25/2009	CASH	$0.44	12/17/2008	2/27/2009	3/20/2009
11/26/2008	CASH	$0.40	10/24/2008	12/1/2008	12/20/2008
8/27/2008	CASH	$0.40	8/7/2008	8/29/2008	9/20/2008
5/28/2008	CASH	$0.40	5/9/2008	5/30/2008	6/20/2008
2/27/2008	CASH	$0.40	1/25/2008	2/29/2008	3/20/2008
11/28/2007	CASH	$0.40	10/19/2007	11/30/2007	12/20/2007
8/29/2007	CASH	$0.71	8/8/2007	8/31/2007	9/20/2007
5/30/2007	CASH	$0.71	4/27/2007	6/1/2007	6/20/2007
2/21/2007	CASH	$0.71	1/26/2007	2/23/2007	3/20/2007
11/29/2006	CASH	$0.69	10/20/2006	12/1/2006	12/20/2006
8/30/2006	CASH	$0.69	8/3/2006	9/1/2006	9/20/2006
5/31/2006	CASH	$0.69	4/28/2006	6/2/2006	6/20/2006
11/23/2005	CASH	$0.67	10/28/2005	11/28/2005	12/20/2005
8/24/2005	CASH	$0.67	7/22/2005	8/26/2005	9/20/2005
5/25/2005	CASH	$0.67	4/22/2005	5/27/2005	6/20/2005
2/23/2005	CASH	$0.67	2/1/2005	2/25/2005	3/20/2005

11/24/2004	CASH	$0.67	7/27/2004	11/29/2004	12/20/2004
8/25/2004	CASH	$0.65	7/13/2004	8/27/2004	9/20/2004
5/26/2004	CASH	$0.65	4/23/2004	5/28/2004	6/20/2004
2/25/2004	CASH	$0.65	2/3/2004	2/27/2004	3/20/2004
11/26/2003	CASH	$0.65	10/17/2003	12/1/2003	12/20/2003
8/27/2003	CASH	$0.65	7/15/2003	8/29/2003	9/20/2003
5/28/2003	CASH	$0.65	4/25/2003	5/30/2003	6/20/2003
2/26/2003	CASH	$0.65	2/17/2003	2/28/2003	3/20/2003
11/27/2002	CASH	$0.65	10/11/2002	12/2/2002	12/20/2002
8/28/2002	CASH	$0.65	6/21/2002	8/30/2002	9/20/2002
5/29/2002	CASH	$0.65	4/26/2002	5/31/2002	6/20/2002
2/27/2002	CASH	$0.65	2/15/2002	3/1/2002	3/20/2002
11/21/2001	CASH	$0.65	10/19/2001	11/26/2001	12/20/2001
8/29/2001	CASH	$0.65	7/20/2001	8/31/2001	9/20/2001
5/30/2001	CASH	$0.65	4/27/2001	6/1/2001	6/20/2001
2/28/2001	CASH	$0.65	2/16/2001	3/2/2001	3/20/2001
11/21/2000	CASH	$0.65	10/20/2000	11/24/2000	12/20/2000
8/23/2000	CASH	$0.65	7/7/2000	8/25/2000	9/20/2000
5/24/2000	CASH	$0.65	4/28/2000	5/26/2000	6/20/2000
2/28/2000	CASH	$0.65	2/18/2000	3/1/2000	3/20/2000

DTE Energy Stock
Source: Nasdaq.com
https://www.nasdaq.com/market-activity/stocks/dte/dividend-history

Ex/EFF DATE	TYPE	CASH AMOUNT	DECLARATION DATE	RECORD DATE	PAYMENT DATE
9/15/2023	CASH	$0.95	6/22/2023	9/18/2023	10/15/2023
6/15/2023	CASH	$0.95	5/4/2023	6/19/2023	7/15/2023
3/17/2023	CASH	$0.95	2/2/2023	3/20/2023	4/15/2023
12/16/2022	CASH	$0.95	11/10/2022	12/19/2022	1/15/2023
9/16/2022	CASH	$0.89	6/23/2022	9/19/2022	10/15/2022
6/16/2022	CASH	$0.89	5/5/2022	6/20/2022	7/15/2022
3/18/2022	CASH	$0.89	2/3/2022	3/21/2022	4/15/2022
12/17/2021	CASH	$0.89	10/27/2021	12/20/2021	1/15/2022
9/17/2021	CASH	$0.83	6/24/2021	9/20/2021	10/15/2021
6/18/2021	CASH	$1.09	5/6/2021	6/21/2021	7/15/2021
3/12/2021	CASH	$1.09	1/28/2021	3/15/2021	4/15/2021
12/18/2020	CASH	$1.09	10/27/2020	12/21/2020	1/15/2021
9/18/2020	CASH	$1.01	6/18/2020	9/21/2020	10/15/2020
6/12/2020	CASH	$1.01	5/7/2020	6/15/2020	7/15/2020
3/13/2020	CASH	$1.01	1/30/2020	3/16/2020	4/15/2020
12/13/2019	CASH	$1.01	10/28/2019	12/16/2019	1/15/2020
9/13/2019	CASH	$0.95	6/21/2019	9/16/2019	10/15/2019
6/14/2019	CASH	$0.95	5/10/2019	6/17/2019	7/15/2019
3/15/2019	CASH	$0.95	2/1/2019	3/18/2019	4/15/2019
12/14/2018	CASH	$0.95	11/12/2018	12/17/2018	1/15/2019
9/14/2018	CASH	$0.88	6/22/2018	9/17/2018	10/15/2018
6/15/2018	CASH	$0.88	5/4/2018	6/18/2018	7/15/2018
3/16/2018	CASH	$0.88	2/2/2018	3/19/2018	4/15/2018
12/15/2017	CASH	$0.88	11/3/2017	12/18/2017	1/15/2018
9/15/2017	CASH	$0.83	6/22/2017	9/18/2017	10/16/2017
6/15/2017	CASH	$0.83	5/8/2017	6/19/2017	7/15/2017
3/16/2017	CASH	$0.83	2/3/2017	3/20/2017	4/15/2017
12/15/2016	CASH	$0.83	11/4/2016	12/19/2016	1/15/2017
9/15/2016	CASH	$0.77	6/23/2016	9/19/2016	10/15/2016
6/16/2016	CASH	$0.73	5/5/2016	6/20/2016	7/15/2016
3/17/2016	CASH	$0.73	2/4/2016	3/21/2016	4/15/2016
12/17/2015	CASH	$0.73	12/2/2015	12/21/2015	1/15/2016
9/17/2015	CASH	$0.73	6/25/2015	9/21/2015	10/15/2015
6/11/2015	CASH	$0.69	5/7/2015	6/15/2015	7/15/2015

3/12/2015	CASH	$0.69	2/5/2015	3/16/2015	4/15/2015
12/11/2014	CASH	$0.69	12/3/2014	12/15/2014	1/15/2015
9/11/2014	CASH	$0.69	6/19/2014	9/15/2014	10/15/2014
6/12/2014	CASH	$0.66	5/1/2014	6/16/2014	7/15/2014
3/13/2014	CASH	$0.66	2/6/2014	3/17/2014	4/15/2014
12/12/2013	CASH	$0.66	12/5/2013	12/16/2013	1/15/2014
9/12/2013	CASH	$0.66	6/20/2013	9/16/2013	10/15/2013
6/13/2013	CASH	$0.66	5/1/2013	6/17/2013	7/15/2013
3/14/2013	CASH	$0.62	2/7/2013	3/18/2013	4/15/2013
12/17/2012	CASH	$0.62	12/6/2012	12/19/2012	1/15/2013
9/13/2012	CASH	$0.62	6/14/2012	9/17/2012	10/15/2012
6/18/2012	CASH	$0.59	5/3/2012	6/20/2012	7/15/2012
3/15/2012	CASH	$0.59	2/2/2012	3/19/2012	4/15/2012
12/15/2011	CASH	$0.59	11/16/2011	12/19/2011	1/15/2012
9/15/2011	CASH	$0.59	6/23/2011	9/19/2011	10/15/2011
6/16/2011	CASH	$0.59	5/5/2011	6/20/2011	7/15/2011
3/17/2011	CASH	$0.56	2/3/2011	3/21/2011	4/15/2011
12/22/2010	CASH	$0.56	12/16/2010	12/27/2010	1/15/2011
9/16/2010	CASH	$0.56	7/29/2010	9/20/2010	10/15/2010
6/17/2010	CASH	$0.53	5/7/2010	6/21/2010	7/15/2010
3/18/2010	CASH	$0.53	2/4/2010	3/22/2010	4/15/2010
12/17/2009	CASH	$0.53	12/3/2009	12/21/2009	1/15/2010
9/17/2009	CASH	$0.53	9/3/2009	9/21/2009	10/15/2009
6/11/2009	CASH	$0.53	6/8/2009	6/15/2009	7/15/2009
3/12/2009	CASH	$0.53	3/6/2009	3/16/2009	4/15/2009
12/11/2008	CASH	$0.53	12/5/2008	12/15/2008	1/15/2009
9/11/2008	CASH	$0.53	9/5/2008	9/15/2008	10/15/2008
6/12/2008	CASH	$0.53	6/6/2008	6/16/2008	7/15/2008
3/17/2008	CASH	$0.53	3/7/2008	3/19/2008	4/15/2008
12/13/2007	CASH	$0.53	12/7/2007	12/17/2007	1/15/2008
9/17/2007	CASH	$0.53	8/31/2007	9/19/2007	10/15/2007
6/14/2007	CASH	$0.53	6/1/2007	6/18/2007	7/15/2007
3/15/2007	CASH	$0.53	3/8/2007	3/19/2007	4/15/2007
12/14/2006	CASH	$0.53	12/7/2006	12/18/2006	1/15/2007
9/14/2006	CASH	$0.52	9/1/2006	9/18/2006	10/15/2006
6/15/2006	CASH	$0.52	6/1/2006	6/19/2006	7/15/2006
3/16/2006	CASH	$0.52	3/6/2006	3/20/2006	4/15/2006
9/15/2005	CASH	$0.52	9/1/2005	9/19/2005	10/15/2005
6/16/2005	CASH	$0.52	5/31/2005	6/20/2005	7/15/2005
3/17/2005	CASH	$0.52	3/8/2005	3/21/2005	4/15/2005
12/16/2004	CASH	$0.52	12/2/2004	12/20/2004	1/15/2005

9/17/2004	CASH	$0.52	7/14/2004	9/21/2004	10/15/2004
6/17/2004	CASH	$0.52	5/14/2004	6/21/2004	7/15/2004
3/18/2004	CASH	$0.52	3/9/2004	3/22/2004	4/15/2004
12/18/2003	CASH	$0.52	12/8/2003	12/22/2003	1/15/2004
9/18/2003	CASH	$0.52	9/5/2003	9/22/2003	10/15/2003
6/19/2003	CASH	$0.52	6/2/2003	6/23/2003	7/15/2003
3/20/2003	CASH	$0.52	3/3/2003	3/24/2003	4/15/2003
12/19/2002	CASH	$0.52	11/26/2002	12/23/2002	1/15/2003
9/24/2002	CASH	$0.52	8/19/2002	9/26/2002	10/15/2002
6/26/2002	CASH	$0.52	6/13/2002	6/28/2002	7/15/2002
3/21/2002	CASH	$0.52	2/28/2002	3/25/2002	4/15/2002
12/21/2001	CASH	$0.52	12/6/2001	12/26/2001	1/15/2002
9/20/2001	CASH	$0.52	7/25/2001	9/24/2001	10/15/2001
6/21/2001	CASH	$0.52	6/14/2001	6/25/2001	7/15/2001
3/20/2001	CASH	$0.52	3/12/2001	3/22/2001	4/15/2001
12/20/2000	CASH	$0.52	12/12/2000	12/22/2000	1/15/2001
9/21/2000	CASH	$0.52	9/13/2000	9/25/2000	10/15/2000
6/16/2000	CASH	$0.52	5/24/2000	6/20/2000	7/15/2000
3/16/2000	CASH	$0.52	2/23/2000	3/20/2000	4/15/2000

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC Set 12
IURC CAUSE NO. 45933-IN Base Case 2024 TY

DATA REQUEST NO OUCC 12-5

REQUEST

Please reference the non-confidential portion of the attachment provided in response to OUCC data request 2-29, found on tab "Proxy Group Screening". It is shown that the following companies were eliminated from the proxy group due to not paying dividends. In testimony (please refer to Ms. Bulkley, page 28, line 16) it is clarified that proxy companies are screened to select companies that "pay consistent quarterly cash dividends[.]" Please confirm the time period for which it was necessary for these companies to have paid "consistent quarterly dividends" and confirm that these four companies did not meet that threshold.

a.: Dominion

b.: DTE Energy

c.: Excelon

d.: PPL Corporation

RESPONSE

Ms. Bulkley's application of the "pays consistent quarterly dividend" screen requires that a company have consistently paid a dividend that has not been reduced over the last three years. Since Ms. Bulkley relied on market data through April 30, 2023 to develop the results of her cost of equity estimation models, for inclusion in her proxy group, a company was required to consistently pay a dividend that was not reduced over the period of May 2020 through April 2023. Dominion, DTE Energy, Excelon and PPL Corporation each reduced their dividends between May 2020 and April 2023 and therefore did not meet Ms. Bulkley's "pays consistent quarterly dividend" screen.

OUCC Attachment SD-6
Excel Spreadsheet

Indiana Michigan Power Company
This is a modification of Bulkley AEB-4 and AEB-5 with outlier information included.

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC Set 13
IURC CAUSE NO. 45933-IN Base Case 2024 TY

DATA REQUEST NO OUCC 13-2

REQUEST

Please refer to the response to Data Request 9-1. In this question, the OUCC asked for the rate of return assumption for the portion of the pension funds that are invested in equities, to a level of detail such as domestic large cap equities, international equities, small cap equities, etc. if available. The answer provided referred to the most recent 10-K, on page 120, which provides a total expected long-term rate of return on equity of 9.28%. However, the portion of the question asking about the level of detail on that rate of return was answered with the statement that pension fund equities are all benchmarked to the MSCI All Country World Index.

Please provide the rate of return assumption for the components of the total equity return figure of 9.28%, specifically the rate of return for the domestic large cap equities component of this overall number. i.e. the return assumption for domestic large cap is 7.5%, the return assumption for domestic small cap is 8.2%, the return assumption for international equities is 10.2%, etc. We are only asking in this question for the return assumption on the domestic large cap equities portion.

RESPONSE

The Company's response to OUCC 9-1 reflected that the pension does not have any "domestic large cap equities, international equities, small cap equities, etc." mandates. The only equity mandate in the pension is to global equities, benchmarked to the Morgan Stanley Capital International All Country World Index ("MSCI ACWI"). So, the total expected long-term rate of return on equity of 9.28% disclosed on page 120 of the most recent 10k is the expected return for all of the pension's equity, which only consists of a global equity mandate.

2023 INPRS UPDATE

Pension Management Oversight Committee
September 20, 2023

One North Capitol Suite 001
Indianapolis, IN 46204

(844) GO-INPRS
inprs.in.gov

INPRS's Return Projections

	INPRS's Target Weight[1]	Projected 30-yr Returns[2] (December 2022)
U.S. Inflation		2.0%
Public Equity	20.0%	5.7%
Private Markets	15.0%	8.4%
Fixed Income ex-Inflation Linked	20.0%	4.2%
Fixed Income Inflation Linked	15.0%	2.5%
Commodities	10.0%	3.1%
Real Assets	10.0%	5.4%
Absolute Return	5.0%	3.6%
Risk Parity	20.0%	7.9%
Leverage Offset	-15.0%	2.0%
30-yr Projected Return[3]		**6.3 - 6.6%**

[1]Board approved asset allocation to major asset classes at the May 2021 Board meeting. [2]Source: Annualized, geometric return forecasts plus the Federal Reserve's 2.0% inflation target. [3]The lower end of the total return range equals the Federal Reserve's inflation target plus Verus's real return. The higher end of the total return range equals the Federal Reserve's inflation target plus Verus' real return, plus INPRS's alpha assumption.

KPMG

Equity Market Risk Premium – Research Summary

30 September 2023

we recommend an MRP of 5.0% as per 30 September 2023

If you are considering this publication, it is likely that you are in regular contact with KPMG Corporate Finance & Valuations ("KPMG Corporate Finance & Valuations NL") on the topic of valuations. The purpose of this document is to provide a summary to our business partners about our recent observations and conclusions regarding one of the key valuation parameters, being the equity market risk premium.

II

we recommend the use of an equity market risk premium ("MRP") of 5.0% as per 30 September 2023. During the third quarter of 2023, we have observed a decrease in stock prices, of which the effect on the MRP has been more than offset by increasing risk-free rates, while the economic outlook remained rather constant. As a result of these developments, we decrease our MRP to 5.0%; a decrease of 25 basis points compared to the MRP as per 30 June 2023.

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Note: Other KPMG country practices may have a deviating view on the MRP, as it is dependent on other parameters of the cost of capital determination, wl,ich may differ from country to country. In addition, commonly applied local market practice or regulatory requirements may also lead to different conclusions on individual parameters such as the MRP.

Introduction - valuation and discount rates

E i Introduction

The discount rate is an important input parameter to any valuation based on the discounted cash flow methodology ("DCF"). All else equal, a higher discount rate will lead to a lower asset value and vice versa.

In this document, we will specifically focus on the derivation of the cost of equity for company valuations. This discount rate can either be directly applied to equity cash flow forecasts of a company or it can be used in conjunction with the cost of debt and a certain financing structure to derive the weighted average cost of capital ("WACC").

A general DCF model can be expressed by the following formula:

$$\text{Present value} = \frac{CF1}{(1+k)^1} + \frac{CF2}{(1+k)^2} + \frac{CF3}{(1+k)^3} + \ldots = \sum_{t=1} \frac{CFt}{(1+k)^t}$$

Present value	=	value of the analysed asset (e.g. a company)
CFt	=	cash flow that the asset will generate in period t
k	=	asset-specific discount rate
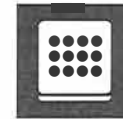
► Discount rate derivation

While there are several ways to derive discount rates, the most commonly applied methodology is the 'build-up methodology' based on the Capital Asset Pricing Model ("CAPM"). This methodology builds up the discount rate by summation of several asset-related risk components in order to derive a return at which investors are willing to invest in this asset (e.g. a company).

The build-up of the cost of equity ("k") of a company can be expressed as:

$$k = rfr + \beta \times MRP + a$$

k	=	required return on equity
rfr	=	risk-free rate
ß	=	a company's systematic risk
MRP	=	market or equity risk premium
a	=	asset-specific risk factors

The function and derivation of the individual discount rate parameters are briefly discussed on the following slide.

Introduction- discount rate parameters

III Risk-free rate

The risk-free rate forms the basis for any discount rate estimation using the build-up methodology. As the name implies, this rate should not take into account any risk factors and should only include two general components:

— The time value of money; and

- Inflation.

Since there are no investments that are truly risk-free, the risk-free rate is commonly approximated by reference to the yield on long-term debt instruments issued by presumably financially healthy governments (e.g. AAA-rated government bonds with a maturity of 30 years).

B Beta

Beta measures a stock's volatility in relation to the relevant market benchmark.

A beta greater/smaller than 1.0 means that the share price of a company is more/less volatile than the general market and therefore investors will require a higher/lower return to compensate for this volatility.

α Alpha

Alpha is an asset-specific adjustment factor representing unsystematic risk not already captured by way of the beta. If the financial forecast does not account for certain operational risks, it may be appropriate to include a forecast risk premium. Other examples of alpha adjustments are size premia and illiquidity premia.

III Equity market risk premium (MRP)

The MRP is the average return that investors require over the risk-free rate for accepting the higher variability in returns that are common for equity investments (i.e. the MRP reflects a minimum threshold on top of the risk-free rate for investors in order to be willing to invest).

Since alpha only relates to unsystematic adjustments, it can be omitted if considering the overall market (alpha = 0). Furthermore it is important to note that for the overall market, beta will by definition always be 1.0, since the sum of all returns of individual stocks equals the overall return of the market, and therefore, the two are perfectly correlated.

As the figure below shows, the required return for the overall market is defined entirely by the risk-free rate and the MRP.

II

| MRP |

| α |

cost of equity individual company

a | MRP |

cost of equity overall market
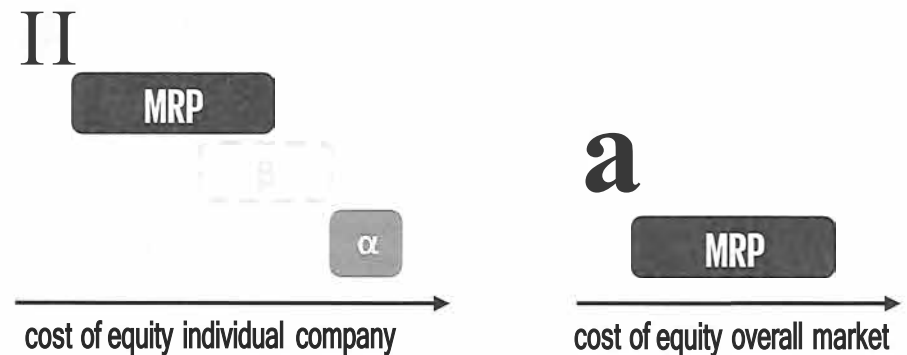
Measurement of the equity market risk premium - methodologies

Implied equity market risk premium

The general DCF formula discussed earlier can be used to solve for the implied discount rate that reconciles these parameters.

Deducting the risk-free rate from this implied discount rate will yield an implied MRP.

The implied MRP methodology is to some extent sensitive to input assumptions and careful consideration must be given to:

— The selection of income proxies (e.g. dividends, buy-backs, cash flow);

— The basis of expected growth rates (e.g. macroeconomic considerations, analyst forecasts); and

— The trade-off between outcome stability and current relevance with regards to certain historical inputs (e.g. dividend yield normalisations, pay-out ratios).

KPMG Corporate Finance & Valuations NL, continuously inspects if enhancements in applying the above input assumptions are necessary for the current MRP method in order to accurately reflect the current market dynamics.

We deem the implied MRP methodology the most appropriate methodology in order to derive changes in the MRP as a result of economic developments, because it incorporates recent market developments, expectations, and it can be logically deduced from observable market data.

Historical observation methodology

This methodology assumes that the expected MRP can be derived by studying historical equity returns.

While this methodology is well established and theoretically sound, it does not allow for the incorporation of the most recent market developments.

Other methodologies

There are a number of other prominent methodologies which may lead to additional insights, the most common being:

— The multi-factor model;

— The yield spread build-up; and

— The survey approach.

While each of these methodologies offers some unique advantages, the application of these methodologies involves similar trade-offs as the ones between the historical and the implied MRP methodology.

Development of discount rates
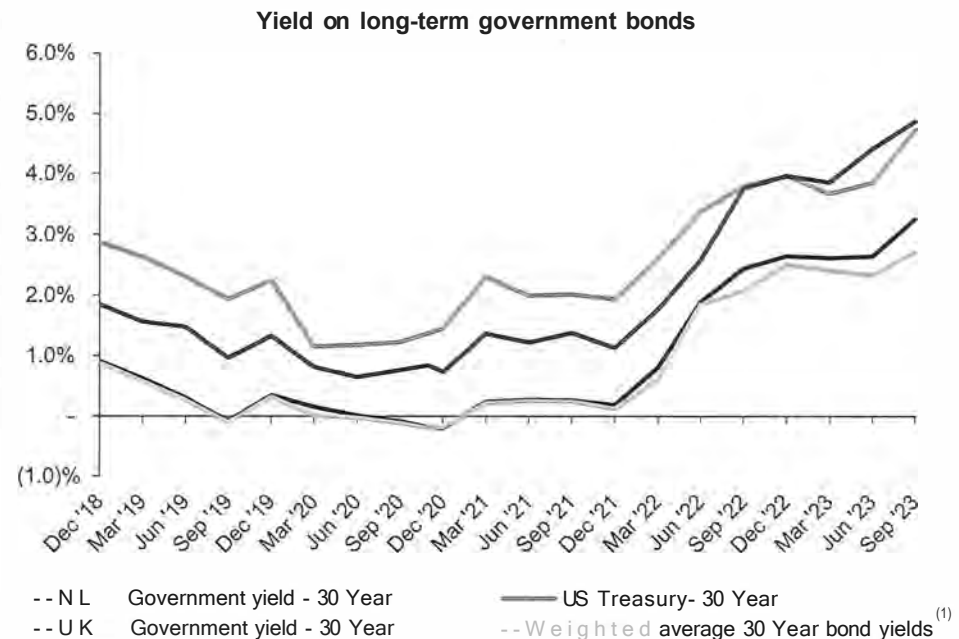
Implied eauity return

The graph below illustrates the movement in the implied equity returns for a number of major equity markets over time. From this graph it can be observed that the implied equity returns of the markets included (apart from the STOXX 600) have experienced an increase in the third quarter of 2023.

Implied equity return

- - A E X — S&P 500 - - F T S E - - S T O X X 600 (excl. FTSE)
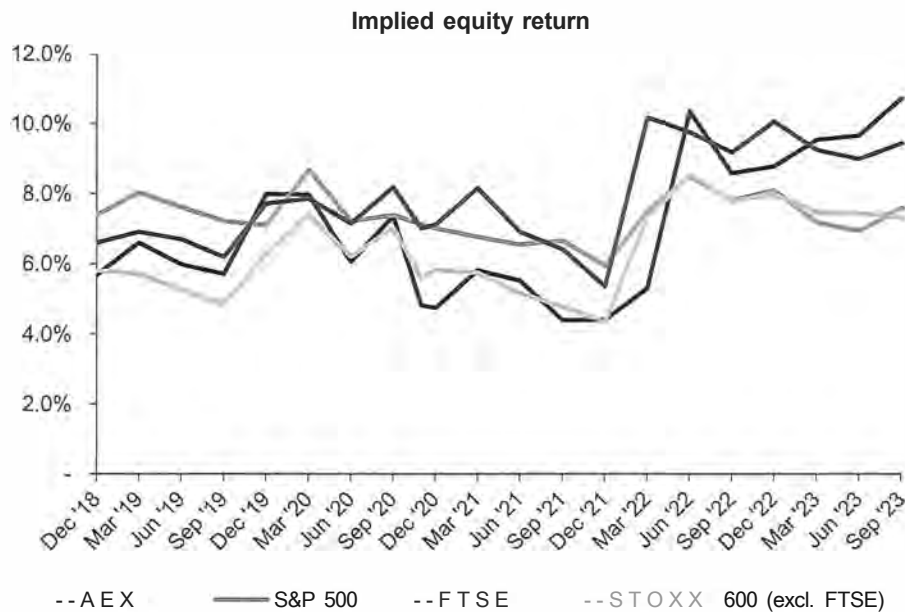
Yield on long-term government bonds

In the graph below, the interest rate movements for a number of highly developed markets (Netherlands, UK, Europe and US) are displayed.

From this graph it can be observed that for the selected highly developed markets the relevant long term yields have all increased compared to 30 June 2023.

Yield on long-term government bonds

- - N L   Government yield - 30 Year — US Treasury- 30 Year
- - U K   Government yield - 30 Year - - W e i g h t e d average 30 Year bond yields [1]

[1]: Weighted average consists of France, Switzerland, Germany and the Netherlands. which together represent the vast majority of the STOXX 600 index

Equity market risk premium as per 30 September 2023: 5.0%

D Findings

In our current quarterly update we observe that, whilst implied equity returns have increased slightly, the stronger increase in risk-free rates results in a lower MRP. Therefore, compared to the previous quarter, we have decreased our MRP estimation by 25 basis points.

Implied equity risk premiums

- - A E X   - - S & P 5 0 0   - - F T S E   - - S T O X X 600 (excl. FTSE)

D Eauity market risk premium KPMG corporate Finance 6 Valuations NL

Based on the analyses set out in this report we conclude that the markets included in our study (with more weight given to the S&P 500, FTSE and STOXX 600), show lower implied premiums compared to 30 June 2023. Therefore, KPMG Corporate Finance & Valuations NL recommends the use of an **MRP of 5.0%** as per 30 September 2023.

We note that our estimation is based on information available as at 30 September 2023. Developments in the market after 30 September 2023 are not reflected in the MRP estimate as at 30 September 2023. However, due to the high volatility currently observed in the market, we will monitor the MRP at the end of each month and update it accordingly should any significant changes occur.

D considerations

In order to assess the reasonableness of the outcomes of our implied MRP study, we have considered various other methodologies as previously described. To the extent that these methodologies are valid to derive insights about the current level of the MRP, these methodologies have confirmed our findings.

Based on our research and professional judgement we consider the outcome of our study to represent a global MRP. However, when calculating a discount rate for a specific valuation purpose, consideration must be given to (amongst others):
— The basis for the applied risk-free rate;
— The applicable country risk premium; and
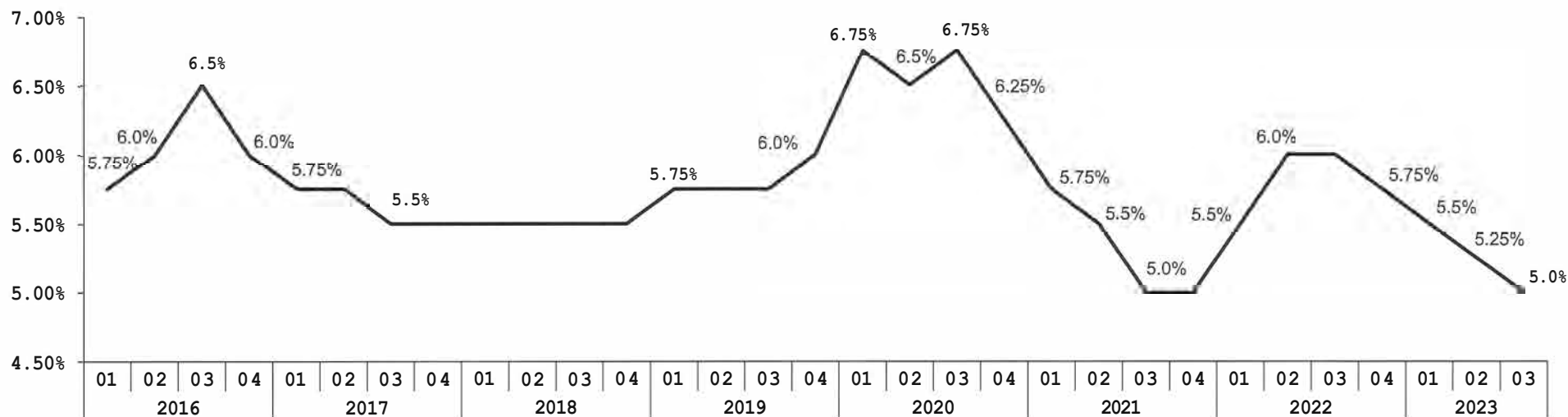— Expected differences in inflationary outlook.

We highlight that the individual input parameters used in the determination of the discount rate should never be viewed in isolation.

Appendix
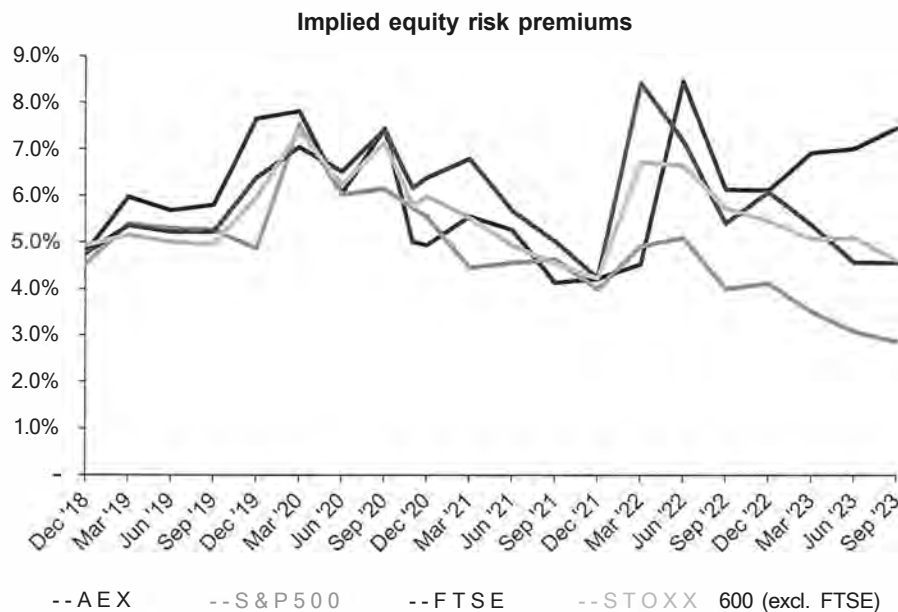
Historic MRP estimates

Please find an overview of the historic MRP estimates by KPMG Corporate Finance & Valuations NL in the graph below.

KPMG

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Document Classification: KPMG Public

KROLL

Kroll Lowers Its Recommended U.S. Equity Risk Premium to 5.5°/o

Executive Summary

Kroll regularly reviews fluctuations in global economic and financial market conditions that may warrant changes to our equity risk premium (ERP) and accompanying risk-free rate recommendations. The risk-free rate and ERP are key inputs used to calculate the cost of equity capital in the context of the Capital Asset Pricing Model (CAPM) and other models used to develop discount rates. We also update country risk data on a quarterly basis for 175+ countries using various models.

The Kroll Recommended U.S. ERP is decreasing from 6.0% to 5.5% when developing USO-denominated discount rates as of June 8, 2023 and thereafter, until further notice. The Kroll Recommended Eurozone ERP is being reaffirmed in the range of 5.5% to 6.0% until further notice.

Background

According to our last update "Impact of High Inflation and Market Volatility on Cost of Capital Assumptions" (dated October 18, 2022), the Kroll Recommended U.S. ERP was increased to 6.0% (from 5.5%) when developing USO-denominated discount rates as of October 18, 2022 and thereafter, until further guidance was issued.

In March 2023, we reaffirmed our 6.0% U.S. ERP guidance, largely due to the emerging banking crisis that led to a number of banks declaring bankruptcy or being bailed out (through acquisitions).

More recently, we observed that the factors we monitor suggested (on the whole) that equity risks had diminished relative to our previous March 2023 analysis, but the stalemate in the U.S. debt ceiling negotiations was the factor preventing us from lowering the recommendation to 5.5%. In early May, U.S. Treasury Secretary Janet Yellen warned that the country could breach the debt ceiling as early as June 1 (later changed to June 5), which could have led to the first-ever debt default by the United States.

The stalemate over the debt ceiling has been resolved with the passage of the "Fiscal Responsibility Act of 2023" (signed into law by the U.S. President on June 3). In addition, the factors we normally monitor continue to suggest that equity risks have diminished relative to when we issued our October 2022 guidance, as well as relative to the turmoil observed during the March 2023 banking crisis:

- The Federal Reserve (Fed) hinted at a pause of its recent interest-rate hiking cycle, taking a wait-and-see approach. Although some Fed officials still think that additional rate hikes could be in the cards, this pause has removed some of the uncertainty from financial markets.

- At the end of May 2023, the S&P 500 index was up about 17% from its October 12, 2022 local low (in price terms). The NASDAQ index, a barometer of the tech sector, was up by 27% since its December 28, 2022 local low. The S&P 500 and NASDAQ improvements since the beginning of this year do not compensate for their overall 2022 losses of 19% and 33%, respectively. However, it does reflect the fact that markets have generally been more optimistic in 2023.

- The VIX (the volatility index on the S&P 500), known informally as the "fear index", has generally been around or below its long-term average of approximately 20 since the beginning of the year (except during the March banking crisis, when it reached a local high of 26.5 on March 13).

- U.S. corporate credit spreads (i.e., the difference between yields of speculative-grade bonds and investment-grade bonds) are still low on a historical basis, even though the underlying corporate yields have increased significantly since early 2022. Similar to the VIX, corporate credit spreads are generally considered a barometer of investors' "fear".

- Forward-looking ERP models have been lower relative to their September/October 2022 highs when we last increased our U.S. ERP recommendation to 6.0%.

- While there is a chance the U.S. economy will tip into recession later in 2023 or in early 2024, many economists do not expect it to be a deep or prolonged one.

- While the U.S. unemployment rate increased to from 3.4% in April to 3.7% in May, this is still very low by historical standards. The labor market is still tight and unemployment rate projections are relatively tame when compared to past recessionary periods.

- Inflation, as measured by the Consumer Price Index (CPI), is still far above the Fed's 2.0% target, but it seems to be on a steady downward path. In the 12 months ending in April 2023, CPI inflation (before seasonal adjustments) increased 4.9%, down from its 41-year high of 9.1% for the 12 month-period ending June 2022. Nevertheless, risks do remain. The Fed's preferred gauge for inflation, the Personal Consumer Expenditures (PCE) Price Index has actually accelerated in April to 4.4%. Likewise, the core PCE index (i.e., excluding food and energy) accelerated to 4.7% in April, demonstrating the challenge the Fed is facing in bringing down inflation.

- For now, the world economy appears to have avoided the worst-case scenarios from the Russia-Ukraine war.

  Meanwhile, a period of "stagflation"-where the economy experiences sluggish or no growth-accompanied by high inflation is still a realistic scenario for some economies within the eurozone. For example, according to recent data, Germany-Europe's largest economy-entered a technical recession in Q1 2023, after two consecutive quarters of negative real economic growth. There was some optimism in early 2023 that a contraction could be avoided, as an unseasonably warm winter in Europe contributed to lower energy prices. However, high prices continued to erode German consumer purchasing power.

Inflation in Germany remained at an elevated level of 6.3% (estimated) in May and is expected to remain a key challenge for the rest of the year.

In the broader eurozone, inflation has been slowly coming down from 25-year highs, standing at an estimated 6.1% at the end of May. However, core inflation (excluding volatile energy and food prices) remained stubbornly high at an estimated 5.3%, and far from the European Central Bank's (ECB) 2.0% inflation target. The ECB slowed down the pace of interest rate hikes at its May 2023 meeting, but signaled more tightening is still coming. The revision in Germany's real GDP growth for Q1 2023 helped tip the eurozone economy into a technical recession, after also having contracted in Q4 2022. This will make ECB's job in 2023 even more challenging.

Cost of Capital Recommendations

- **United States:** With the aforementioned factors suggesting that equity risks in the U.S. have *diminished,* and the immediate risks associated with the debt ceiling debate resolved with the passage of the "Fiscal Responsibility Act of 2023", **Kroll is lowering its Recommended U.S. ERP from 6.0% to 5.5% when developing USO-denominated discount rates as of June 8, 2023 and thereafter, until further notice.** This is matched with the higher of a normalized risk-free rate of 3.5% or the spot 20-year U.S. Treasury yield as of the valuation date.

- **Eurozone (from a German investor perspective):** The current Kroll Recommended Eurozone ERP remains in the range of 5.5% to 6.0%. Based on current economic and financial market conditions, we continue to believe that an ERP towards the higher end of the range (i.e., 6.0%), used in conjunction with a German normalized risk-free rate of 3.0%, is more appropriate when developing EUR-denominated discount rates as of June 8, 2023 and thereafter, until further guidance is issued.

  Incremental country risk adjustments for other eurozone countries with a sovereign debt rating below AAA may be appropriate. Please note that this information does not supersede Germany's IDW (Institut der Wirtschaftsprufer) guidance for projects that will be reviewed by German auditors or regulators.

  However, we are monitoring markets and the geo-political and economic environment closely to determine whether indications point to an ERP closer to the lower end of our recommended range.

We will continue to closely monitor the situation and publish new guidance when appropriate.

Please contact our support team with any questions: costofcapital.support@kroll.com

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Below is a snip from the home page. For further information and details, multiple spreadsheets are included with links at this site.

Equity RiskPremiu1ns (Dc:da! [Jpdates and Papers)

Implied ERP on October 1 2023= 4.47% (Trailing 12 month. 'i:Vtth adjusted payout) 4.84%) (Trailing 12 month cash yield); 5.68%, (A:verage CF yield last 10 years); 4.61 <o (Net cash yield); 4.44% (Norma1ized Earnings & Payout)

Implied ERP in prnvious month= 4.40% (Trailing 12 month, ;,vith adjusted payout); 4.90%) (Trailing 12 month cash yield); 5.79% (Average CF yield last 10 years); 4.67% (Net cash yield); 4.359.•ti (Normalized Earnings & Payout)

Dmvnloadable datasets (For· more data, <u>go here</u>)

1. <u>Historical Returns on Stocks. Bonck Real Estate and Gold (for historical risk premiums)</u>
2. <u>Implied ERP by month for previous months (September 2008- Current).</u>
3. <u>Implied ERP (annual) from 1960 to Current</u>
4.]\ly data on ERP & CRP by country <u>(January 2023</u> and <u>July 2023)</u>

Dmvnloat:lable spr(:;_1adsheets (For more spreadsheets, <u>go here</u>)
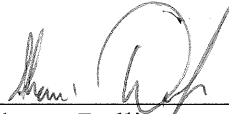
1. <u>Spreadsheet to compute current ERP for current month</u>
2. <u>1:P-readsheet to value the S&P 500 (Jamia.r)::..1, 2023).</u>
3. <u>Valuation Spreadsheet for non-financial service firms</u> ,vith <u>video guidance</u>

Papers: Staiting in 2008, I have \Vritten annual update papers on equity· risk premiums, in t'lvo installments. The first one looks at equity risk premiums, in general, staiting ,vith their determinants and ,:vorking through different approaches to measuring htem. The second one is more focused on country risk The latest updates for both can be found belo-w:

L <u>Eguity Risk Premiums (Annual Update Paper).</u>
2. <u>Country Risk Premiutns (Annual UtJdate Paper)</u>

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

_____

Shawn Dellinger
Utility Analyst
Indiana Office of Utility Consumer Counselor

Cause No. 45933
Indiana Michigan Power Company

November 15, 2023
Date

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing *Indiana Office of Utility Consumer Counselor Public's Exhibit No. 8 Testimony of OUCC Witness Shawn Dellinger* has been served upon the following counsel of record in the captioned proceeding by electronic service on November 15, 2023.

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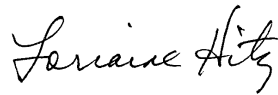bcb@krglaw.com
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