Direct Testimony and Schedules
Dylan W. D'Ascendis

Before the South Dakota Public Service Commission
State of South Dakota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Electric Service in South Dakota

Docket No. EL-22-_____
Exhibit___(DWD-1)

Rate of Return

June 21, 2022

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS ADDRESS.

A. My name is Dylan W. D'Ascendis. I am employed by ScottMadden, Inc. as Partner. My business address is 3000 Atrium Way, Suite 200, Mount Laurel, NJ 08054.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this direct testimony (referred to throughout as my "Direct Testimony") before the South Dakota Public Utilities Commission ("Commission") on behalf of Northern States Power, a Minnesota corporation ("NSP" or the "Company").

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I have offered expert testimony on behalf of investor-owned utilities before over 30 state regulatory commissions in the United States, the Federal Energy Regulatory Commission ("FERC"), the Alberta Utility Commission, an American Arbitration Association panel, and the Superior Court of Rhode Island on issues including, but not limited to, common equity cost rate, rate of return, valuation, capital structure, class cost of service, and rate design.

On behalf of the American Gas Association ("AGA"), I calculate the AGA Gas Index, which serves as the benchmark against which the performance of the American Gas Index Fund ("AGIF") is measured on a monthly basis. The AGA Gas Index and AGIF are a market capitalization weighted index and mutual fund, respectively, comprised of the common stocks of the publicly traded corporate members of the AGA.

I am a member of the Society of Utility and Regulatory Financial Analysts ("SURFA"). In 2011, I was awarded the professional designation "Certified Rate of Return Analyst" by SURFA, which is based on education, experience, and the successful completion of a comprehensive written examination.

I am also a member of the National Association of Certified Valuation Analysts ("NACVA") and was awarded the professional designation "Certified Valuation Analyst" by NACVA in 2015.

I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I have also received a Master of Business Administration with high honors and concentrations in Finance and International Business from Rutgers University.

The details of my educational background and expert witness appearances are shown in Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my testimony is to present evidence on behalf of the Company and recommend a weighted average cost of capital ("WACC") to be used in setting rates in this proceeding. My testimony first provides a summary of financial theory and regulatory principles pertinent to the development of the recommended cost of capital. I then present evidence and analysis on: (1) the appropriate capital structure, (2) the appropriate cost of long- and short-term debt, and (3) the appropriate return on common equity ("ROE") on the Company's South Dakota jurisdictional rate base. My testimony concludes with a discussion of the current capital market environment and how it influences cost of capital issues in this proceeding.

Q. HAVE YOU PREPARED SCHEDULES IN SUPPORT OF YOUR RECOMMENDATION?

A. Yes. I have prepared Exhibit__(DWD-1), which contains Schedules 1 through 11, and were prepared by me or under my direction.

II. SUMMARY

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE WACC FOR THE COMPANY IN THIS PROCEEDING?

A. I recommend that the Commission authorize the Company the opportunity to earn a WACC of 7.65% on its South Dakota-jurisdictional rate base. My recommendation is based on the Company's actual test year capital structure that consists of 46.99% long-term debt at an embedded cost rate of 4.14%, and 53.01% common equity at my recommended ROE of 10.75%. Those capital structure ratios and cost rates result in a return on investor-supplied capital of 7.65%, summarized on page 1 of Exhibit___(DWD-1), Schedule 1 and in Table 1 below:

Table 1: Summary of Recommended Weighted Average Cost of Capital

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	46.99%	4.14%	1.95%
Common Equity	53.01%	10.75%	5.70%
Total	100.00%		7.65%

Q. PLEASE SUMMARIZE YOUR RECOMMENDED ROE.

A. My recommended ROE of 10.75% is summarized on page 2 of Exhibit___(DWD-1), Schedule 1. In determining my recommendation, I assessed the market-based common equity cost rates of companies of

relatively similar, but not necessarily identical, risk to the Company. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the *Hope*[1] and *Bluefield*[2] decisions, which I discuss further in Section III, below. Of course, no proxy group can be identical in risk to any single company. Consequently, there must be an evaluation of relative risk between the Company and the proxy group to determine if it is appropriate to adjust the proxy group's indicated rate of return.

My recommendation results from applying and considering several cost of common equity models, specifically the Constant Growth Discounted Cash Flow model ("DCF"), the Risk Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the market data of the Utility Proxy Group whose selection criteria will be discussed below. In addition, I applied these same models to a Non-Price Regulated Proxy Group. The results derived from these analyses are as follows:

1 *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").
2 *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922) ("*Bluefield*").

Table 2: Summary of Common Equity Cost Rates[3]

Discounted Cash Flow Model	8.76%
Risk Premium Model	11.43%
Capital Asset Pricing Model	11.12%
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	12.40%
Indicated Range of Common Equity Cost Rates Before Adjustments	10.08% - 11.08%
Size Adjustment	0.25%
Credit Risk Adjustment	-0.19%
Flotation Cost Adjustment	0.11%
Indicated Range of Common Equity Cost Rates after Adjustment	10.25% - 11.25%
Recommended Cost of Common Equity	10.75%

The indicated range of common equity cost rates applicable to the Utility Proxy Group is between 10.08% and 11.08% before any Company-specific adjustments.[4] I then adjusted the indicated common equity cost rate upward by 0.25% to reflect the Company's smaller relative size and downward by 0.19% to account for a less risky bond rating, as compared to the Utility Proxy Group. I also adjusted the indicated common equity cost rate upward by 0.11% to account for flotation costs.[5] These

3 *See* Section VII for a detailed discussion regarding the application of my cost of common equity models.
4 The indicated range is equal to 50 basis points above and below the midpoint of my four model results. In view of my indicated model results, it is clear that the DCF model results are significantly lower than the rest of the other model results.
5 *See* Section IX for a detailed discussion of my cost of common equity adjustments.

adjustments resulted in a Company-specific indicated range of common equity cost rates between 10.25% and 11.25%. Given the Utility Proxy Group and Company-specific ranges of common equity cost rates, my recommended ROE for the Company is 10.75%.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION WITH RESPECT TO THE COMPANY'S CAPITAL STRUCTURE.

A. As mentioned briefly above, I recommend a capital structure including 46.99% long-term debt and 53.01% common equity. That capital structure is consistent with the Company's historical capital structures, the capital structures of the Utility Proxy Group, and the operating subsidiary companies of the Utility Proxy Group.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION WITH RESPECT TO THE COMPANY'S COST OF LONG-TERM DEBT.

A. I recommend a cost of long-term debt of 4.14%. The Company's proposed cost of long-term debt is reasonable in view of average utility debt costs at the time of the Company's issuances.

Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. The remainder of my Direct Testimony is organized as follows:

- Section III – Provides a summary of financial theory and regulatory principles pertinent to the development of the Cost of Capital;

- Section IV – Explains my selection of the Utility Proxy Group used to develop my Cost of Common Equity analytical results;
- Section V – Explains the proposed capital structure;
- Section VI – Discusses the reasonableness of the Company's proposed long-term debt cost rate;
- Section VII – Describes the analyses on which my Cost of Common Equity recommendation is based;
- Section VIII – Summarizes my common equity cost rate before adjustments to reflect the Company-specific factors;
- Section IX – Explains my adjustments to my common equity cost rate to reflect the Company-specific factors;
- Section X – Provides an overview of the current capital market environment;
- Section XI – Discusses the economic conditions in South Dakota; and
- Section XII – Presents my conclusions.

III. GENERAL PRINCIPLES

Q. WHAT PRINCIPLES HAVE YOU CONSIDERED IN ARRIVING AT YOUR RECOMMENDATIONS?

A. In unregulated industries, marketplace competition is the principal

determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public, while providing safe and reliable service at all times, requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases.

The U.S. Supreme Court affirmed the fair rate of return standards in *Hope*, when it stated:

> The rate-making process under the Act, *i.e.,* the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Co. case that 'regulation does not insure that the business shall produce net revenues.' 315 U.S. at page 590, 62 S.Ct. at page 745. But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. Cf. Chicago & Grand Trunk R. Co. v. Wellman, 143 U.S. 339, 345, 346 12 S.Ct. 400,402. By that standard the return to the equity owner should be commensurate with

> returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[6]

In summary, the U.S. Supreme Court has found a return that is adequate to attract capital at reasonable terms enables the utility to provide service while maintaining its financial integrity. As discussed above, and in keeping with established regulatory standards, that return should be commensurate with the returns expected elsewhere for investments of equivalent risk. The Commission's decision in this proceeding, therefore, should provide the Company with the opportunity to earn a return that is: (1) adequate to attract capital at reasonable cost and terms; (2) sufficient to ensure their financial integrity; and (3) commensurate with returns on investments in enterprises having corresponding risks.

Lastly, the required return for a regulated public utility is established on a stand-alone basis, i.e., for the utility operating company at issue in a rate case. Parent entities, like other investors, have capital constraints and must look at the attractiveness of the expected risk-adjusted return of each investment alternative in their capital budgeting process. That is, utility holding companies that own many utility operating companies have

6 *Hope*, 320 U.S. 591 (1944), at 603.

choices as to where they will invest their capital within the holding company family. Therefore, the opportunity cost concept applies regardless of the source of the funding, public funding or corporate funding.

When funding is provided by a parent entity, the return still must be sufficient to provide an incentive to allocate equity capital to the subsidiary or business unit rather than other internal or external investment opportunities. That is, the regulated subsidiary must compete for capital with all the parent company's affiliates, and with other, similarly situated utility companies. In that regard, investors value corporate entities on a sum-of-the-parts basis and expect each division within the parent company to provide an appropriate risk-adjusted return.

It therefore is important that the authorized ROE reflects the risks and prospects of the utility's operations and supports the utility's financial integrity from a stand-alone perspective as measured by their combined business and financial risks. Consequently, the ROE authorized in this proceeding should be sufficient to support the operational (i.e., business risk) and financing (i.e., financial risk) of the Company's South Dakota utility operations on a stand-alone basis.

Q. WITHIN THAT BROAD FRAMEWORK, HOW IS THE COST OF CAPITAL ESTIMATED IN REGULATORY PROCEEDINGS?

A. Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant, and equipment (i.e., rate base). The fair rate of return for a regulated utility is based on its WACC, in which, as noted earlier, the costs of the individual sources of capital are weighted by their respective book values.

The cost of capital is the return investors require to make an investment in a firm. Investors will provide funds to a firm only if the return that they *expect* is equal to, or greater than, the return that they *require* to accept the risk of providing funds to the firm.

The cost of capital (that is, the combination of the costs of debt and equity) is based on the economic principle of "opportunity costs." Investing in any asset (whether debt or equity securities) represents a forgone opportunity to invest in alternative assets. For any investment to be sensible, its expected return must be at least equal to the return expected on alternative, comparable risk investment opportunities. Because investments with like risks should offer similar returns, the opportunity cost of an investment should equal the return available on an investment of comparable risk.

Whereas the cost of debt is contractually defined and can be directly observed as the interest rate or yield on debt securities, the cost of equity must be estimated based on market data and various financial models. Because the cost of equity is premised on opportunity costs, the models used to determine it are typically applied to a group of "comparable" or "proxy" companies.

In the end, the estimated cost of capital should reflect the return that investors require in light of the subject company's business and financial risks, and the returns available on comparable investments.

A. Business Risk

Q. PLEASE DEFINE BUSINESS RISK AND EXPLAIN WHY IT IS IMPORTANT FOR DETERMINING A FAIR RATE OF RETURN.

A. The investor-required return on common equity reflects investors' assessment of the total investment risk of the subject firm. Total investment risk is often discussed in the context of business and financial risk.

Business risk reflects the uncertainty associated with owning a company's common stock without the company's use of debt and/or preferred stock financing. One way of considering the distinction between business and financial risk is to view the former as the uncertainty

of the expected earned return on common equity, assuming the firm is financed with no debt.

Examples of business risks generally faced by utilities include, but are not limited to, the regulatory environment, mandatory environmental compliance requirements, customer mix and concentration of customers, service territory economic growth, market demand, risks and uncertainties of supply, operations, capital intensity, size, the degree of operating leverage, emerging technologies including distributed energy resources, the vagaries of weather, and the like, all of which have a direct bearing on earnings.

Although analysts, including rating agencies, may categorize business risks individually, as a practical matter, such risks are interrelated and not wholly distinct from one another. When determining an appropriate return on common equity, the relevant issue is where investors see the subject company in relation to other similarly situated utility companies (i.e., the Utility Proxy Group). To the extent investors view a company as being exposed to higher risk, the required return will increase, and vice versa.

For regulated utilities, business risks are both long-term and near-term in nature. Whereas near-term business risks are reflected in year-to-

year variability in earnings and cash flow brought about by economic or regulatory factors, long-term business risks reflect the prospect of an impaired ability of investors to obtain both a fair rate of return on, and return of, their capital. Moreover, because utilities accept the obligation to provide safe, adequate and reliable service at all times (in exchange for a reasonable opportunity to earn a fair return on their investment), they generally do not have the option to delay, defer, or reject capital investments. Because those investments are capital-intensive, utilities generally do not have the option to avoid raising external funds. The obligation to serve and the corresponding need to access capital is even more acute during periods of capital market distress.

Because utilities invest in long-lived assets, long-term business risks are of paramount concern to equity investors. That is, the risk of not recovering the return on their investment extends far into the future. The timing and nature of events that may lead to losses, however, also are uncertain and, consequently, those risks and their implications for the required return on equity tend to be difficult to quantify. Regulatory commissions (like investors who commit their capital) must review a variety of quantitative and qualitative data and apply their reasoned judgment to determine how long-term risks weigh in their assessment of

the market-required return on common equity.

B. Financial Risk

Q. PLEASE DEFINE FINANCIAL RISK AND EXPLAIN WHY IT IS IMPORTANT IN DETERMINING A FAIR RATE OF RETURN.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and preferred stock in the capital structure, the higher the financial risk to common equity owners (i.e., failure to receive dividends due to default or other covenants). Therefore, consistent with the basic financial principle of risk and return, common equity investors require higher returns as compensation for bearing higher financial risk.

Q. CAN BOND AND CREDIT RATINGS BE A PROXY FOR A FIRM'S COMBINED BUSINESS AND FINANCIAL RISKS TO EQUITY OWNERS (I.E., INVESTMENT RISK)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (i.e., total risk) faced by bond investors.[7] Although specific business or financial

7 Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, e.g., within the A category, an S&P rating can be an A+, A, or A-. Similarly, risk distinction for Moody's ratings are distinguished by numerical rating gradations, e.g., within the A category, a Moody's rating can be A1, A2 and A3.

risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar from a debtholder perspective. The caveat is that these debtholder risk measures do not translate directly to risks for common equity.

IV. NSP AND THE UTILITY PROXY GROUP

Q. WHY IS IT NECESSARY TO DEVELOP A PROXY GROUP WHEN ESTIMATING THE ROE FOR THE COMPANY?

A. Because the Company is not publicly traded and does not have publicly traded equity securities, it is necessary to develop groups of publicly traded, comparable companies to serve as "proxies" for the Company. In addition to the analytical necessity of doing so, the use of proxy companies is consistent with the *Hope* and *Bluefield* comparable risk standards, as discussed above. I have selected two proxy groups that, in my view, are fundamentally risk-comparable to the Company: A Utility Proxy Group and a Non-Price Regulated Proxy Group, which is comparable in total risk to the Utility Proxy Group.[8]

Even when proxy groups are carefully selected, it is common for analytical results to vary from company to company. Despite the care

8 The development of the Non-Price Regulated Proxy Group is explained in more detail in Section VII.

taken to ensure comparability, because no two companies are identical, market expectations regarding future risks and prospects will vary within the proxy group. It therefore is common for analytical results to reflect a seemingly wide range, even for a group of similarly situated companies. At issue is how to estimate the ROE from within that range. That determination will be best informed by employing a variety of sound analyses and necessarily must consider the sort of quantitative and qualitative information discussed throughout my Direct Testimony. Additionally, a relative risk analysis between the Company and the Utility Proxy Group must be made to determine whether or not explicit Company-specific adjustments need to be made to the Utility Proxy Group indicated results.

My analyses are based on the Utility Proxy Group, containing U.S. electric utilities. As discussed earlier, utilities must compete for capital with other companies with commensurate risk (including non-utilities) and, to do so, must be provided the opportunity to earn a fair and reasonable return. Consequently, it is appropriate to consider the Utility Proxy Group's market data in determining the Company's ROE.

Q. PLEASE SUMMARIZE THE COMPANY'S OPERATIONS.

A. NSP is a vertically integrated electric and natural gas utility that provides

electric generation, transmission, and distribution service, as well as natural gas distribution service to approximately 1,500,000 retail electric customers and 500,000 natural gas customers in North Dakota, Minnesota, and South Dakota.[9] The operations that are subject to the Commission's jurisdiction provides electric service to approximately 99,000 retail customers in South Dakota. The Company has long-term issuer ratings of A2 from Moody's Investor Services ("Moody's") and A- from Standard & Poor ("S&P").[10] The Company is not publicly-traded as it is an operating subsidiary of Xcel Energy Inc. ("XEI" or the "Parent"). XEI is publicly-traded under ticker symbol "XEL".

Page 1 of Exhibit___(DWD-1), Schedule 2 contains comparative capitalization and financial statistics for the Company for the years 2017 to 2021.[11] During the five-year period ending 2021, the historically achieved average earnings rate on book common equity for the Company averaged 8.98%. The average common equity ratio based on total permanent capital (excluding short-term debt) was 53.10%, and the average dividend payout ratio was 84.44%.

Total debt to earnings before interest, taxes, depreciation, and

9 Northern States Power Company, SEC Form 10-K at 4, (Dec. 31, 2021).
10 Source: S&P Global Market Intelligence.
11 Source: NSP FERC Form 1. Reflects entire operations of the Company.

amortization for the years 2017 to 2021 ranges between 3.09 and 3.70 times, with an average of 3.48 times. Funds from operations to total debt range from 10.78% to 31.94%, with an average of 19.69%.

Q. PLEASE EXPLAIN HOW YOU CHOSE THE COMPANIES IN THE UTILITY PROXY GROUP.

A. Because the cost of equity is a comparative exercise, my objective in developing a proxy group was to select companies that are comparable to the Company. Because the Company is a 100% rate regulated vertically integrated electric utility, I applied the following criteria to select my Utility Proxy Group:

(i) They were included in the Eastern, Central, or Western Electric Utility Group of *Value Line Investment Survey* (Standard Edition)("*Value Line*");

(ii) They have 70% or greater of fiscal year 2021 total operating income derived from, and 70% or greater of fiscal year 2021 total assets attributable to, regulated electric operations;

(iii) They are vertically integrated (i.e., utilities that own and operate regulated generation, transmission, and distribution assets);

(iv) At the time of preparation of this testimony, they had not publicly announced that they were involved in any major merger or

acquisition activity (i.e., one publicly-traded utility merging with or acquiring another) or any other major development;

(v) They have not cut or omitted their common dividends during the five years ended 2021 or through the time of preparation of this testimony;

(vi) They have *Value Line* and Bloomberg Professional Services ("Bloomberg") adjusted Beta coefficients ("beta");

(vii) They have positive *Value Line* five-year dividends per share ("DPS") growth rate projections; and

(viii) They have *Value Line*, Zacks, or Yahoo! Finance consensus five-year earnings per share ("EPS") growth rate projections.

The following 12 companies met these criteria:

Table 3: Utility Proxy Group Companies

Company Name	Ticker Symbol
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Co., Inc.	AEP
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Portland General Electric Co.	POR

Xcel Energy, Inc.	XEL

Q. PLEASE SUMMARIZE THE UTILITY PROXY GROUP'S HISTORICAL CAPITALIZATION AND FINANCIAL STATISTICS.

A. Page 1 of Exhibit___(DWD-1), Schedule 3 contains comparative capitalization and financial statistics for the Utility Proxy Group for the years 2017 to 2021.

During the five-year period ending 2021, the historically achieved average earnings rate on book common equity for the group averaged 9.11%, the average common equity ratio based on total permanent capital (excluding short-term debt) was 45.70%, and the average dividend payout ratio was 71.89%.

Total debt to earnings before interest, taxes, depreciation, and amortization for the years 2017 to 2021 ranges between 4.61 and 6.17 times, with an average of 5.10 times. Funds from operations to total debt range from 9.99% to 18.71%, with an average of 14.34%. Given those capitalization and financial statistics, I conclude the Utility Proxy Group is generally comparable to the Company.

V. CAPITAL STRUCTURE

Q. HOW DOES THE CAPITAL STRUCTURE AFFECT THE RATE OF RETURN?

A. As discussed above, there are two general categories of risk: business risk

and financial risk. The capital structure relates to a company's financial risk, which represents the risk that a company may not have adequate cash flows to meet its financial obligations, and is a function of the percentage of debt (or financial leverage) in its capital structure. In that regard, as the percentage of debt in the capital structure increases, so do the fixed obligations for the repayment of that debt. Consequently, as the degree of financial leverage increases, the risk of financial distress (i.e., financial risk) also increases.[12] In essence, even if two firms face the same business risks, a company with meaningfully higher levels of debt in its capital structure is likely to have a higher cost of both debt and equity. Since the capital structure can affect the subject company's overall level of risk, it is an important consideration in establishing a just and reasonable rate of return.

Q. IS THERE SUPPORT FOR THE PROPOSITION THAT THE CAPITAL STRUCTURE IS A KEY CONSIDERATION IN ESTABLISHING AN APPROPRIATE RATE OF RETURN?

A. Yes. The Supreme Court and various utility commissions have long recognized the role of capital structure in the development of a just and reasonable rate of return for a regulated utility. In particular, a utility's

12 Roger A. Morin, Modern Regulatory Finance, Public Utility Reports, Inc., 2021, at 51-52. ("Morin")

leverage, or debt ratio, has been explicitly recognized as an important element in determining a just and reasonable rate of return:

> Although the determination of whether bonds or stocks should be issued is for management, the matter of debt ratio is not exclusively within its province. Debt ratio substantially affects the manner and cost of obtaining new capital. It is therefore an important factor in the rate of return and must necessarily be considered by and come within the authority of the body charged by law with the duty of fixing a just and reasonable rate of return.[13]

Perhaps ultimate authority for balancing the issues of cost and financial integrity is found in the Supreme Court's statement in *Hope*:

> The rate-making process under the Act, i.e., the fixing of "just and reasonable' rates, involves a balancing of the investor and the consumer interests.[14]

And as the U.S. Court of Appeals, District of Columbia Circuit found in *Communications Satellite Corp. et. al. v. FCC*:

> The equity investor's stake is made less secure as the company's debt rises, but the consumer rate-payer's burden is alleviated.[15]

That is, the U.S. Court of Appeals, District of Columbia Circuit found that because there is a relationship between the capital structure

13 *New England Telephone & Telegraph Co. v. State*, 98 N.H. 211, 97 A.2d 213 (1953) (citing *New England Tel. & Tel. Co. v. Department of Pub. Util.*, 327 Mass. 81, 97 N.E. 2d 509, 514; *Petitions of New England Tel. & Tel. Co.* 116 Vt. 480, 80 A2d 671, at 6).

14 *Federal Power Commission v. Hope Natural Gas Co.,* 320 U.S. at 603 (1944).

15 *Communications Satellite Corp. et. al. v. FCC*, 198 U.S. App. D.C. 60, 63-64611 F.2d 883.

and the cost of equity, investor and consumer interests must be balanced. Consequently, the principles of fairness and reasonableness with respect to the allowed rate of return and capital structure are considered at both the federal and state levels.

Q. PLEASE SUMMARIZE THE COMPONENTS OF THE COMPANY'S RECOMMENDED CAPITAL STRUCTURE AND WACC.

A. The Company's proposed test year capital structure includes long-term debt and common equity. The Company's proposed revenue requirement for the test year reflects a WACC of 7.65%, as shown on Exhibit__(DWD-1), Schedule 1, page 1 and Table 1, above.

Q. DOES THE COMPANY HAVE A SEPARATE CAPITAL STRUCTURE THAT IS RECOGNIZED BY INVESTORS?

A. Yes. The Company is a separate corporate entity that has its own capital structure and issues its own debt with the Securities and Exchange Commission. That being said, the South Dakota jurisdictional operations' capital structure is an allocated portion of the Company's capital structure.

Q. WHY IS IT IMPORTANT THAT THE COMPANY'S ACTUAL CAPITAL STRUCTURE BE AUTHORIZED FOR THE COMPANY IN THIS PROCEEDING?

A. As a preliminary matter, the Company's actual capital structure is known and measurable, and is within a reasonable range from the perspective of

the Utility Proxy Group companies.[16] The use of an operating subsidiary's actual capital structure is consistent with the FERC's precedent, under which they use the applicant's capital structure, where possible.[17] In particular, the FERC will use the utility operating company's capital structure if it meets three criteria: (1) it issues its own debt without guarantees; (2) it has its own bond rating; and (3) it has a capital structure within the range of capital structures approved by the commission.[18] The Company meets all of these criteria.

Importantly, in order to provide safe, reliable, and affordable service to its customers, the Company must meet the needs and serve the interests of its various stakeholders, including customers, shareholders, and bondholders. The interests of these stakeholder groups are aligned when the Company maintains a healthy balance sheet, strong credit ratings, and a supportive regulatory environment, ensuring it has access to capital on reasonable terms in order to make necessary investments.

Safe and reliable service cannot be maintained at a reasonable cost if utilities do not have the financial flexibility and strength to access competitive financing markets on reasonable terms. The authorization of

16 *See* Exhibit__(DWD-1), Schedule 3.
17 *See, Transcontinental Gas Pipe Line Corp,* 80 FERC ¶ 61,157, 61,657 (1997) ("Opinion No. 414").
18 148 FERC ¶ 61,049 Docket No. EL14-12-000, at 190.

a capital structure that understates the Company's actual common equity will weaken the financial condition of its operations and adversely impact the Company's ability to address expenses and investment, to the detriment of customers and shareholders. Safe and reliable service for customers cannot be sustained over the long term if the interests of shareholders and bondholders are minimized such that the public interest is not optimized.

Consequently, the Company's existing capital structure should be used to set rates in this proceeding.

Q. WHAT METHODOLOGY DID THE COMPANY USE TO DEVELOP BALANCES FOR THE VARIOUS COMPONENTS OF CAPITAL STRUCTURE?

A. The Company's methodology to develop its balances for the components of capital structure is as follows:

- Long-term debt balances are based on the average of month-end balances for the 12 months ending December 2021; and

- Common equity balances represent the average of 13 month-end equity balances from December 2020 through December 2021. The common equity balance averages the accounting month-end balances consistent with Generally Accepted Accounting Principles and eliminates the non-regulated investments.

The derivation of the balances of long-term debt and common equity for the Company's proposed capital structure is presented on Exhibit__(DWD-1), Schedule 2, page 2.

Q. HOW DOES THE COMPANY'S REQUESTED TEST YEAR CAPITAL STRUCTURE COMPARE WITH THE THEIR RECENT CAPITAL STRUCTURES?

A. The requested test year capital structure is highly consistent with NSP's historical capital structures.[19] As shown on Exhibit__(DWD-1), Schedule 2, page 1, the common equity ratios for years 2017 through 2021 range from 52.42% to 54.02%, averaging 53.10%.

Q. HOW DOES NSP'S ACTUAL COMMON EQUITY RATIO OF 53.01% COMPARE WITH THE COMMON EQUITY RATIOS MAINTAINED BY THE UTILITY PROXY GROUP?

A. In order to assess the reasonableness of the Company's requested ratemaking common equity ratio, I reviewed the actual common equity ratios maintained by the comparable companies within the Utility Proxy Group.[20] The Company's requested ratemaking common equity ratio of 53.01% is reasonable and consistent with the range of common equity ratios maintained by the Utility Proxy Group. As shown on pages 2 and

19 Reflects entire operations of the Company.

20 The development of the Utility Proxy Group was described in Section IV.

3 of Exhibit___(DWD-1), Schedule 3, common equity ratios of the utilities range from 30.78% to 57.15% for fiscal year 2021. The Company's actual capital structure demonstrates both the reasonableness of using it to set rates and the Company's relative financial health. Setting the WACC as requested by the Company will continue to support the long-term financial health of the Company for the benefit of all of its stakeholders, including its customers.

In addition to comparing the Company's ratemaking common equity ratio with common equity ratios currently and expected to be maintained by the Utility Proxy Group (i.e., at the holding company level), I also compared the Company's ratemaking common equity ratio with the equity ratios maintained by the operating subsidiaries of the Utility Proxy Group companies. As shown on page 4 of Exhibit___(DWD-1), Schedule 3, common equity ratios of the operating utility subsidiaries of the Utility Proxy Group range from 40.96% to 58.26% for fiscal year 2021.

Q. IS THE COMPANY'S PROPOSED EQUITY RATIO OF 53.01% APPROPRIATE FOR RATEMAKING PURPOSES GIVEN THE RANGE OF THE UTILITY PROXY GROUP?

A. Yes, it is. The Company's proposed equity ratio of 53.01% is appropriate for ratemaking purposes in the current proceeding because it is the actual

equity ratio of NSP, and it is well within industry norms.

VI. COST OF LONG-TERM DEBT

Q. HOW IS THE COMPANY PROPOSING TO SET ITS COST OF DEBT?

A. The Company is proposing to use its actual cost of debt for the test year.

Q. HOW WAS THE PROPOSED COST OF LONG-TERM DEBT DETERMINED?

A. As shown on Exhibit___(DWD-1), Schedule 4, page 1, the overall 4.14% cost of long-term debt for the test year includes the actual coupon rate on all bonds expected to be outstanding for each month of the test year. In addition to the interest expense, the cost of long-term debt also includes actual amortization expense for debt issuance costs, discounts or premiums, losses on reacquired debt, gains and losses from hedging transactions, and the annual amortization of the upfront fees associated with the Company's multi-year credit agreement.

Q. HAVE YOU ANALYZED THE COMPANY'S COST OF LONG-TERM DEBT FOR REASONABLENESS?

A. Yes, I have. To test the reasonableness of the Company's proposed long-term debt cost, I reviewed the yield on equivalent debt at the time of issuance. As shown in Exhibit___(DWD-1), Schedule 4, page 2, I compared the cost of each individual issuance to the Bloomberg Fair Value Curves for A-rated and BBB-rated utility debt at the time of the

issuance. The expected cost of long-term debt based on the Bloomberg Fair Value Curves for A-rated and BBB-rated utility debt ranges from 4.20% to 4.59%, indicating that its 4.14% proposed cost of long-term debt is reasonable.

Q. GIVEN THE ABOVE, IS THE COMPANY'S COST OF LONG-TERM DEBT REASONABLE?

A. Yes.

VII. COMMON EQUITY COST RATE MODELS

Q. IS IT IMPORTANT THAT COST OF COMMON EQUITY MODELS BE MARKET-BASED?

A. Yes. As discussed previously, regulated public utilities, like the Company, must compete for equity in capital markets along with all other companies with commensurate risk, including non-utilities. The cost of common equity is thus determined based on equity market expectations for the returns of those companies. If an individual investor is choosing to invest their capital among companies with comparable risk, they will choose the company providing a higher return over a company providing a lower return.

Q. ARE THE COST OF COMMON EQUITY MODELS YOU USE MARKET-BASED MODELS?

A. Yes. The DCF model is market-based in that market prices are used in developing the dividend yield component of the model. The RPM and CAPM are also market-based in that the bond/issuer ratings and expected bond yields/risk-free rate used in the application of the RPM and CAPM reflect the market's assessment of bond/credit risk. In addition, the use of the beta to determine the equity risk premium also reflects the market's assessment of market/systematic risk, as betas are derived from regression analyses of market prices. Moreover, market prices are used in the development of the monthly returns and equity risk premiums used in the Predictive Risk Premium Model ("PRPM"). Selection criteria for the Non-Price Regulated Proxy Group are based on regression analyses of market prices and reflect the market's assessment of total risk.

Q. WHAT ANALYTICAL APPROACHES DID YOU USE TO DETERMINE THE COMPANY'S ROE?

A. As discussed earlier, I have relied on the DCF model, the RPM, and the CAPM, which I apply to the Utility Proxy Group described above. I also applied these same models to a Non-Price Regulated Proxy Group described later in this section.

I rely on these models because reasonable investors use a variety of tools and do not rely exclusively on a single source of information or single model. Moreover, the models on which I rely focus on different aspects of return requirements, and provide different insights to investors' views of risk and return. The DCF model, for example, estimates the investor-required return assuming a constant expected dividend yield and growth rate in perpetuity, while Risk Premium-based methods (i.e., the RPM and CAPM approaches) provide the ability to reflect investors' views of risk, future market returns, and the relationship between interest rates and the cost of equity. Just as the use of market data for the Utility Proxy Group adds the reliability necessary to inform expert judgment in arriving at a recommended common equity cost rate, the use of multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. Discounted Cash Flow Model

Q. PLEASE DESCRIBE THE DCF MODEL GENERALLY.

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an

investor buys a stock for an expected total return rate, which is derived from the cash flows received from dividends and market price appreciation. Mathematically, the expected dividend yield on market price plus a growth rate equals the capitalization rate; i.e., the total common equity return rate expected by investors, as shown in Equation [1] below:

$$K_e = (D_0 (1+g))/P + g$$

where:
K_e = the required Return on Equity;
D_0 = the annualized Dividend Per Share;
P = the current stock price; and
g = the growth rate.

Q. WHICH VERSION OF THE DCF MODEL DID YOU USE?

A. I used the single-stage constant growth DCF model.

Q. PLEASE DESCRIBE THE DIVIDEND YIELD YOU USED IN APPLYING THE CONSTANT GROWTH DCF MODEL.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of April 29, 2022, divided by the average closing market price for the 60 trading days ended April 29, 2022.[21]

Q. PLEASE EXPLAIN YOUR ADJUSTMENT TO THE DIVIDEND YIELD.

A. Because dividends are paid periodically (*e.g.* quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield.

21 *See,* Column 1, page 1 of Exhibit___(DWD-1), Schedule 5.

This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for using the full growth rate, or D_1, in calculating the model's dividend yield component. Since the companies in the Utility Proxy Group increase their quarterly dividends at various times during the year, a conservative assumption is to reflect one-half the annual dividend growth rate rather than the full growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next 12-month period, this adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1, page 1 of Exhibit___(DWD-1), Schedule 5 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 5.

Q. PLEASE EXPLAIN THE BASIS FOR THE GROWTH RATES YOU APPLY IN YOUR CONSTANT GROWTH DCF MODEL.

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services, such as *Value Line*, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively

manage the effects of changing laws and regulations, and ever-changing economic and market conditions. For these reasons, I used analysts' five-year forecasts of EPS growth in my DCF analysis.

Over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, using projected earnings growth rates in a DCF analysis provides a better match between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. PLEASE SUMMARIZE THE CONSTANT GROWTH DCF MODEL RESULTS.

A. As shown on page 1 of Exhibit___(DWD-1), Schedule 5, the application of the Constant Growth DCF model to the Utility Proxy Group results in a wide range of indicated ROEs from 7.06% to 10.30%. The mean of those results is 8.82%, the median result is 8.70%, and the average of the two is 8.76%. In arriving at a conclusion of the indicated common equity cost rate for the Utility Proxy Group implied by the Constant Growth DCF model, I relied on an average of the mean and the median results (i.e., 8.79%) of the DCF. By doing so, I have considered the DCF results for each company without giving undue weight to outliers on either the high or the low side.

Q. AS SHOWN ON TABLE 2, ABOVE, THE DCF RESULTS APPEAR TO BE A LOW-SIDE OUTLIER COMPARED TO THE REST OF YOUR MODEL RESULTS. ARE THERE ANY SPECIFIC WEAKNESSES OF THE DCF MODEL WHERE IT WOULD MIS-SPECIFY INVESTORS' RETURN ON COMMON EQUITY NECESSITATING THE USE OF MULTIPLE COMMON EQUITY COST RATE MODELS?

A. Yes. The DCF model presumes that market-to-book ("M/B") ratios are at unity or 1.00. However, that is rarely the case. Morin[22] states:

> The third and perhaps most important reason for caution and skepticism is that application of the DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar, that is, when the market-to-book ratio M/B is close to unity. As shown below, application of the standard DCF model to utility stocks understates the investor's expected return when the M/B ratio of a given stock exceeds unity. This is particularly relevant in the capital market environment of the early 2020s when utility stocks are trading at M/B ratios well above unity and have been for nearly several decades. The converse is also true, that is, the DCF model overstates that investor's return when the stock's M/B ratio is less than unity. The reason for the distortion is that the DCF market return is applied to a book value rate base by the regulator, that is, a utility's earnings are limited to earnings on a book value rate base. (emphasis supplied)

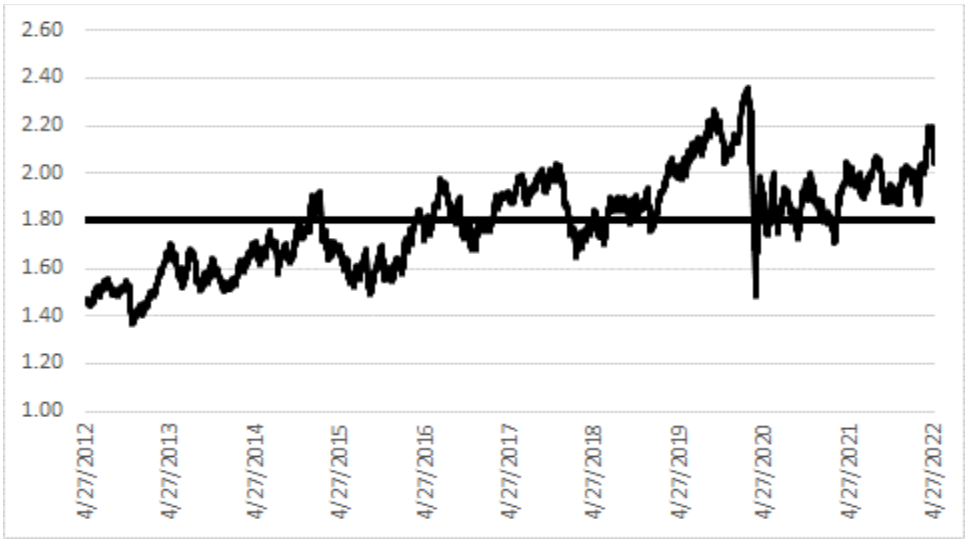
22 Roger A. Morin, Modern Regulatory Finance, Public Utility Reports, Inc., 2021, at 481-482 ("Morin").

Since the "simplified" DCF model traditionally used in rate regulation assumes a M/B ratio of 1.00, it understates/overstates investors' required return rate when market value exceeds or is less than book value. It does so because utility investors evaluate and receive their returns on the market value of a utility's equity, whereas regulators authorize returns on book common equity. This means the market-based DCF model will produce the total annual dollar return expected by investors only when market and book values are equal, and again, a rare and unlikely situation.

Q. HAVE THE M/B RATIOS OF YOUR UTILITY PROXY GROUP BEEN SIGNIFICANTLY OVER 1.0 TIMES FOR THE LAST TEN YEARS?

A. Yes, they have. As shown on Chart 1, below the average M/B ratio for my Utility Proxy Group has been in excess of 1.4 times for the entire ten-year period ending April 29, 2022, averaging 1.8 times. Currently, the Utility Proxy Group's M/B ratio exceeds its ten-year average.

Chart 1: Utility Proxy Group M/B Ratios: Ten-Years Ending 4/29/2022[23]



The significance of this chart is that the Utility Proxy Group's M/B ratio has been in excess of 1.0 times, and as such, the indicated cost of common equity derived from the DCF model has consistently understated the investor-required return for the entire ten-year period.

Q. ARE MARKET VALUES (I.E., PRICES) SET BY REGULATORS?

A. No. Market values are set by the market, not regulators. Market values can diverge from book values for a myriad of reasons including, but not limited to, EPS and DPS expectations, merger/acquisition expectations, the rising interest rate environment, etc. As noted by Phillips:

> Many question the assumption that market price should equal book value, believing that 'the earnings of utilities

23 Source: Bloomberg Professional Service

> should be sufficiently high to achieve market-to-book ratios which are consistent with those prevailing for stocks of unregulated companies.[24]

In addition, Bonbright states:

> In the first place, commissions cannot forecast, except within wide limits, the effect their rate orders will have on the market prices of the stocks of the companies they regulate. In the second place, *whatever the initial market prices may be, they are sure to change not only with the changing prospects for earnings, but with the changing outlook of an inherently volatile stock market.* In short, market prices are beyond the control, though not beyond the influence of rate regulation. Moreover, even if a commission did possess the power of control, any attempt to exercise it ... would result in harmful, uneconomic shifts in public utility rate levels. (italics added)[25]

Q. CAN THE UNDER- OR OVERSTATEMENT OF INVESTORS' REQUIRED RATE OF RETURN BY THE DCF MODEL BE DEMONSTRATED MATHEMATICALLY?

A. Yes. The under- or overstatement of the investor required rate of return on the market by the DCF model is demonstrated mathematically on page 2 of Exhibit___(DWD-1), Schedule 5. Column [1] represents a M/B ratio of 100% (market and book value of equity is $30.00 per share). The DCF cost rate of 10.00% is comprised of a 3.00% dividend yield and 7.00% growth rate. The total return expected by investors is $3.00 ($0.90

24 Charles F. Phillips, The Regulation of Public Utilities, Public Utilities Reports, Inc., at 395 (1993).

25 James C. Bonbright, Albert L. Danielsen, and David R. Kamerschen, Principles of Public Utility Rates, Public Utilities Reports, Inc., at 334 (1998).

dividends, $2.10 capital appreciation). When M/B ratios are not equal to 100%, the DCF model mis-specifies the investor expected return. As shown in Column [2], Line No. 7, using the same market value as Column [1] ($30.00) and a book value per share of $15.00 (a M/B ratio of 200%), the investor would only receive a return on book value of $1.50 ($15.00 * 10.00% investor-expected return). The $1.50 is broken down into $0.90 in dividends ($30.00 market price * 3.00% dividend yield) and $0.60 in capital appreciation. Since investor's expectations are based on market values, the capital appreciation return is 2.00% ($0.60 / $30.00), which is 5.00% less than the investor-expected return of 7.00% (the growth term in the DCF model). Conversely, as shown in Column [3], using the same market value of $30.00 and a book value per share of $37.50 (a M/B ratio of 80%), the investor would receive a return on book value of $3.75 ($37.50 * 10.00% investor-expected return). The $3.75 is broken down into $0.90 in dividends ($30.00 market price * 3.00% dividend yield) and $2.85 in capital appreciation. Since investors' expectations are based on market values, the capital appreciation return is 9.50% ($2.85 / $30.00), which is 2.50% more than the investor-expected return of 7.00% (the growth term in the DCF model).

Stated simply, the DCF model either understates or overstates

investors' required cost of common equity capital when market values exceed/are less than their underlying book values. Because the M/B ratios for the proxy group companies are in excess of 1.0 times, the DCF model results for the Utility Proxy Group understate the investor-required return, which is evident by observing the results of my other ROE models. Because of this, multiple cost of common equity models must be used for one to derive a more reliable estimate of the cost of common equity for a company.

B. The Risk Premium Model

Q. PLEASE DESCRIBE THE THEORETICAL BASIS OF THE RPM.

A. The RPM is based on the fundamental financial principle of risk and return; namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common stocks than from bonds to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity returns cannot be directly determined or observed. According to RPM theory, one can estimate a common

equity risk premium over bonds (either historically or prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings upon liquidation.

Q. PLEASE EXPLAIN HOW YOU DERIVED YOUR INDICATED COST OF COMMON EQUITY BASED ON THE RPM.

A. To derive my indicated cost of common equity under the RPM, I used two risk premium methods. The first method was the PRPM and the second method was a risk premium model using a total market approach. The PRPM estimates the risk-return relationship directly, while the total market approach indirectly derives a risk premium by using known metrics as a proxy for risk.

i. Predictive Risk Premium Model

Q. PLEASE EXPLAIN THE PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics,*[26] was developed from the work of Robert F. Engle, who shared the Nobel Prize in

26 Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. *A New Approach for Estimating the Equity Risk Premium for Public Utilities*, The Journal of Regulatory Economics (December 2011), 40:261-278.

Economics in 2003 "for methods of analyzing economic time series with time-varying volatility" or ARCH.[27] Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that volatility of prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums. That is, historical volatility can be used to predict future volatility, which then can be translated to a predicted equity risk premium.

The PRPM estimates the risk-return relationship directly, as the predicted equity risk premium is generated by predicting volatility or risk. The PRPM is not based on an estimate of investor behavior, but rather on an evaluation of the results of that behavior (i.e., the variance of historical equity risk premiums).

The inputs to the model are the historical returns on the common shares of each Utility Proxy Group company minus the historical monthly yield on long-term U.S. Treasury securities through April 2022. Using a generalized form of ARCH, known as GARCH, I calculated each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software. When the GARCH model is applied to the historical

27 Autoregressive conditional heteroscedasticity; *See also,* www.nobelprize.org.

return data, it produces a predicted GARCH variance series[28] and a GARCH coefficient.[29] Multiplying the predicted monthly variance by the GARCH coefficient and then annualizing it[30] produces the predicted annual equity risk premium. I then added the forecasted 30-year U.S. Treasury bond yield of 3.35%[31] to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30-year U.S. Treasury bond yield is a consensus forecast derived from *Blue Chip Financial Services ("Blue Chip").*[32] The mean PRPM indicated common equity cost rate for the Utility Proxy Group is 11.89%, the median is 12.17%, and the average of the two is 12.03%. Consistent with my reliance on the average of the median and mean results of the DCF model, I relied on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 12.03%.

Q. PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF RETURN.

A. As shown in Exhibit___(DWD-1), Schedules 6 and 7, the risk-free rate adopted for applications of the RPM and CAPM is 3.35%. This risk-free rate is based on the average of the *Blue Chip* consensus forecast of the

28 Illustrated on Columns 1 and 2, page 2 of Exhibit___(DWD-1), Schedule 6.
29 Illustrated on Column 4, page 2 of Exhibit___(DWD-1), Schedule 6.
30 Annualized Return = (1 + Monthly Return) ^12 - 1
31 *See,* Column 6, page 2 of Exhibit___(DWD-1), Schedule 6.
32 *Blue Chip Financial Forecasts ("Blue Chip")*, December 1, 2021 at page 14 and April 29, 2022 at page 2.

expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the third calendar quarter of 2023, and long-term projections for the years 2023 to 2027 and 2028 to 2032.

Q. WHY DO YOU USE THE PROJECTED 30-YEAR TREASURY YIELD IN YOUR ANALYSES?

A. The yield on long-term U.S. Treasury bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on Moody's A-rated public utility bonds; the long-term investment horizon inherent in utilities' common stocks; and the long-term life of the jurisdictional rate base to which the allowed fair rate of return (i.e., cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

More specifically, the term of the risk-free rate used for cost of capital purposes should match the life (or duration) of the underlying investment (i.e., perpetuity). As noted by Morningstar:

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to

> hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[33]

Morin also confirms this when he states:

> [b]ecause common stock is a long-term investment and because the cash flows to investors in the form of dividends last indefinitely, the yield on very long-term government bonds, namely, the yield on 30-year Treasury bonds, is the best measure of the risk-free rate for use in the CAPM (footnote omitted)… The expected common stock return is based on long-term cash flows, regardless of an individual's holding time period.[34]

Pratt and Grabowski recommend a similar approach to selecting the risk-free rate: "[i]n theory, when determining the risk-free rate and the matching ERP you should be matching the risk-free security and the ERP with the period in which the investment cash flows are expected."[35]

In view of the above, the use of a 30-year Treasury bond yield is a more appropriate risk-free rate than a shorter term bond as it more accurately reflects the life of the assets it finances.

33 Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 44.

34 Morin, at 169.

35 Shannon Pratt and Roger Grabowski, Cost of Capital: Applications and Examples, 3rd Ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2008), at 92. "ERP" is the Equity Risk Premium.

ii. Total Market Approach Risk Premium Model

Q. PLEASE EXPLAIN THE TOTAL MARKET APPROACH RPM.

A. The total market approach RPM adds a prospective public utility bond yield to an average of: 1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, 2) an equity risk premium based on the S&P Utilities Index, and 3) an equity risk premium based on authorized ROEs for electric utilities.

Q. PLEASE EXPLAIN HOW YOU DETERMINED THE EXPECTED BOND YIELD, APPLICABLE TO THE UTILITY PROXY GROUP.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including the common equity cost rate, are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. Because I am unaware of any publication that provides forecasted public utility bond yields, I relied on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the third calendar quarter of 2023, and *Blue Chip's* long-term projections for 2023 to 2027, and 2028 to 2032. As shown on line 1, page 3 of Exhibit___(DWD-1), Schedule 6, the average expected yield on Moody's Aaa-rated corporate bonds is 4.50%.

Because that 4.50% estimate represents a corporate bond yield and not a utility specific bond yield, I adjusted the expected Aaa-rated corporate bond yield to an equivalent A2-rated public utility bond yield. That resulted in an upward adjustment of 0.51%, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds.[36] Adding that recent 0.51% spread to the expected Aaa-rated corporate bond yield of 4.50% results in an expected A2-rated public utility bond yield of 5.01%.

I then reviewed the average credit rating for the Utility Proxy Group from Moody's to determine if an adjustment to the estimated A2-rated public utility bond was necessary. Since the Utility Proxy Group's average Moody's long-term issuer rating is Baa1, another adjustment to the expected A2-rated public utility bond is needed to reflect the difference in bond ratings. An upward adjustment of 0.19%, which represents two-thirds of a recent spread between A2-rated and Baa2-rated public utility bond yields, is necessary to make the A2 prospective bond yield applicable to a Baa1-rated public utility bond.[37] Adding the 0.19%

36 As shown on line 2 and explained in note 2, page 3 of Exhibit___(DWD-1), Schedule 6.

37 As shown on line 4 and explained in note 3, page 3 of Exhibit___(DWD-1), Schedule 6. Moody's does not provide public utility bond yields for Baa1-rated bonds. As such, it was necessary to estimate the difference between A2-rated and Baa1-rated public utility bonds. Because there are three steps between Baa2 and A2 (Baa2 to Baa1, Baa1 to A3, and A3 to A2) I assumed an adjustment of two-thirds of the difference between the A2-rated and Baa2-rated public utility bond yield was appropriate.

to the 5.01% prospective A2-rated public utility bond yield results in a 5.20% expected bond yield applicable to the Utility Proxy Group.

Table 4: Summary of the Calculation of the Utility Proxy Group Projected Bond Yield[38]

Prospective Yield on Moody's Aaa-Rated Corporate Bonds (*Blue Chip)*	4.50%
Adjustment to Reflect Yield Spread Between Moody's Aaa-Rated Corporate Bonds and Moody's A2-Rated Utility Bonds	0.51%
Adjustment to Reflect the Utility Proxy Group's Average Moody's Bond Rating of A3	0.19%
Prospective Bond Yield Applicable to the Utility Proxy Group	5.20%

To develop the total market approach RPM estimate of the appropriate return on equity, this prospective bond yield is then added to the average of the three different equity risk premiums, which I now discuss, in turn.

a. Beta-Derived Equity Risk Premium

Q. PLEASE EXPLAIN HOW THE BETA-DERIVED EQUITY RISK PREMIUM IS DETERMINED.

A. The components of the beta-derived risk premium model are: 1) an expected market equity risk premium over corporate bonds, and 2) the beta. The derivation of the beta-derived equity risk premium that I

38 As shown on page 3 of Exhibit___(DWD-1), Schedule 6.

applied to the Utility Proxy Group is shown on lines 1 through 9, page 8 of Exhibit___(DWD-1), Schedule 6. The total beta-derived equity risk premium I applied is based on an average of three historical market data-based equity risk premiums, two *Value Line*-based equity risk premiums and a Bloomberg-based equity risk premium. Each of these is described below.

Q. HOW DID YOU DERIVE A MARKET EQUITY RISK PREMIUM BASED ON LONG-TERM HISTORICAL DATA?

A. To derive an historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the Stocks, Bonds, Bills, and Inflation ("SBBI") Yearbook 2022 ("SBBI - 2022")[39] less the average historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to 2021. Using holding period returns over a very long time is appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, i.e., a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 12.11% and the long-term arithmetic mean monthly yield on Moody's Aaa/Aa-rated corporate bonds was

39 *See,* SBBI-2022 Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2021.

5.98%.[40] As shown on line 1, page 8 of Exhibit___(DWD-1), Schedule 6, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 6.13%.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI-2022.[41] Using the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns, because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

40 As explained in note 1, page 8 of Exhibit___(DWD-1), Schedule 6.
41 *See,* SBBI-2022, at 201.

Q. PLEASE EXPLAIN THE DERIVATION OF THE REGRESSION-BASED MARKET EQUITY RISK PREMIUM.

A. To derive the regression-based market equity risk premium of 7.96% shown on line 2, page 8 of Exhibit___(DWD-1), Schedule 6, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa-rated corporate bonds as mentioned above. I modeled the relationship between interest rates and the market equity risk premium using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa-rated corporate bonds as the independent variable. I then used a linear Ordinary Least Squares ("OLS") regression, in which the market equity risk premium is expressed as a function of the Moody's Aaa/Aa-rated corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

Q. PLEASE EXPLAIN THE DERIVATION OF THE PRPM EQUITY RISK PREMIUM.

A. I used the same PRPM approach described above to the PRPM equity risk premium. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Moody's Aaa/Aa-rated corporate bonds during the period from January 1928

through April 2022.[42] Using the previously discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted a market equity risk premium of 8.35%.[43]

Q. PLEASE EXPLAIN THE DERIVATION OF A PROJECTED EQUITY RISK PREMIUM BASED ON *VALUE LINE* DATA FOR YOUR RPM ANALYSIS.

A. As noted above, because both ratemaking and the cost of capital are prospective, a prospective market equity risk premium is needed. The derivation of the forecasted or prospective market equity risk premium can be found in note 4, page 8 of Exhibit___(DWD-1), Schedule 6. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the 13 weeks ended April 29, 2022, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line* (Standard Edition).[44]

The average median expected price appreciation is 52%, which translates to an 11.04% annual appreciation, and, when added to the

42 Data from January 1926 to December 2021 is from SBBI - 2022. Data from January 2022 to April 2022 is from Bloomberg.
43 Shown on line 3, page 8 of Exhibit___(DWD-1), Schedule 6.
44 As explained in detail in note 1, page 2 of Exhibit___(DWD-1), Schedule 6.

average of *Value Line's* median expected dividend yields of 1.92%, equates to a forecasted annual total return rate on the market of 12.96%. The forecasted Moody's Aaa-rated corporate bond yield of 4.50% is deducted from the total market return of 12.96%, resulting in an equity risk premium of 8.46%, as shown on line 4, page 8 of Exhibit___(DWD-1), Schedule 6.

Q. PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON THE S&P 500 COMPANIES.

A. Using data from *Value Line*, I calculated an expected total return on the S&P 500 companies using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 15.48%. Subtracting the prospective yield on Moody's Aaa-rated corporate bonds of 4.50% results in a 10.98% projected equity risk premium.

Q. PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON BLOOMBERG DATA.

A. Using data from Bloomberg, I calculated an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total return for the S&P 500 is 14.39%. Subtracting

the prospective yield on Moody's Aaa-rated corporate bonds of 4.50% results in a 9.89% projected equity risk premium.

Q. WHAT IS YOUR CONCLUSION OF A BETA-DERIVED EQUITY RISK PREMIUM FOR USE IN YOUR RPM ANALYSIS?

A. I gave equal weight to all six equity risk premiums based on each source—historical, *Value Line*, and Bloomberg—in arriving at a 8.63% equity risk premium.

Table 5: Summary of the Calculation of the Equity Risk Premium Using Total Market Returns[45]

Historical Spread Between Total Returns of Large Stocks and Aaa and Aa-Rated Corporate Bond Yields (1928 – 2021)	6.13%
Regression Analysis on Historical Data	7.96%
PRPM Analysis on Historical Data	8.35%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected Aaa Corporate Bond Yields	8.46%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected Aaa Corporate Bond Yields	10.98%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected Aaa Corporate Bond Yields	9.89%
Average	8.63%

After calculating the average market equity risk premium of 8.63%, I adjusted it by beta to account for the risk of the Utility Proxy Group. As discussed below, beta is a meaningful measure of prospective relative risk to the market as a whole, and is a logical way to allocate a company's, or proxy group's, share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Exhibit___(DWD-1), Schedule 7, the average of the mean and median beta for the Utility Proxy

45 As shown on page 8 of Exhibit___(DWD-1), Schedule 6.

Group is 0.77. Multiplying the 0.77 average beta by the market equity risk premium of 8.63% results in a beta-adjusted equity risk premium for the Utility Proxy Group of 6.65%.

b. S&P Utility Index Derived Equity Risk Premium

Q. HOW DID YOU DERIVE THE EQUITY RISK PREMIUM BASED ON THE S&P UTILITY INDEX AND MOODY'S A-RATED PUBLIC UTILITY BONDS?

A. I estimated three equity risk premiums based on S&P Utility Index holding period returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derived a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.74% and monthly Moody's A-rated public utility bond yields of 6.46% from 1928 to 2021 to arrive at an equity risk premium of 4.28%.[46] I then used the same historical data to derive an equity risk premium of 5.52% based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involved applying the PRPM using the historical monthly equity risk premiums from January 1928 to April 2022 to arrive at a PRPM-derived equity risk premium of 5.89% for

46 As shown on line 1, page 12 of Exhibit___(DWD-1), Schedule 6.

the S&P Utility Index.

I then derived expected total returns on the S&P Utilities Index of 10.01% and 9.52% using data from *Value Line* and Bloomberg, respectively, and subtracted the prospective Moody's A2-rated public utility bond yield of 5.01%[47], which resulted in equity risk premiums of 5.00% and 4.51%, respectively. As with the market equity risk premiums, I averaged each risk premium based on each source (i.e., historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 5.04%.

Table 6: Summary of the Calculation of the Equity Risk Premium

47 Derived on line 3, page 3 of Exhibit___(DWD-1), Schedule 6.

using S&P Utility Index Holding Returns[48]

Historical Spread Between Total Returns of the S&P Utilities Index and A2-Rated Utility Bond Yields (1928 – 2021)	4.28%
Regression Analysis on Historical Data	5.52%
PRPM Analysis on Historical Data	5.89%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P Utilities Index Less Projected A2 Utility Bond Yields	5.00%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P Utilities Index Less Projected A2 Utility Bond Yields	4.51%
Average	5.04%

c. Authorized Return Derived Equity Risk Premium

Q. HOW DID YOU DERIVE AN EQUITY RISK PREMIUM OF 5.21% BASED ON AUTHORIZED ROEs FOR ELECTRIC UTILITIES?

A. The equity risk premium of 5.21% shown on line 3, page 7 of Exhibit___(DWD-1), Schedule 6 is the result of a regression analysis based on regulatory awarded ROEs related to the yields on Moody's A-rated public utility bonds. That analysis is shown on page 12 of Exhibit___(DWD-1), Schedule 6. Page 12 of Exhibit___(DWD-1), Schedule 6 contains the graphical results of a regression analysis of 1,192 rate cases for electric utilities which were fully litigated during the period

48 As shown on page 11 of Exhibit___(DWD-1), Schedule 6.

from January 1, 1980 through April 29, 2022. It shows the implicit equity risk premium relative to the yields on A2-rated public utility bonds immediately prior to the issuance of each regulatory decision. That is, the analysis considers the relationship between authorized returns and prevailing public utility bond yields at the time of the decision.

It is readily discernible that there is an inverse relationship between the yield on A2-rated public utility bonds and equity risk premiums. In other words, as interest rates decline, the equity risk premium rises and vice versa—a result consistent with financial literature on the subject.[49] I used the regression results to estimate the equity risk premium applicable to the projected yield on Moody's A2-rated public utility bonds. Given the expected A2-rated utility bond yield of 5.01%, it can be calculated that the indicated equity risk premium applicable to that bond yield is 5.21%, which is shown on line 3, page 7 of Exhibit___(DWD-1), Schedule 6.

Q. WHAT IS YOUR CONCLUSION OF AN EQUITY RISK PREMIUM FOR USE IN YOUR TOTAL MARKET APPROACH RPM ANALYSIS?

A. The equity risk premium I apply to the Utility Proxy Group is 5.63%, which is the average of the beta-adjusted equity risk premium for the

49 *See*, *e.g.*, Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at 11-12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at 33-45.

Utility Proxy Group, the S&P Utilities Index, and the authorized return utility equity risk premiums of 6.65%, 5.04%, and 5.21%, respectively.[50]

Q. WHAT IS THE INDICATED RPM COMMON EQUITY COST RATE BASED ON THE TOTAL MARKET APPROACH?

A. As shown on line 7, page 3 of Exhibit___(DWD-1), Schedule 6 and shown on Table 7, below, I calculated a common equity cost rate of 10.83% for the Utility Proxy Group based on the total market approach RPM.

Table 7: Summary of the Total Market Return Risk Premium Model[51]

Prospective Moody's A3-Rated Utility Bond Applicable to the Utility Proxy Group	5.20%
Prospective Equity Risk Premium	5.63%
Indicated Cost of Common Equity	10.83%

Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE PRPM AND THE TOTAL MARKET APPROACH RPM?

A. As shown on page 1 of Exhibit___(DWD-1), Schedule 6, the indicated RPM-derived common equity cost rate is 11.43%, which gives equal weight to the PRPM (12.03%) and the adjusted-market approach results (10.83%).

50 As shown on page 7 of Exhibit___(DWD-1), Schedule 6.

51 As shown on page 3 of Exhibit___(DWD-1), Schedule 6.

C. The Capital Asset Pricing Model

Q. PLEASE EXPLAIN THE THEORETICAL BASIS OF THE CAPM.

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by beta (β). A beta less than 1.0 indicates lower variability than the market as a whole, while a beta greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all non-market or unsystematic risk can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors only require compensation for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security relative to the total market as measured by beta. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta (R_m - R_f)$$

Where:
R_s = Return rate on the common stock
R_f = Risk-free rate of return
R_m = Return rate on the market as a whole
β = Adjusted beta (volatility of the security relative to the market as a whole)

Numerous tests of the traditional CAPM have measured the extent to which security returns and beta are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.[52]

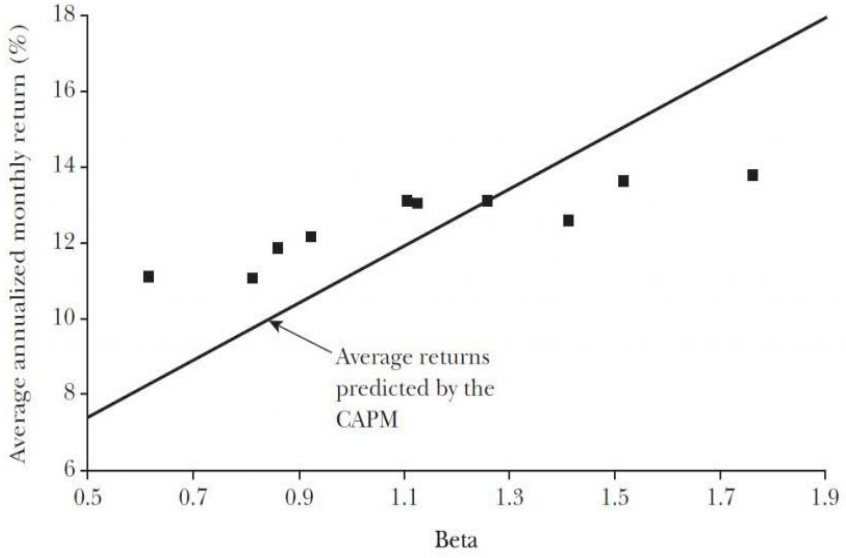
In their work on the CAPM, Fama and French clearly state regarding Figure 2, below, that "[t]he returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low."[53]

52 Morin, at 205–09.

53 Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004 at 33 ("Fama & French").

Figure 2 http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430

Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928–2003



In addition, Morin observes that while the results of these tests support the notion that Beta is related to security returns, the empirical SML described by the CAPM formula is not as steeply sloped as the predicted SML. Morin states:

> With few exceptions, the empirical studies agree that … low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.[54]
>
> * * *
>
> Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:

54 Morin, at 207.

$$K = R_F + x\,(R_M - R_F) + (1-x)\,\beta(R_M - R_F)$$

where x is a fraction to be determined empirically. The value of x that best explains the observed relationship Return = 0.0829 + 0.0520 is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\,\beta(R_M - R_F)$$ [55]

Fama and French provide similar support for the ECAPM when they state:

> The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too 'flat.'… The regressions consistently find that the intercept is greater than the average risk-free rate… and the coefficient on beta is less than the average excess market return… This is true in the early tests… as well as in more recent cross-section regressions tests, like Fama and French (1992).[56]

Finally, Fama and French further note:

> Confirming earlier evidence, the relation between beta and average return for the ten portfolios is much flatter than the Sharpe-Linter CAPM predicts. The returns on low beta portfolios are too high, and the returns on the high beta portfolios are too low. For example, the predicted return on the portfolio with the lowest beta is 8.3 percent per year; the actual return as 11.1 percent. The predicted return on the portfolio with the t beta is 16.8 percent per year; the actual is 13.7 percent.[57]

55 Morin, at 221.

56 Fama & French, at 32.

57 Fama & French, at 33.

Clearly, the justification from Morin, Fama, and French, along with their reviews of other academic research on the CAPM, validate the use of the ECAPM. In view of theory and practical research, I have applied both the traditional CAPM and the ECAPM to the companies in the Utility Proxy Group and averaged the results.

Q. WHAT BETA DID YOU USE IN YOUR CAPM ANALYSIS?

A. For the beta in my CAPM analysis, I considered two sources: *Value Line* and Bloomberg Professional Services. While both of those services adjust their calculated (or "raw") betas to reflect the tendency of beta to regress to the market mean of 1.00, *Value Line* calculates beta over a five-year period, while Bloomberg calculates it over a two-year period.

Q. PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF RETURN.

A. As discussed previously, the risk-free rate adopted for both applications of the CAPM is 3.35%. This risk-free rate is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the fourth calendar third of 2022, and long-term projections for the years 2023 to 2027 and 2028 to 2032.

Q. PLEASE EXPLAIN THE ESTIMATION OF THE EXPECTED RISK PREMIUM FOR THE MARKET USED IN YOUR CAPM ANALYSES.

A. The basis of the market risk premium is explained in detail in note 1 on Exhibit___(DWD-1), Schedule 7. As discussed above, the market risk premium is derived from an average of three historical data-based market risk premiums, two *Value Line* data-based market risk premiums, and one Bloomberg data-based market risk premium.

The long-term income return on U.S. Government securities of 5.02% was deducted from the SBBI - 2022 monthly historical total market return of 12.37%, which results in an historical market equity risk premium of 7.35%.[58] I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government securities from SBBI - 2022. That regression analysis yielded a market equity risk premium of 9.32%. The PRPM market equity risk premium is 9.35%, and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through April 2022.

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 3.35%, discussed

58 SBBI - 2022, at Appendix A-1 (1) through A-1 (3) and Appendix A-7 (19) through A-7 (21).

above, from the *Value Line* projected total annual market return of 12.96%, resulting in a forecasted total market equity risk premium of 9.61%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 3.35% from the projected total return of the S&P 500 of 15.48%. The resulting market equity risk premium is 12.13%.

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 3.35% from the projected total return of the S&P 500 of 14.39%. The resulting market equity risk premium is 11.04%. These six measures, when averaged, result in an average total market equity risk premium of 9.80%.

Table 8: Summary of the Calculation of the Market Risk Premium for Use in the CAPM[59]

Historical Spread Between Total Returns of Large Stocks and Long-Term Government Bond Yields (1926 – 2021)	7.35%
Regression Analysis on Historical Data	9.32%
PRPM Analysis on Historical Data	9.35%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected 30-Year Treasury Bond Yields	9.61%

59 As shown on page 2 of Exhibit___(DWD-1), Schedule 7.

Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected 30-Year Treasury Bond Yields	12.13%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected 30-Year Treasury Bond Yields	11.04%
Average	9.80%

Q. WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE TRADITIONAL AND EMPIRICAL CAPM TO THE UTILITY PROXY GROUP?

A. As shown on page 1 of Exhibit___(DWD-1), Schedule 7, the mean result of my CAPM/ECAPM analyses is 11.15%, the median is 11.09%, and the average of the two is 11.12%. Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 11.12%.

D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

Q. WHY DO YOU ALSO CONSIDER A PROXY GROUP OF DOMESTIC, NON-PRICE REGULATED COMPANIES?

A. Although I am not an attorney, my interpretation of the *Hope* and *Bluefield* cases is that they did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute for

marketplace competition, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group, since all of these companies compete for capital in the exact same markets.

Q. HOW DID YOU SELECT NON-PRICE REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on the betas and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (i.e., five years). These selection criteria resulted in a proxy group of 48 domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in selecting the domestic, non-price regulated firms was:

(i) They must be covered by *Value Line* (Standard Edition);

(ii) They must be domestic, non-price regulated companies, i.e., not utilities;

(iii) Their betas must lie within plus or minus two standard deviations of the average unadjusted betas of the Utility Proxy Group; and

(iv) The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted betas must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

Betas measure market, or systematic, risk, which is not diversifiable. The residual standard errors of the regressions measure each firm's company-specific, diversifiable risk. Companies that have similar betas and similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. HAVE YOU PREPARED A SCHEDULE WHICH SHOWS THE DATA FROM WHICH YOU SELECTED THE 48 DOMESTIC, NON-PRICE REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. Yes, the basis of my selection and both proxy groups' regression statistics are shown in Exhibit___(DWD-1), Schedule 8.

Q. DID YOU CALCULATE COMMON EQUITY COST RATES USING THE DCF MODEL, RPM, AND CAPM FOR THE NON-PRICE REGULATED PROXY GROUP?

A. Yes. Because the DCF model, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and application of each model. One exception is in the application of the RPM, where I did not use public utility-specific equity risk premiums, nor did I apply the PRPM to the individual non-price regulated companies.

Page 2 of Exhibit___(DWD-1), Schedule 9 derives the Constant Growth DCF model common equity cost rate. As shown, the indicated common equity cost rate is 12.14%.

Pages 3 through 5 of Exhibit___(DWD-1), Schedule 9 contain the data and calculations that support the 13.00% RPM common equity cost rate. As shown on line 1, page 3 of Exhibit___(DWD-1), Schedule 9, the consensus prospective yield on Moody's Baa-rated corporate bonds for the six quarters ending in the third quarter of 2023, and for the years 2023 to 2027 and 2028 to 2032, is 5.36%.[60] Since the Non-Price Regulated

60 *Blue Chip Financial Forecasts*, December 1, 2021, at page 14 and April 29, 2022, at page 2.

Proxy Group has an average Moody's long-term issuer rating of Baa1, a downward adjustment of 0.13% to the projected Baa2 rated corporate bond yield is necessary to reflect the difference in ratings which results in a projected Baa1-rated corporate bond yield of 5.23%.

When the Beta-adjusted risk premium of 7.77%[61] relative to the Non-Price Regulated Proxy Group is added to the prospective Baa1-rated corporate bond yield of 5.23%, the indicated RPM common equity cost rate is 13.00%.

Page 6 of Exhibit___(DWD-1), Schedule 9 contains the inputs and calculations that support my indicated CAPM/ECAPM common equity cost rate of 12.31%.

Q. HOW IS THE COST RATE OF COMMON EQUITY BASED ON THE NON-PRICE REGULATED PROXY GROUP COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. As shown on page 1 of Exhibit___(DWD-1), Schedule 9, the results of the common equity models applied to the Non-Price Regulated Proxy Group—which is comparable in total risk to the Utility Proxy Group—are as follows: 12.14% (DCF), 13.00% (RPM), and 12.31% (CAPM). The

61 Derived on page 5 of Exhibit___(DWD-1), Schedule 9.

average of the mean and median of these models is 12.40%, which I used as the indicated common equity cost rates for the Non-Price Regulated Proxy Group.

VIII. CONCLUSION OF COMMON EQUITY COST ANALYTICAL RESULTS BEFORE ADJUSTMENTS

Q. BASED ON YOUR ANALYSES, WHAT IS THE INDICATED COMMON EQUITY COST RATE BEFORE ADJUSTMENTS?

A. By applying multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated range of common equity cost rates attributable to the Utility Proxy Group before any relative risk adjustments is between 10.08% and 11.08%.[62] I used multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because each of these models is theoretically sound and available to investors and because no single model is so inherently precise that it can be relied on to the exclusion of other theoretically sound models. Using multiple models adds reliability to the estimated common equity cost rate, with the prudence of using multiple cost of common equity models supported in both the financial literature and regulatory precedent.

62 The indicated range is equal to 50 basis points above and below the midpoint of my four model results.

IX. ADJUSTMENTS TO THE COMMON EQUITY COST RATE

A. Size Adjustment

Q. DOES THE COMPANY'S SMALLER SIZE RELATIVE TO THE UTILITY PROXY GROUP COMPANIES INCREASE ITS BUSINESS RISK?

A. Yes. As a preliminary matter, because I have developed my cost of common equity recommendation for the Company's South Dakota operations based on market data applied to the Utility Proxy Group of risk-comparable companies, in order to assess the Company's risk associated with its relative small size of its South Dakota operations, it is necessary to compare the Company's South Dakota-jurisdictional size relative to the Utility Proxy Group. The Company's smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the Company because, all else being equal, size has a material bearing on risk.

Size affects business risk because smaller companies generally are less able to cope with significant events that affect sales, revenues and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a bigger company with a

larger, more diverse, customer base. This is true for utilities, as well as for non-regulated companies.

As further evidence that smaller firms are riskier, investors generally demand greater returns from smaller firms to compensate for less marketability and liquidity of their securities. Kroll's Cost of Capital Navigator: U.S. Cost of Capital Module ("Kroll") discusses the nature of the small-size phenomenon, providing an indication of the magnitude of the size premium based on several measures of size. In discussing "Size as a Predictor of Equity Returns," Kroll states:

> The size effect is based on the empirical observation that companies of smaller size are associated with greater risk and, therefore, have greater cost of capital [sic]. The "size" of a company is one of the most important risk elements to consider when developing cost of equity capital estimates for use in valuing a business simply because size has been shown to be a *predictor* of equity returns. In other words, there is a significant (negative) relationship between size and historical equity returns - as size *decreases*, returns tend to *increase*, and vice versa. (footnote omitted) (emphasis in original).[63]

Furthermore, in "The Capital Asset Pricing Model: Theory and Evidence," Fama and French note size is indeed a risk factor which must

63 Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Equity Returns, at 1.

be reflected when estimating the cost of common equity. On page 14, they note:

> . . . the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns not captured in the market return and are priced separately from market betas.[64]

Based on this evidence, Fama and French proposed their three-factor model which includes a size variable in recognition of the effect size has on the cost of common equity.

Also, it is a basic financial principle that the use of funds invested, and not the source of funds, is what gives rise to the risk of any investment.[65] Eugene Brigham, a well-known authority, states:

> A number of researchers have observed that portfolios of small-firms (sic) have earned consistently higher average returns than those of large-firm stocks; this is called the "small-firm effect." On the surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; **what the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms**.[66]

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64 Fama & French, at 25-43.

65 Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229.

66 Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623 (emphasis added).

Consistent with the financial principle of risk and return discussed above, increased relative risk due to small size must be considered in the allowed rate of return on common equity. Therefore, the Commission's authorization of a cost rate of common equity in this proceeding must appropriately reflect the unique risks of the Company, including its small relative size to the Utility Proxy Group, which is justified and supported above by evidence in the financial literature.

Q. EARLIER YOU EXPLAINED THAT CREDIT RATINGS CAN ACT AS A PROXY FOR A FIRM'S COMBINED BUSINESS AND FINANCIAL RISKS TO EQUITY OWNERS. DO RATING AGENCIES ACCOUNT FOR COMPANY SIZE IN THEIR BOND RATINGS?

A. No. Neither S&P nor Moody's have minimum company size requirements for any given rating level. This means, all else equal, a relative size analysis must be conducted for equity investments in companies with similar bond ratings.

Q. IS THERE A WAY TO QUANTIFY A RELATIVE RISK ADJUSTMENT DUE TO THE COMPANY'S SMALL SIZE WHEN COMPARED TO THE UTILITY PROXY GROUP?

A. Yes. The Company has greater relative risk than the average utility in the Utility Proxy Group because of its smaller size, as measured by an

estimated market capitalization of common equity for the Company's South Dakota operations.

Table 9: Size as Measured by Market Capitalization for NSP's Electric Operations and the Utility Proxy Group

	Market Capitalization* ($ Millions)	Times Greater than The Company
NSP SD Jurisdictional	$1,004	
Utility Proxy Group	$24,966	24.9x
*From page 1 of Exhibit___(DWD-1), Schedule 10.		

The Company's estimated market capitalization for its South Dakota operations was $1,004 million as of April 29, 2022, compared with the market capitalization of the average company in the Utility Proxy Group of $24,966 million as of April 29, 2022. The average company in the Utility Proxy Group has a market capitalization 24.9 times the size of the Company's estimated South Dakota-based market capitalization.

As a result, it is necessary to upwardly adjust the indicated range of common equity cost rates attributable to the Utility Proxy Group to reflect the Company's greater risk due to their smaller relative size. The determination is based on the size premiums for portfolios of the New York Stock Exchange, American Stock Exchange, and NASDAQ listed

companies, ranked by deciles for the 1926 to 2021 period.[67] The average size premium for the Utility Proxy Group with a market capitalization of $24,966 million falls in the 2nd decile, while the Company's estimated market capitalization of $1,004 million places it in the 8th decile. The size premium spread between the 2nd decile and the 8th decile is 0.78%.[68] Even though a 0.78% upward size adjustment is indicated, I applied a size premium of 0.25% to the Company's indicated common equity cost rate in order to be conservative.

Q. SINCE THE COMPANY IS PART OF A LARGER COMPANY, WHY IS THE SIZE OF XEI NOT MORE APPROPRIATE TO USE WHEN DETERMINING THE SIZE ADJUSTMENT?

A. The return derived in this proceeding will not apply to XEI's operations as a whole, but only to the Company's South Dakota operations. XEI is the sum of its constituent parts, including those constituent parts' ROEs. Potential investors in the Parent are aware that it is a combination of operations in each state, and that each state's operations experience the operating risks specific to their jurisdiction. The market's expectation of XEI's return is commensurate with the realities of the Company's

67 Source: Kroll, Cost of Capital Navigator.

68 *Id.*; *see also* Exhibit__(DWD-1), Schedule 10.

composite operations in each of the states in which it operates.

Q. SHOULD THE COMPANY BE COMPARED WITH OTHER OPERATING ELECTRIC UTILITIES IN SOUTH DAKOTA TO DETERMINE ANY ADJUSTMENT TO THE PROXY GROUP-DERIVED ROE?

A. No, it shouldn't. Since the indicated ROE is determined using the market data of the Utility Proxy Group, any type of adjustment to the indicated ROE must reflect relative differences between the Company and the Utility Proxy Group. Since this is the case, the relative size of other South Dakota utilities is not relevant to determining the ROE for the Company.

B. Credit Risk Adjustment

Q. Please discuss your proposed credit risk adjustment.

A. NSP's long-term issuer ratings are A2 and A- from Moody's Investors Services and S&P, respectively, which are less risky than the average long-term issuer ratings for the Utility Proxy Group of Baa1 and BBB+, respectively.[69] Hence, a downward credit risk adjustment is necessary to reflect the higher credit rating, i.e., A2, of the Company relative to the Baa1 average Moody's bond rating of the Utility Proxy Group.[70]

An indication of the magnitude of the necessary downward

69 Source of Information: S&P Global Market Intelligence.
70 As shown on page 5 of Exhibit___(DWD-1), Schedule 6.

adjustment to reflect the lower credit risk inherent in an A2 bond rating is two-thirds of a recent three-month average spread between Moody's Baa and A-rated public utility bond yields of 0.29%, shown on page 4 of Exhibit___(DWD-1), Schedule 6, or 0.19%.[71]

C. Flotation Costs

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are those costs associated with the sale of new issuances of common stock. They include market pressure and the mandatory unavoidable costs of issuance (*e.g.*, underwriting fees and out-of-pocket costs for printing, legal, registration, etc.). For every dollar raised through debt or equity offerings, the Company receives less than one full dollar in financing.

Q. WHY IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE ALLOWED COMMON EQUITY COST RATE?

A. It is important because there is no other mechanism in the ratemaking paradigm through which such costs can be recognized and recovered. Because these costs are real, necessary, and legitimate, recovery of these

71 0.19% = 0.29% * (2/3). Moody's does not provide public utility bond yields for Baa1-rated bonds. As such, it was necessary to estimate the difference between A2-rated and Baa1-rated public utility bonds. Because there are three steps between Baa2 and A2 (Baa2 to Baa1, Baa1 to A3, and A3 to A2) I assumed an adjustment of two-thirds of the difference between the A2-rated and Baa2-rated public utility bond yield was appropriate.

costs should be permitted. As noted by Morin:

> The costs of issuing these securities are just as real as operating and maintenance expenses or costs incurred to build utility plants, and fair regulatory treatment must permit recovery of these costs….
>
> The simple fact of the matter is that common equity capital is not free….[Flotation costs] must be recovered through a rate of return adjustment.[72]

Q. DO THE COMMON EQUITY COST RATE MODELS YOU HAVE USED ALREADY REFLECT INVESTORS' ANTICIPATION OF FLOTATION COSTS?

A. No. All of these models assume no transaction costs. The literature is quite clear that these costs are not reflected in the market prices paid for common stocks. For example, Brigham and Daves confirm this and provide the methodology utilized to calculate the flotation adjustment.[73] In addition, Morin confirms the need for such an adjustment even when no new equity issuance is imminent.[74] Consequently, it is proper to include a flotation cost adjustment when using cost of common equity models to estimate the common equity cost rate.

Q. HOW DID YOU CALCULATE THE FLOTATION COST ALLOWANCE?

A. I modified the DCF calculation to provide a dividend yield that would

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72 Morin, at p. 329.

73 Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at p. 342.

74 Morin, at pp. 337-339.

reimburse investors for issuance costs in accordance with the method cited in literature by Brigham and Daves, as well as by Morin. The flotation cost adjustment recognizes the actual costs of issuing equity that were incurred by XEI in its equity issuances. Based on the issuance costs shown on page 1 of Exhibit__(DWD-1), Schedule 11, an adjustment of 0.11% is required to reflect the flotation costs applicable to the Utility Proxy Group.

Q. WHAT IS THE INDICATED COST OF COMMON EQUITY AFTER YOUR COMPANY-SPECIFIC ADJUSTMENTS?

A. Applying the 0.25% size adjustment, the -0.19% credit risk adjustment, and the 0.11% flotation cost adjustment to the indicated range of common equity cost rates between 10.08% and 11.08% results in a Company-specific range of common equity rates between 10.25% and 11.25%. In consideration of both of these indicated ranges, I recommend an ROE of 10.75% for NSP in this proceeding.

X. CAPITAL MARKET OBSERVATIONS

Q. DO ECONOMIC CONDITIONS INFLUENCE THE REQUIRED COST OF CAPITAL AND REQUIRED RETURN ON COMMON EQUITY?

A. Yes. The models used to estimate the cost of equity are meant to reflect, and therefore are influenced by, current and expected capital market

conditions. Therefore, it is important to assess the reasonableness of any financial model's results in the context of observable market data.

Q. DOES YOUR RECOMMENDED ROE CONSIDER THE CURRENT CAPITAL MARKET ENVIRONMENT?

A. Yes, it does. From an analytical perspective, it is important that the inputs and assumptions used to arrive at an ROE recommendation, including assessments of capital market conditions, are consistent with the recommendation itself. Although all analyses require an element of judgment, the application of that judgment must be made in the context of the quantitative and qualitative information available to the analyst and the capital market environment in which the analyses were undertaken.

Q. PLEASE SUMMARIZE THE CURRENT CAPITAL MARKET ENVIRONMENT.

A. The economy is currently in an inflationary environment, as evidenced by increased levels of the Consumer Price Index ("CPI") as compared to the Federal Reserve's ("Fed") traditional inflation target of 2.00%. Inflation can be characterized as an imbalance of supply and demand in the economy, specifically, when demand is excess of supply. When demand is in excess of supply, the cost of goods and services increase.

Part of the Fed's Congressional mandate is to mitigate inflation and they have two main tools to achieve their mandate: (1) raising the Fed

Funds Rate;[75] or decreasing the size of their balance sheet. In Fed Chairman Jerome H. Powell's Press Conference on May 4, 2022, he indicated that the Fed has the resolve to use both tools to restore price stability on behalf of American families and businesses.[76]

Overall, the current market environment can be summarized as one with increasing inflation, and expectations that the Fed will implement both of its tools in an attempt to limit inflation.

Q. HAS CPI RISEN RECENTLY?

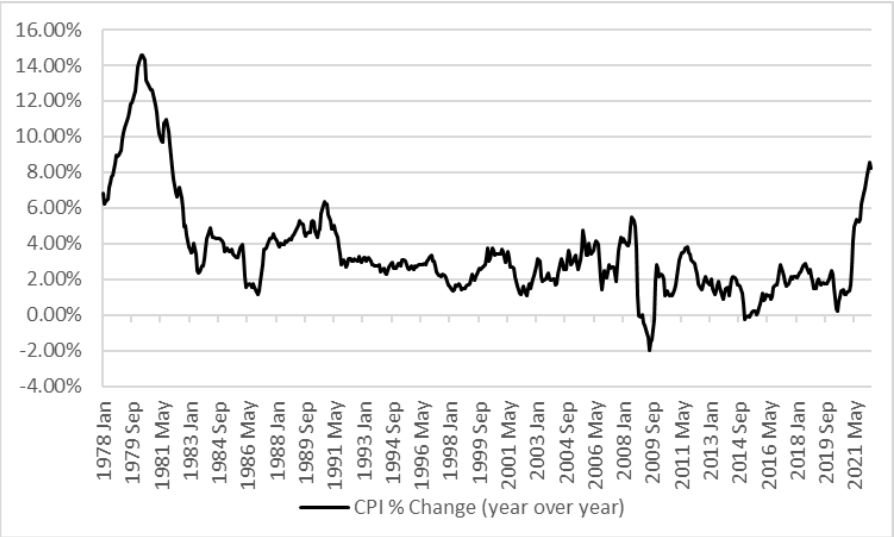
A. Yes, it has. As shown on Chart 2, CPI has increased exponentially since the beginning of the pandemic and more recently has experienced year-over-year increases not seen since the early 1980s.[77]

75 The Fed Funds Rate is the rate in which the Fed suggests commercial banks borrow and lend their excess reserves to each other overnight.

76 Transcript of Chair Powell's Press Conference, May 4, 2022. https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20220504.pdf.

77 Source: Bureau of Labor Statistics, Series Title: All items in U.S. city average, all urban consumers, seasonally adjusted, Series ID: CUSR0000SA0 (https://data.bls.gov/timeseries/CUSR0000SA0?output_view=pct_1mth)

Chart 2: Consumer Price Index Change, 1978-Current[78]



Given the rise in CPI as shown in Chart 2, even if inflation were to moderate to a degree, it would still remain significantly elevated compared to the last several years and the Fed's inflation target of 2.00%.

Q. IS INFLATION EXPECTED TO BE ELEVATED FROM HISTORICAL LEVELS MOVING FORWARD?

A. Yes, it is. The 10-year and 30-year breakeven inflation rates[79] have steadily increased since August 27, 2020, when Fed Chairman Jerome H. Powell released a statement noting that the Federal Open Market Committee

78 Source: Bureau of Labor Statistics, Series Title: All items in U.S. city average, all urban consumers, seasonally adjusted, Series ID: CUSR0000SA0
(https://data.bls.gov/timeseries/CUSR0000SA0?output_view=pct_1mth)

79 The breakeven inflation rate is the market's determination of the level of inflation during the period it measures. For example, the ten-year breakeven inflation rate is the market's expectation of inflation over the next ten years.

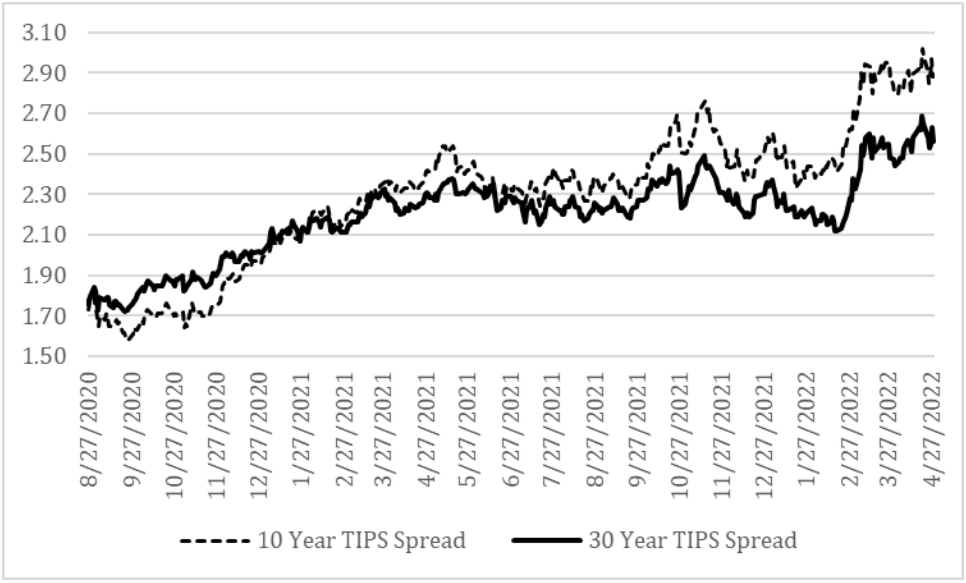
("FOMC") will adopt an approach towards inflation that, "could be viewed as a flexible form of average inflation targeting," meaning that following periods in which inflation has run below 2.00%, "appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time."[80] More recently, Mr. Powell has noted that, "the risk is rising that an extended period of high inflation could push longer-term expectations uncomfortably higher, which underscores the need for the Committee to move expeditiously as I have described."[81]

In response to market conditions and Fed action, the breakeven inflation rate, represented as the 10-year and 30-year Treasury Inflation-Protected Securities spreads, has increased from 1.73% and 1.76% on August 27, 2020, respectively, to 2.88% and 2.56% respectively, as of April 29, 2022. Further, as shown in Chart 3 below, breakeven inflation has trended upward since the Fed's policy change at a relatively consistent pace.

80 New Economic Challenges and the Fed's Monetary Policy Review, Remarks by Jerome H. Powell, Chair Board of Governors of the Federal Reserve System, August 27, 2020.

81 Restoring Price Stability, Chair Pro Tempore Jerome H. Powell, At "Policy Options for Sustainable and Inclusive Growth" 38th Annual Economic Policy Conference National Association for Business Economics, Washington, D.C., March 21, 2022.

Chart 3: Breakeven Inflation Since August 27, 2020[82]



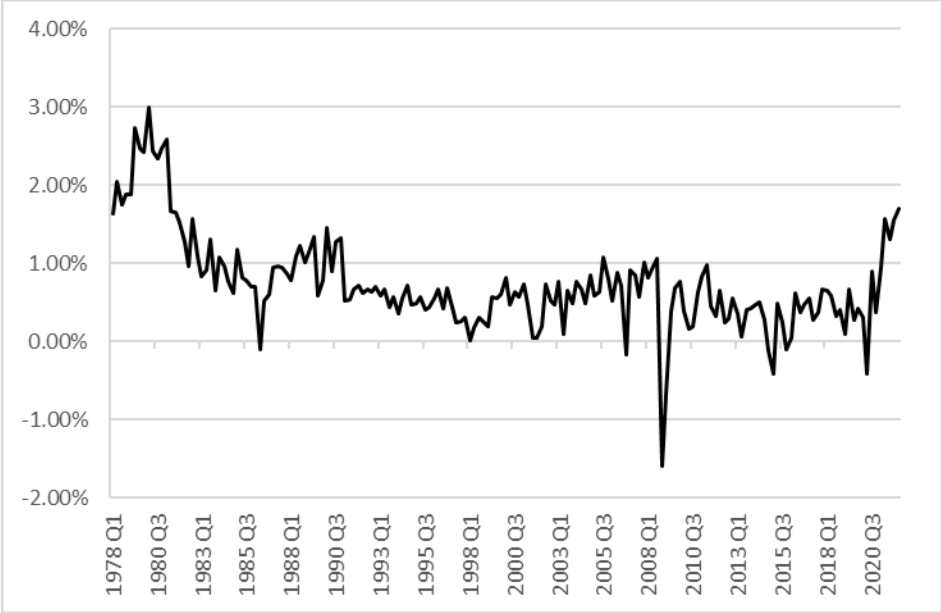
Further, looking to other measures of inflation such as the Personal Consumption Expenditures Index, both with and without food and energy costs, recent quarterly increases are the highest they have been since the 1980s.[83]

Chart 4: Change in Personal Consumption Expenditures 1978-

82 Source: Federal Reserve (https://www.federalreserve.gov/datadownload/); downloaded on March 18, 2022.

83 Bureau of Economic Analysis. Table 2.3.4. Price Indexes for Personal Consumption Expenditures by Major Type of Product (https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey)

Present[84]



Q. HAS CHAIRMAN POWELL MADE ADDITIONAL COMMENTS CONCERNING INFLATION?

A. Yes, he did. In his speech at the 38th Annual Economic Policy Conference before the National Association for Business Economics, Chairman Powell stated:

> At the Federal Reserve, our monetary policy is guided by the dual mandate to promote maximum employment and stable prices. From that standpoint, the current picture is plain to see: The labor market is very strong, and inflation is much too high. My colleagues and I are acutely aware that high inflation imposes significant hardship, especially on those least able to meet the higher costs of essentials like food, housing, and transportation. There is an obvious need to move expeditiously to return the

84 Source: Bureau of Economic Analysis.

stance of monetary policy to a more neutral level, and then to move to more restrictive levels if that is what is required to restore price stability. We are committed to restoring price stability while preserving a strong labor market.

At our meeting that concluded last week, we took several steps in pursuit of these goals: We raised our policy interest rate for the first time since the start of the pandemic and said that we anticipate that ongoing rate increases will be appropriate to reach our objectives. We also said that we expect to begin reducing the size of our balance sheet at a coming meeting. In my press conference, I noted that action could come as soon as our next meeting in May, though that is not a decision that we have made. These actions, along with the adjustments we have made since last fall, represent a substantial firming in the stance of policy with the intention of restoring price stability. In my comments today, I will first discuss the economic conditions that warrant these actions and then address the path ahead for monetary policy.

***

The rise in inflation has been much greater and more persistent than forecasters generally expected. For example, at the time of our June 2021 meeting, every Federal Open Market Committee (FOMC) participant and all but one of 35 submissions in the Survey of Professional Forecasters predicted that 2021 inflation would be below 4 percent. Inflation came in at 5.5 percent.

***

The ultimate responsibility for price stability rests with

> the Federal Reserve. Price stability is essential if we are going to have another sustained period of strong labor market conditions. I believe that the policy approach that I have laid out is well suited to achieving this outcome. We will take the necessary steps to ensure a return to price stability. In particular, if we conclude that it is appropriate to move more aggressively by raising the federal funds rate by more than 25 basis points at a meeting or meetings, we will do so. And if we determine that we need to tighten beyond common measures of neutral and into a more restrictive stance, we will do that as well.[85]

In Chairman Powell's press conference after the FOMC's May 4, 2022 meeting, where they raised the Fed Funds Rate to 0.75% – 1.00% from 0.25% – 0.50%,[86] he echoed much of his statement as cited above, but increased his expectations of larger than normal Fed Funds Rate increases and detailed a plan to shrink their balance sheet:

> Assuming that economic and financial conditions evolve in line with expectations, there is a broad sense on the Committee that additional 50 basis point increases should be on the table at the next couple of meetings.
>
> ***
>
> With regard to our balance sheet, we also issued our specific plans for reducing our securities holdings. Consistent with the principles we issued in January, we intend to significantly reduce the size of our balance sheet

85 Restoring Price Stability, Chair Pro Tempore Jerome H. Powell, At "Policy Options for Sustainable and Inclusive Growth" 38th Annual Economic Policy Conference National Association for Business Economics, Washington, D.C., March 21, 2022 (citations and footnotes omitted).

86 The 50 basis point increase in the Fed Funds Rate in May 4, 2022 is the largest increase in the Fed Funds Rate since 2000.

> over time in a predictable manner by allowing the principal payments from our securities holdings to roll off the balance sheet, up to monthly cap amounts.[87]

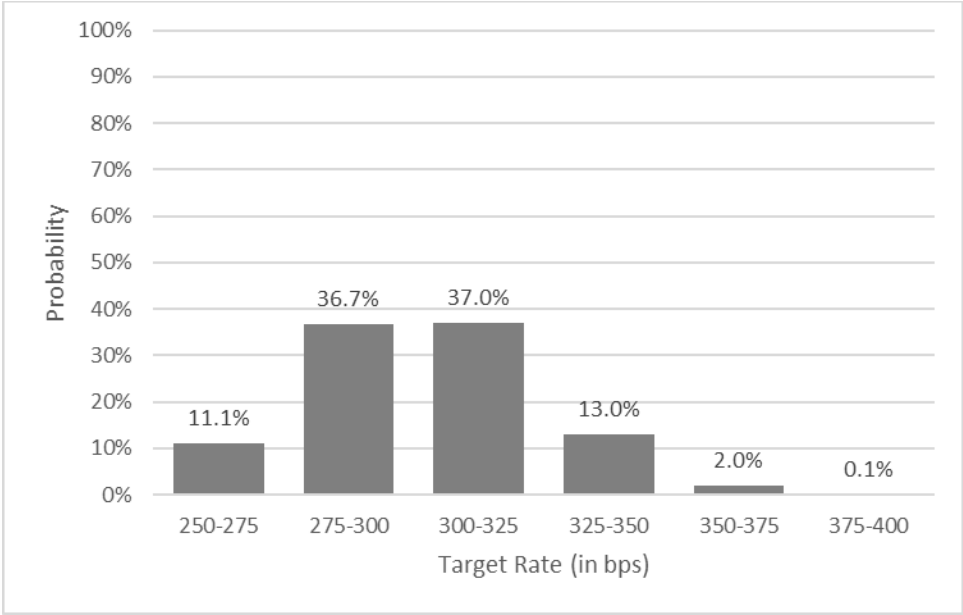
As can be gleaned by Chairman Powell's statements, he expects inflation to continue well into next year and that the Fed will continue to use the tools at their disposal to support the economy and the labor market, including accelerating the pace of rate increases of the Fed Funds Rate and the roll off of assets from its balance sheet.

Q. IS THE MARKET CURRENTLY PRICING IN EXPECTATIONS OF SIGNIFICANT FUTURE FED FUNDS RATE INCREASES IN LINE WITH CHAIRMAN POWELL'S STATEMENTS?

A. Yes. The CME FedWatch Tool, as presented in Chart 5 below, indicates that a majority of investors are pricing in at least a Fed Funds Rate of 3.00% by the Fed's February 1, 2023 meeting, as compared to the current level of the Fed Funds Rate of between 0.75% and 1.00%.

87 Transcript of Chair Powell's Press Conference, May 4, 2022.

Chart 5: CME FedWatch Tool – February 1, 2023 FOMC Meeting[88]



Q. PLEASE SUMMARIZE YOUR OBSERVATIONS OF THE CURRENT MARKET ENVIRONMENT.

A. In response to the current inflationary environment, the Fed recently raised the Fed Funds Rate and anticipates additional increases over the next year in addition to rolling off of assets from their balance sheet. Investors have already priced in these actions and prospective actions into market prices.

Regardless of current and future actions of the Fed, however, they have acknowledged that inflation is higher than its target average level of

88 Source: https://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html, accessed May 17, 2022.

2.00% and will continue to run higher than that target well into 2022 and possibly beyond.

Increasing inflation drives all costs higher (*e.g.,* prices for materials, labor, capital). This is an economic reality that affects companies across the board and NSP is not immune to such increases. As a result, higher inflation may increase risk, and the investor-required return for utility investors.

XI. ECONOMIC CONDITIONS IN SOUTH DAKOTA

Q. DID YOU CONSIDER THE ECONOMIC CONDITIONS IN SOUTH DAKOTA IN ARRIVING AT YOUR ROE RECOMMENDATION?

A. Yes, I did. As a preliminary matter, I understand and appreciate that the Commission must balance the interests of investors and customers in setting the return on common equity. In that regard, the return should be neither excessive nor confiscatory; it should be the minimum amount needed to meet the *Hope* and *Bluefield* Comparable Risk, Capital Attraction, and Financial Integrity standards.

Q. PLEASE SUMMARIZE YOUR ANALYSES AND CONCLUSIONS.

A. My analysis will show that economic conditions in South Dakota are comparable, if not better than with national conditions:

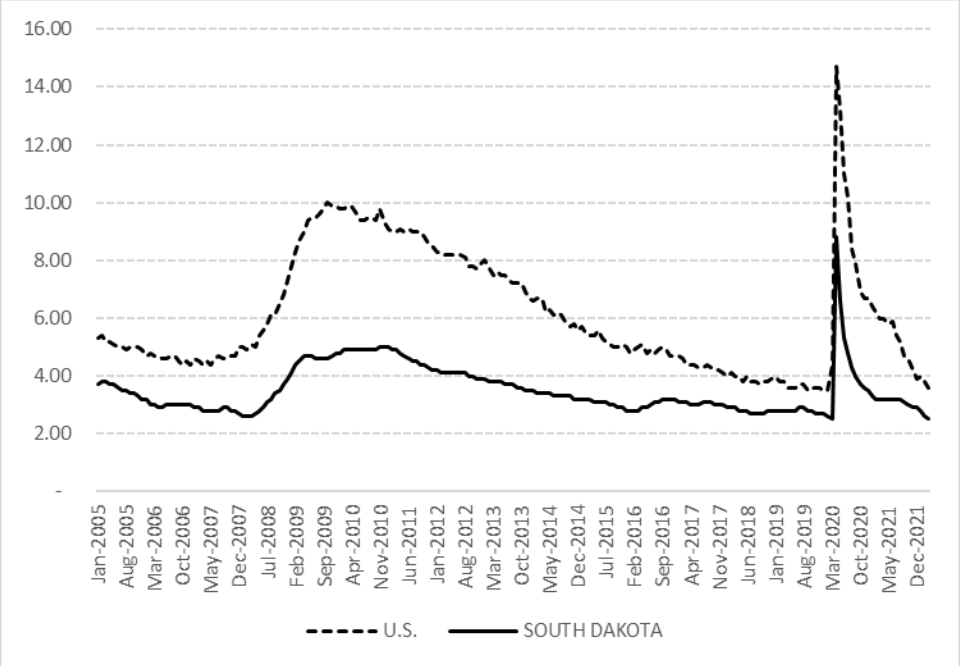
- Although economic conditions in South Dakota declined significantly in the second quarter of 2020 as a result of the COVID-19 pandemic, they were not as acute as those nationally, and they have improved considerably since;
- South Dakota's unemployment rate has been consistently below that of the national average, but remains highly correlated with national rates of unemployment;
- Specifically, the unemployment rate for the counties served by NSP are also consistently below the national average and are also correlated with national rates of unemployment;
- While real Gross Domestic Product ("GDP") growth in South Dakota is not correlated with that of the rest of the nation, it has exceeded the national GDP growth rate on average, since 2005; and
- Median household income in South Dakota has grown at a rate faster than the rest of the U.S. and remains strongly correlated with national levels.

Q. PLEASE NOW DESCRIBE THE SPECIFIC MEASURES OF ECONOMIC CONDITIONS THAT YOU REVIEWED.

A. Turning first to the seasonally adjusted unemployment rate, the unemployment rate in South Dakota is significantly below that of the rest

of the nation, but the two were largely consistent. As the COVID-19 pandemic hit the U.S., unemployment in South Dakota and across the U.S. spiked in April 2020 as many communities closed non-essential businesses to contain the spread of the COVID-19 virus. Notably, South Dakota's unemployment rate has fared better than the overall U.S., even as both fell considerably by the end of 2021 (*see* Chart 6, below).

Chart 6: Unemployment Rate (Seasonally Adjusted)[89]

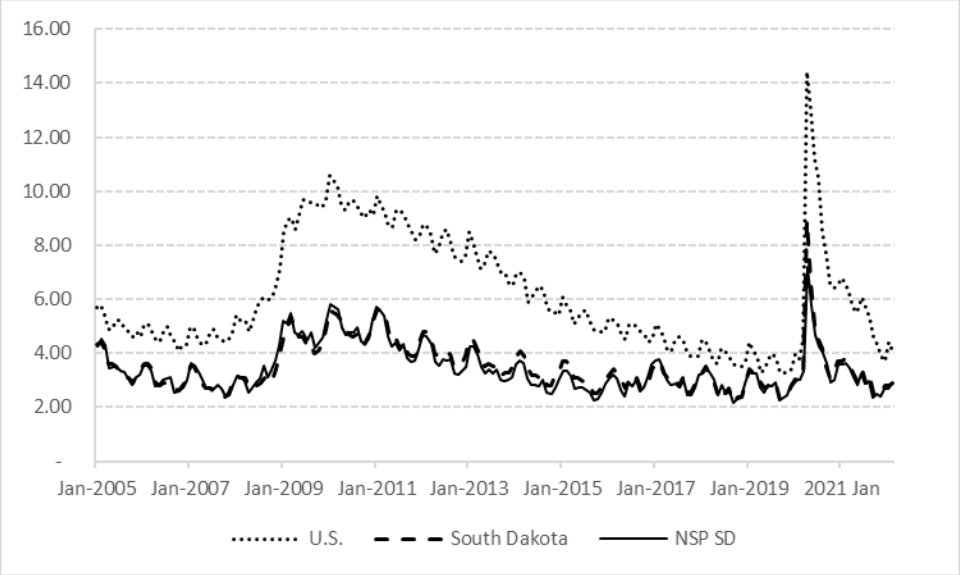


Between 2005 and 2021, the correlation between South Dakota's unemployment rate and the national rate was 94.72%, indicating the two are highly correlated.

89 Source: Bureau of Labor Statistics.

Second, I reviewed (seasonally unadjusted) unemployment rates in the counties served by the Company. As with the seasonally adjusted statistics described above, the unemployment rate in those counties spiked in April 2020 at 7.18% (1.72% below the state-wide average), but by February 2022 it had fallen to 2.90%, which is the rate statewide in South Dakota and below the overall rate in the U.S. (4.10%). From 2005 through February 2022, the correlation in unemployment rates between the counties served by the Company and the U.S., as well as South Dakota, were approximately 86.97% and 96.75%, respectively. In summary, county-level unemployment has fallen considerably since it recently spiked in April 2020, is lower than the U.S. unemployment rates, and is highly correlated to state and national unemployment rates.

Chart 7: Seasonally Unadjusted Unemployment Rates[90]



Looking to real GDP growth, historically, there is not a strong correlation between South Dakota and the national economy (approximately 35.5%). While the national rate of growth at times outpaced South Dakota's, South Dakota's average real GDP growth exceeded that of the nation over the period 2005 to 2021, on both an arithmetic (2.01% (SD) v. 1.70% (U.S.)) and geometric basis (i.e., compound annual growth rate) (1.97% (SD) v. 1.85% (U.S.)).[91]

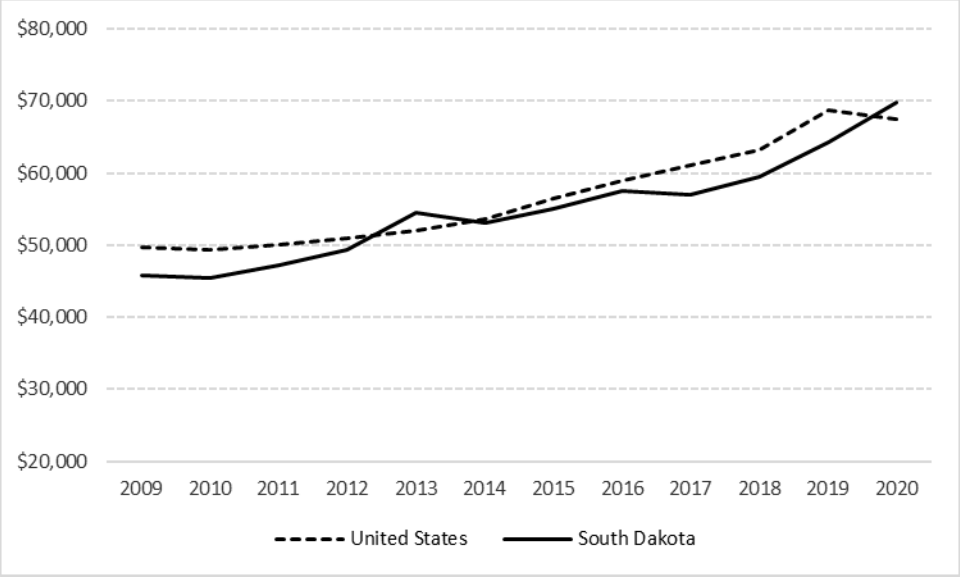
As to median household income, the correlation between South Dakota and the U.S. is relatively strong (95.21% from 2005 through 2020). Since 2009 (that is, the years subsequent to the financial crisis), nominal

90 Source: Bureau of Labor Statistics, St. Louis Federal Reserve.

91 Source: Bureau of Economic Analysis.

median household income in South Dakota has grown at a faster pace than the national median household income (3.90% vs. 2.81%, respectively; *see* Chart 8, below) and now exceeds the national median household income. To put household income in perspective, the Missouri Economic Research and Information Center reports that in 2021, South Dakota had the 29th lowest cost of living index among the 50 states, the District of Columbia, and Puerto Rico.[92]

Chart 8: Median Household Income[93]



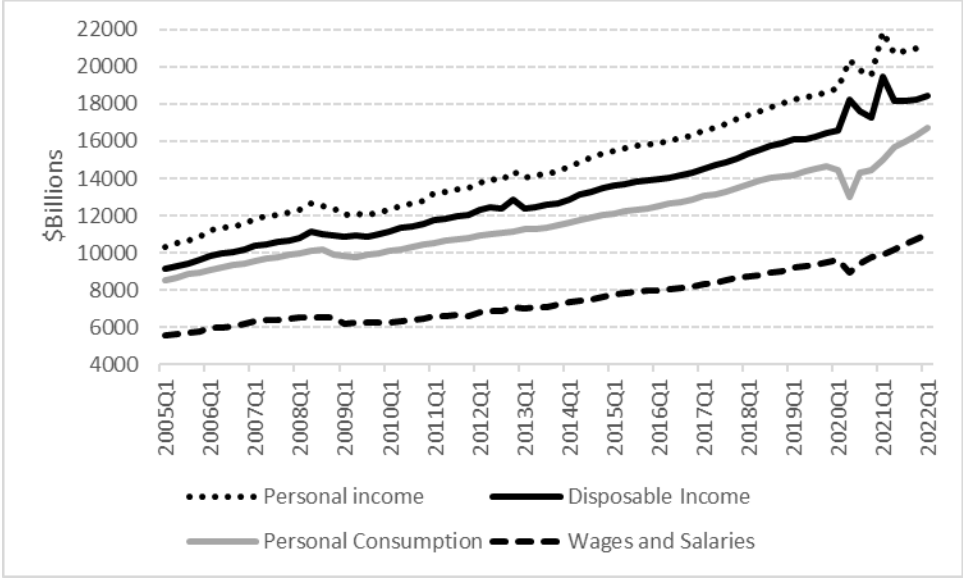
Similarly, as shown in Chart 9, below, since 2009 total personal income, disposable income, personal consumption, and wages and salaries

92 Source: meric.mo.gov/data/cost-living-data-series accessed May 18, 2022.

93 Source: U.S. Census Bureau, Current Population Survey.

have generally been on an increasing trend at the national level. Although wages and salaries dipped in the second quarter of 2020, they rebounded in late 2020 and 2021.

Chart 9: United States Income and Consumption[94]



Q. HOW WOULD YOU SUMMARIZE THE ECONOMIC INDICATORS THAT YOU HAVE ANALYZED AND DISCUSSED?

A. Based on the data presented above, I observe the following:

- Unemployment at both the state and county level remains highly correlated with national rates of unemployment. South Dakota's unemployment rate and the rate in the counties served by the Company have fallen significantly since spiking in April 2020.

94 Source: Bureau of Economic Analysis.

- The state's real Gross Domestic Product has consistently exceeded national GDP since 2005.
- Similarly, since 2005, median household income has grown in South Dakota and has grown at a rate slightly faster than the national average.
- The overall cost of living in South Dakota also is slightly above the national average; and
- At the national level, income has generally been increasing since the financial crisis.

In view of the above, tfhe U.S. and South Dakota economies both experienced an historically difficult and challenging 2020 as a result of the COVID-19 pandemic; yet the data show that economic conditions have improved significantly since then. Moreover, although economic conditions remain uncertain, South Dakota and the counties contained within the Company's service area have fared better than the rest of the U.S. during the COVID-19 pandemic.

Q. IN YOUR OPINION, IS AN ROE OF 10.75% FAIR AND REASONABLE TO THE COMPANY, ITS SHAREHOLDERS, AND ITS CUSTOMERS, AND NOT UNDULY

BURDENSOME TO THE COMPANY'S CUSTOMERS CONSIDERING THE CHANGING ECONOMIC CONDITIONS?

A. Yes. Based on the factors I have discussed here, an ROE of 10.75% is fair and reasonable to the Company, its shareholders, and its customers in light of the uncertainty surrounding the economy at this time.

XII. CONCLUSION

Q. WHAT IS YOUR RECOMMENDED ROE FOR THE COMPANY?

A. Given the discussion above and the results from the analyses, I recommend that an ROE of 10.75% is appropriate for the Company at this time.

Q. IN YOUR OPINION, IS YOUR PROPOSED ROE OF 10.75% FAIR AND REASONABLE TO NSP AND ITS CUSTOMERS?

A. Yes, it is.

Q. IN YOUR OPINION, IS NSP'S PROPOSED CAPITAL STRUCTURE CONSISTING OF 46.99% LONG-TERM DEBT AND 53.01% COMMON EQUITY FAIR AND REASONABLE?

A. Yes, they are.

Q. IN YOUR OPINION, ARE NSP'S PROPOSED COST LONG-TERM DEBT OF 4.14% FAIR AND REASONABLE?

A. Yes, it is.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.