MONTANA DEPARTMENT OF REVENUE

GOVERNOR GREG GIANFORTE
DIRECTOR BRENDAN BEATTY

TO: **Matt Kaplanis, Senior Tax Manager, Property Tax**
Ducharme, McMillen & Association, Inc.
On behalf of Montana Dakota Utilities

FROM: **Doug Roehm, Unit Manager**
Centrally Assessed Property

DATE: **April 21, 2026**

SUBJECT: **Response to Comments on the 2026 Capitalization Rate Study, Electric Utilities**

Dear Mr. Kaplanis:

The department would like to thank you for taking the time to review our study and for providing additional information for us to consider. We received your submission email provided on April 1, 2026.

The comments received along with these responses will be published on our website at:

https://revenue.mt.gov/dor-publications/cap-rate-studies

Based on the comments and our analysis discussed below, we

- Adjusted our Ex Ante model to better consider the impact of buybacks. This resulted in an increase of our Ex Ante expected market return from 7.73% to 8.92%.
- Along with adjustments for other comments our Ex Ante CAPM conclusion increased from 8.15% to 8.64%.
- We considered additional bond yield information in arriving at our Cost of Debt conclusion, which resulted in an increase in the Cost of Debt from 5.90% to 5.92%.
- After considering all comments our ultimate Weighted Average Cost of Capital increased from 7.47% to 7.51%.

A more detailed discussion on how we arrived at these conclusions follows.

Response to Cost of Equity Comments

A number of comments were provided in relation to the Cost of Equity. These comments are grouped into the following for more direct response:

- Dividend Discount Models
- Beta's impact on the Cost of Equity
- Authorized Rates of Return vs Cost of Equity
- Ex Post vs Ex Ante Equity Risk Premiums

Dividend Discount Models

The key points in the comments state, "DDMs inherently do not capture all the ways shareholders earn a return; for example, appreciation in equity values resulting from share buybacks are not captured in the DDM. Additionally, speculative future growth rates drive this method making it less reliable."

Based on these comments and others we received, we did review our Dividend Discount Models. We compute three separate models. One is used in estimating the Ex Ante Equity Risk Premium (ERP) and two are used to directly estimate the cost of equity using the guideline companies.

Although judgment is involved, the Dividend Discount Model can be adjusted for buybacks. Based on a review of our three-stage model used to estimate the Ex Ante ERP, we decided to compute an alternative model that more directly includes the impact of buybacks. Ultimately the model indicated a higher expected market return when including buybacks, as summarized below:

Description	MTDOR Initial Ex Ante ERP	MTDOR Ex Ante ERP w/buybacks
Market Return	7.73%	8.92%
Risk-Free Rate	4.79%	4.79%
ERP	2.94%	4.13%

As a result, when estimating our Ex Ante Equity Risk Premium, we moved weight from our initial Ex Ante model to this model.

For our Dividend Discount Models based on guideline companies we produce one indicator using dividend growth and one using earnings growth. One of the reasons earnings grow at a greater rate than dividends is due to buybacks decreasing outstanding shares and thus does recognize buybacks to some extent. However, we did further review the guideline companies for buybacks and did not find a material level of buybacks that would influence the concluded cost of equity from these models. Thus, we did not make changes to the Dividend Discount Models based on guideline companies.

Another key input to the Dividend Discount Models is expected future growth. It is unclear what makes these growths rates "speculative"? Expected growth is a common input to the development of a capitalization rate as well as for completing an appraisal in general. The guideline companies' growth rates fall within a tight grouping and don't appear to be overly optimistic compared to expected long-term growth.

The table below shows the average and median growth for dividends and earnings, which fall withing a tight range and based on the trimmed average don't appear to be overly impacted by outliers:

Statistical Measure	Dividends	Earnings
Average	4.80%	6.27%
Median	4.69%	6.33%
Trim Avg	4.73%	6.15%
High	9.26%	9.10%
Low	1.14%	4.96%

Further each of our Dividend Discount Methods utilize a multi-stage approach to ensure the short-term growth assumptions ultimately align with a sustainable long-term growth assumption.

Based on the above it is our opinion that the growth rates are reasonable, and the Dividend Discount Models result in meaningful cost of equity conclusion.

Beta's impact on the Cost of Equity

It was identified that there has been a significant drop in both the average and median beta in the electric industry and thoughts as to why this is, were provided. It was also stated that, "beta is only one half of the industry risk premium equation and that beta volatility increases required equity returns."

We agree that there has been a reduction in beta from January 1, 2025 to January 1, 2026. However, beta is not an input in determining the Equity Risk Premium. The Equity Risk Premium is an indication of expected *market* returns. Beta is a measure of the relative risk (or sensitivity) of an individual security versus the risk of a market portfolio.[1]

The Equity Risk Premium is defined as the extra return (over the expected yield on risk-free securities) that investors expect to receive from an investment in the market portfolio of

[1] *International Glossary of Business Valuation Terms*, February 24, 2022.

common stocks, represented by a broad-based market index (e.g. S&P 500 Index or NYSE Index).[2] The formula for determining the Equity Risk Premium is:

Equity Risk Premium = Expected Market Return – Risk-Free Rate

Beta is used as a measure of how a company, or in our case how an industry, moves compared to the market. For example, in the Capital Asset Pricing Model (CAPM) the Cost of Equity is determined by the following equation:

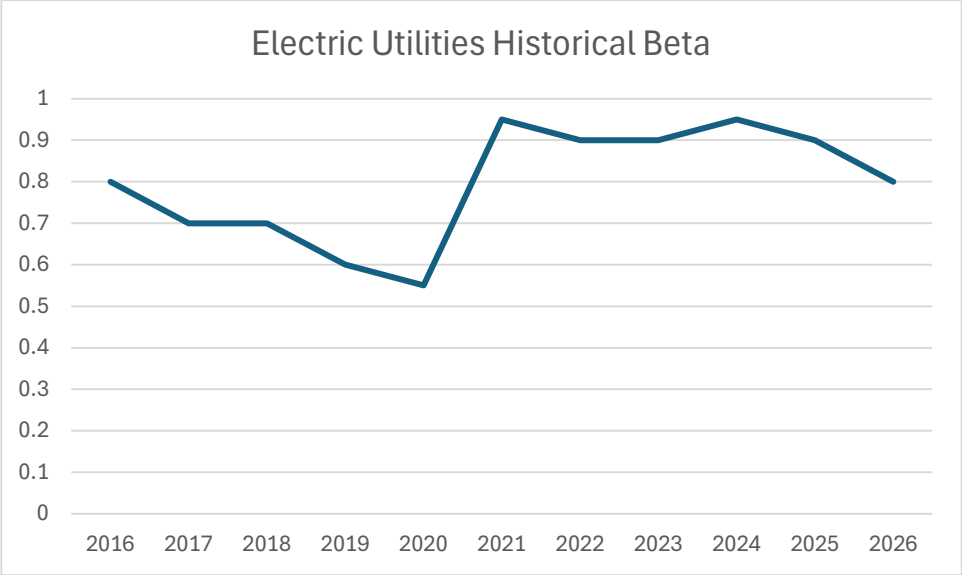
Cost of Equity = Risk-Free Rate + Beta * Equity Risk Premium

In our study we use beta as reported by Value Line. Value line provides the following explanation of beta:

> Beta - A relative measure of the historical sensitivity of the stock's price to overall fluctuations in the New York Stock Exchange Composite Index. A Beta of 1.50 indicates a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Index. The "Beta coefficient" is derived from a regression analysis of the relationship between weekly percentage changes in the price of a stock and weekly percentage changes in the NYSE Index over a period of five years. In the case of shorter price histories, a smaller time period is used, but two years is the minimum. The Betas are adjusted for their long-term tendency to converge toward 1.00.

Our selection of a beta of 0.8 is based on observed movements of the guideline companies compared to the overall market, as reported by Value Line. Beta's of the guideline companies have decreased and appear to be coming more in line with historical norms observed in pre 2021 studies. Below is a chart demonstrating the change in the selected beta for Electric Utilities since tax year 2016:

[2] Pratt, S. P. and Roger J. Grabowski (2014). *Cost of Capital: Applications and examples* (5th ed.). John Wiley & Sons, Inc., p. 110.



Further, from reviewing beta information reported by Aswath Damodaran and information reported in the Kroll Cost of Capital Navigator, our beta is conservative. This is primarily due to the Value Line adjusting their reported beta under the assumption that beta has a long-term tendency to converge toward 1.00.

Based on review of the comments and analysis performed above, we did not make changes to our selected beta nor adjust the selection of Equity Risk Premium due to beta considerations.

Authorized Rates of Return vs Cost of Equity

As with other comments, the Cost of Equity was claimed to be too low because our concluded Cost of Equity was less than Authorized Rates of Return approved by regulators in rate case hearings.

We do not agree with this position. Both the appraisal handbook published by the Western States Association of Tax Administrators and the appraisal standards published by the National Conference of Unit Valuation States make clear that Authorized Rates of Return are not the same as the Cost of Equity and are produced for different purposes.

The Western States Association of Tax Administrators states, "Government regulators do not determine value, nor do their efforts invalidate any of the established indicators of value. The actions of regulators may affect value, but value is always established and determined by the actions of market participants."[3] The handbook also states, "The setting of required rates of

[3] Western States Association of Tax Administrators Committee on Centrally Assessed Property (WSATA-CCAP), Appraisal Handbook: Unit Valuation of Centrally Assessed Properties. (Self-pub, 2009), p. I-3.

return for a regulated utility is not the same issue as establishing the opportunity cost of capital for an investment".[4]

The Unit Valuation Standards as published by the National Conference of Unit Valuation States provide the following statement:

> For market value appraisals, market capitalization rates and/or discount rates should be used. Authorized rates of return set by rate-regulators for rate-making purposes and market opportunity costs of capital are not synonymous measurements and should not be used interchangeably. Using authorized rates of return in place of a market derived yield, discount or opportunity cost of capital is not appropriate and could lead to gross errors in the estimate of market value.[5]

Articles and work published by Steven Kihm, who has decades of experience in analyzing economic and finance issues in utility regulation, provide insight as to why. For example, Mr. Kihm opens one of these articles by stating:

> As classic treatises make clear, determining a reasonable return on equity is a judgment call, one that reflect the regulator's broad perspective on public policy matters. That requires one to look beyond economic concepts, such as cost of equity, to find the proper return.[6]

As is discussed by Kihm, "The cost of equity, by definition, is a minimum concept, not necessarily a measure of reasonableness."[7] This is consistent with the financial principle that a company only creates value when its return on invested capital exceeds its cost of capital. Kihm further discusses, "If the return on equity is set at the cost of equity, utilities have no more incentive to expand their systems than they do to terminate operations."[8]

Kihm also provides two strong pieces of evidence that regulators do not set the return on equity at the cost of equity. The first being that Cost of equity estimates lie noticeably below the authorized returns on equity; and second that Utility stock prices lie noticeably above their book values.[9] Both observations are readily observable in the market, and both of Kihm's observations continue to be observed in the market currently. For example, the department has computed market to book ratios of each guideline company as part of our capitalization rate studies for

[4] WSATA-CCAP (2009) p. III-31.
[5] National Conference of Unit Valuation States (NCUVS), Appraisal Standards (Self-pub, 10/2018), p. 7, Standard IV(C)(10).
[6] Kihm, S. G. (2007). The Proper Role of the Cost-of-Equity Concept in Pragmatic Utility Regulation. *The Electricity Journal*, *20*(10), 26–34. https://www.sciencedirect.com/, p. 26.
[7] Kihm (2007) p. 27.
[8] Kihm (2007) p. 29.
[9] Kihm (2007) p. 26-27.

many years. The table below provides the range of Equity Market to Book Ratios for the Electric Utility Industry over the past five tax years and demonstrate the Maret to Book Ratios of Electric Utilities are consistently above 1:

Table 1: Historical Equity Market to Book Ratios for Electric Utilities

Description	TY 2022	TY 2023	TY 2024	TY 2025	TY 2026
Average	2.09	2.04	1.73	1.94	2.13
Median	2.02	2.04	1.78	2.05	2.26
Trimmed Average	2.06	2.02	1.72	1.92	2.15
High	2.92	2.78	2.42	3.01	2.76
Low	1.50	1.52	1.20	1.18	1.22

It is our opinion the cost of equity is not the same as the authorized return on equity, nor should it be. Both indicators serve a different purpose.

Ex Post vs Ex Ante Equity Risk Premiums

Many of the comments discussed above were used as evidence to move all weight off of Ex Ante ERP estimates on to the Ex Post ERP estimate under the claim that all other estimates require speculative inputs.

Placing 100% weight on the Ex Post ERP does not mean an appraiser is not using judgment in reaching an equity risk premium. The Cost of Capital text published by Shannon Pratt and Roger Grabowski provides the following discussion of the Ex Post approach:[10]

> While an analyst can observe premiums realized over time by referring to historical data (i.e., realized risk premium approach or *ex post* approach), such realized premium data do not represent the ERP expected in those prior periods, nor do they represent the current ERP estimate. Rather, to the extent that realized premiums on the average equate to expected premiums in prior periods, such samples *may be* representative of current expectations. But to the extent that prior events that were not expected to occur caused realized returns to differ from prior expectations, such samples need to be adjusted to remove the effects of these nonrecurring events. One needs to understand which events might be considered nonrecurring and then adjust the data for them in order to improve the predictive power of the sample.

The text goes on to explain in Appendix 8A, that the Ex Post ERP is influenced by the time period selected and specifically lists a number of historical events that are unlikely to recur in the future.[11] Adjustment for and/or removal of these items is the intent of the additional Ex Post

[10] Pratt and Grabowski (2014) p. 90.
[11] Pratt and Grabowski (2014) p. 141.

premiums that are often published along with the Historical ERP. For example, Kroll provides the following Ex Post ERP estimates for January 1, 2026:[12]

Long-term ERPs and World War II Bias ERPs			
ERP Estimate	**Period Dates**	**Arithmetic Average**	**Geometric Average**
Historical Long-term ERP	1926–2025	7.37%	5.27%
Historical Long-term ERP (Excluding 1942-1951)	1926–2025	6.43%	4.27%
Supply Side Long-term ERP	1926–2025	6.31%	4.38%
Supply Side Long-term ERP (Excluding 1942-1951)	1926–2025	5.37%	N/A

The above chart is one demonstration of the judgement required by an appraiser in estimating the Equity Risk Premium.

I also want to touch on the comments comparing Damodaran's risk premium to 1, 5, and 10 year realized risk premiums as an indication of the inaccuracy of Damodaran's and by extension, our Ex Ante ERP. Damodaran annually publishes a paper explaining in detail the inputs in developing risk premiums in general and the theory behind his implied risk premiums. For example, the argument being posed here is that recent short term Ex Post ERPs are more accurate indicators of the true ERP than Damodaran's Implied ERP. However, Damodaran points out, in his paper, that short term risk premiums are heavily influenced by the standard of error and provides the following table demonstrating the Standard of Error in Historical Risk Premiums:[13]

Estimation Period	*Standard Error of Risk Premium Estimate*
5 years	20%/ $\sqrt{5}$ = 8.94%
10 years	20%/ $\sqrt{10}$ = 6.32%
25 years	20% / $\sqrt{25}$ = 4.00%
50 years	20% / $\sqrt{50}$ = 2.83%
80 years	20% / $\sqrt{80}$ = 2.23%

What this means is that based on the 5-year 12.58% risk premium provided, once adjusted for standard of error the risk premium would be somewhere between 3.64% and 21.52%. Technically, Damodaran's ERP falls in this range so is supported by the short-term risk premium, however in our opinion the range indicates that short-term Ex Post ERPs are not as meaningful as other ERP indicators.

In answering the question, "Which approach is the 'best' approach?" Damodaran explores the predictive power of the various equity risk premium methods and provides the following insights:[14]

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[12] Kroll, LLC (2026) *Cost of Capital Navigator*. https://www.kroll.com/
[13] Damodaran, A. (2026) Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2026 Edition Updated: March 5, 2026, ssrn.com, p. 36.
[14] Damodaran (2026) p. 135.

> In corporate finance and valuation, what we ultimately care about is the equity risk premium for the future. Consequently, the approach that has the best predictive power, i.e., it yields forecasts of the risk premium that are closer to realized premiums, should be given more weight.

Damodaran demonstrates the predictive power and provides the following table comparing actual excess returns earned by stocks over bonds from 1960 to 2025 and considered six predictors of this premium along with a summary (emphasis added):[15]

Table 28: Predictive Power of different estimates- 1960 - 2025

Predictor	*Correlation with actual excess return next year*	*Correlation with actual excess return next 5 years*	*Correlation with actual excess return next 10 years*
Earnings Yield	0.135	-0.086	-0.008
Dividend Yield	0.148	-0.094	-0.118
Current implied premium	0.052	0.403**	0.489**
Average implied premium: Last 5 years	0.135	0.334**	0.405**
Historical Premium	-0.107	-0.366**	-0.461**
Default Spread based premium	0.275**	0.005	0.038

** Significant at 5% level

> Over this period, the only approach that provided any predictive value for actual risk premium in the next period was the default spread based approach. If we extend our analysis to make forecasts of the actual return premium earned by stocks over bonds for the next five or ten years, the current implied premium is the best predictor, followed by the average implied equity risk premium and *historical risk premiums perform the worst; in fact, they operate as good contra indicators, with a high historical risk premium forecasting lowered actual returns in the future. If predictive power were the only test, historical premiums clearly fail the test.*

Our goal in weighting of the various equity risk premiums and resulting cost of equity indicators is intended to develop and estimate of the forward-looking cost of equity. Our approach is consistent with the *Cost of Equity* textbook that states, "The authors of this book believe that

[15] Damodaran (2026) p. 136-137

practitioners need to examine various methods of pricing risk when estimating the cost of capital because no one method accurately reflects the market's pricing of risk."[16]

We are unconvinced that placing 100% weight on the Historical Ex Post ERP estimate removes the need for applying appraiser judgment in reaching a forward-looking estimate of the ERP. Although we did adjust our own determination of the Ex Ante ERP, we did not change the weighting applied to the various ERP estimates.

Response to Cost of Debt Comments

Additional Cost of Debt information was provided for us to consider. Along with the following comments:

> Regarding the cost of debt selection, the DOR relied on the Mergent Bond Record Corporate Bonds Baa rating of 5.90%. The S&P Capital IQ platform publishes debt ratings and yields specific to the utilities industry slightly higher than Mergent (see figure 6). The Taxpayer requests consideration in providing equal weight to Mergent and S&P Capital IQ resulting in an indicated rate of debt of 5.99%

Based on the comments provided we did go back and review the various bond yield sources. We reviewed Mergent, Bloomberg, and Capital IQ Utility Bond Yields. Below is a table demonstrating the various yields:

Utility Bond Yields

Rating	Mergent	Bloomberg	Capital IQ	Avg
A	5.68%	5.63%	5.92%	5.74%
Baa	5.88%	5.81%	6.08%	5.92%

Based on the above we selected the average Baa Utility Bond Yield as our source for the cost of debt for tax year 2026. Below is the before and after Cost of Debt:

Rating	**Weighting**	**Initial Study**	**Final Study**
A	0%	5.63%	5.74%
Baa	100%	5.90%	5.92%
Cost of Debt		**5.90%**	**5.92%**

[16] Pratt and Grabowski (2014) p. 90