



BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF
NORTHERN STATES POWER CO.
FOR AUTHORITY TO INCREASE RATES
FOR NATURAL GAS SERVICE
IN NORTH DAKOTA

DOCKET NO. PU-21-381

SURREBUTTAL TESTIMONY OF

MARLON F. GRIFFING, PH.D.

ON BEHALF OF

NORTH DAKOTA PUBLIC SERVICE COMMISSION STAFF

April 22, 2022

TABLE OF CONTENTS

	<u>PAGE</u>
I. Introduction	1
II. Updated DCF Return on Equity Analysis.....	3
1. Review of the DCF ROE Process	3
2. Updated DCF Analysis	6
III. Updated CAPM Return on Equity Analysis	8
1. Review of the CAPM ROE Process.....	8
2. Updated CAPM Analysis.....	9
IV. Updated Recommended ROE and Overall Rate of Return.....	12
V. Response to Mr. D'Ascendis's Criticisms of My ROE Analysis	13
1. Application of Comparison Group Selection Criteria	13
2. Applicability of the Multistage DCF Model to My ROE Analysis	14
3. CAPM: Current Risk-Free Rate and Exclusion of Certain S&P 500 Companies from the Market Return Calculation	17
4. Adjustment for Flotation Costs.....	20
5. Exclusion of a Size Adjustment.....	22
6. Proposed. Capital Structure	24
VI. Response to Mr. D'Ascendis's Remarks Regarding Inflation and ROE.	24
VII. Summary	26
<i>I.</i>	

EXHIBITS:

- MFG-S-1*Southwest Gas Calls Part of Icahn's Letter to Its Shareholders Were 'Blatantly Untrue' – MarketWatch,*” Dow Jones Newswires, S&P Capital IQ.
- MFG-S-2, pages 1-3.....Comparison Group Common Equity Share Prices
- MFG-S-3Comparison Group Dividends
- MFG-S-4, Schedule 1 ...Constant-Growth Discounted Cash Flow (DCF) Analysis
- MFG-S-4, Schedule 2 ...Federal Reserve Board Economic Projections, 2021-2024
- MFG-S-4, Schedule 3 ...Social Security Administration Long-Term GDP Growth Rate
- MFG-S-4, Schedule 4 ...Energy Information Administration Long-Term GDP Growth Rate
- MFG-S-4, Schedule 5 ...Multi-Stage DCF Analysis
- MFG-S-5, Schedule 1 ...Daily Treasury Yield Curve
- MFG-S-5, Schedule 2 ...Value Line Betas
- MFG-S-5, Schedule 3....S&P 500 Stocks with I/B/E/S Earnings per Share and Value Line Dividend Yields
- MFG-S-5, Schedule 4 ...S&P 500 Stocks with Value Line Earnings per Share and Value Line Dividend Yields
- MFG-S-5, Schedule 5....Moody’s 10-Year Baa Corporate Bonds Index, March 7, 2022-April 1, 2022
- MFG-S-5, Schedule 6 ...I/B/E/S CAPM ROE Analysis
- MFG-S-5, Schedule 7 ...Value Line Value Line CAPM ROE Analysis
- MFG-S-5, Schedule 8 ...Low-End Test Mean Calculation
- MFG-S-6, Schedule 1 ...Return on Equity (ROE) Analysis
- MFG-S-6, Schedule 2 ...Rate of Return (ROR) Analysis

1 **I. INTRODUCTION**

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

3 A. My name is Dr. Marlon F. Griffing. I am a Senior Consultant with the economic
4 consulting firm of PCMG & Associates Inc. ("PCMG"). My business address is 22
5 Brookes Drive, Gaithersburg, MD 20785.

6 **Q. ARE YOU THE SAME DR. MARLON F. GRIFFING WHO FILED DIRECT
7 TESTIMONY ON BEHALF OF THE NORTH DAKOTA PUBLIC SERVICE
8 COMMISSION ADVOCACY STAFF IN THIS DOCKET?**

9 A. Yes. I am filing Surrebuttal Testimony regarding the cost of capital for the natural-gas
10 operations of Northern States Power Company, a Minnesota corporation ("NSP" or the
11 "Company"), in this docket before the North Dakota Public Service Commission
12 ("Commission").

13 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

14 A. My testimony has two purposes. I update my recommended return on equity ("ROE") and
15 overall rate of return ("ROR") for NSP, which is an operating subsidiary of Xcel Energy
16 Inc ("XEL"), using the same methods I used to develop an ROE and ROR in my Direct
17 Testimony. I also respond to the Rebuttal Testimony of Company witness Dylan
18 D'Ascendis.

19 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

20 A. My testimony has six sections.

21 • First, I updated my constant-growth and multistage Discounted Cash Flow
22 ("DCF") model ROE analyses for NSP from the values I presented in my Direct
23 Testimony. I applied the same methods, but I included more recent values for

1 common-equity share prices, dividends paid, and forecasted earnings per share
2 (EPS) growth rates for the natural-gas distribution companies in my
3 Comparison Group. Further, I updated gross domestic product (“GDP”) growth
4 forecasts from the Federal Reserve. Responding to Mr. D’Ascendis’ testimony I
5 changed the membership of the Comparison Group, my set of natural gas utilities
6 comparable to NSP. I dropped two companies, Chesapeake Utilities and
7 Southwest Gas Holdings. Mr. D’Ascendis presented Rebuttal analysis that
8 showed the net income for Chesapeake Utilities’ regulated natural gas
9 distribution operations is less than 60 percent of the company’s total net income,¹
10 one of my screens for choosing members of the Comparison Group. I eliminated
11 Southwest Gas Holdings because, as Mr. D’Ascendis pointed out, it is the target
12 of a takeover bid from Carl Icahn.² Southwest Gas Holdings management is
13 opposing the bid, which is ongoing.³ (I continued to include data for the two
14 companies and for South Jersey Industries, excluded in my Direct Testimony
15 because it is the subject of a purchase, for illustrative purposes.)

- 16 • Second, I updated my capital asset pricing model (CAPM) analysis. Again, I
17 used the same methods employed in my Direct Testimony, applying as inputs
18 the most recent values for the risk-free rate of return, Comparison Group
19 companies’ betas, and EPS forecasts for the S&P 500 from Yahoo! Finance and
20 Value Line, and Value Line’s dividends for the S&P 500.

¹ Rebuttal Testimony of Dylan W. D’Ascendis (hereafter “D’Ascendis Rebuttal”), Docket No. 21-381, page 17, Table 4.

² D’Ascendis Rebuttal, page 3, lines 4-7.

³ Exhibit MFG-S-1. “*Southwest Gas Calls Part of Icahn’s Letter to Its Shareholders Were ‘Blatantly Untrue’ – MarketWatch*,” Dow Jones Newswires, S&P Capital IQ.

- 1 • Third, I updated my Recommended Rate of Return
- 2 • Fourth, I responded to criticisms of my ROE analysis by Mr. D'Ascendis.
- 3 • Fifth, I responded to Mr. D'Ascendis' remarks regarding the effect of inflation on
- 4 ROEs; and
- 5 • Sixth, I summarized my testimony and recommendations.
- 6

7 **Q. PLEASE STATE YOUR CONCLUSIONS REGARDING THE COMPANY'S ROE**
8 **AND ROR.**

9 A. My recommended ROE for the Company is 9.54 percent. When this number is included in
10 the calculation of the ROR, the result is a weighted-average cost of capital of 6.91 percent
11 for NSP. See Exhibit MFG-S-6, Schedule 2.

12

13 **II. UPDATED DCF RETURN ON EQUITY ANALYSIS**

14 **1. Review of the DCF ROE Process**

15 **Q. FOR EASE OF REFERENCE, PLEASE SUMMARIZE YOUR PROCESS FOR**
16 **ESTIMATING AN ROE FOR NSP.**

17 A. I performed a DCF analysis on a group of natural gas distribution utilities comparable to
18 NSP that are publicly traded and have similar investment risk. I used proxies of similar risk
19 to determine an ROE. The estimated rates of return for members of this group is how I
20 calculated an estimate of the fair rate of return for the Company.

21 **Q. HOW DID YOU PROCEED IN FINDING PROXIES FOR NSP?**

22 A. NSP, the subject company, has a Standard & Poor's (S&P) credit rating of A-, which is
23 investment grade. Due to the small number of natural-gas utilities I considered all

1 companies with investment-grade credit ratings. After the adjustment to the Comparison
2 Group described above, there were six remaining companies. They had S&P credit ratings
3 ranging from BBB+ to A+.

4 **Q. WHAT WAS THE NEXT STEP AFTER THE COMPARISON GROUP WAS**
5 **CREATED?**

6 A. I applied the constant-growth DCF model to the Comparison Group's six members to
7 determine my recommended ROE for the Company.

8 **Q. PLEASE NAME THE COMPANIES THAT REMAIN IN THE COMPARISON**
9 **GROUP.**

10 A. The six companies remaining in the Comparison Group were: Atmos Energy, New Jersey
11 Resources, NiSource, Inc., Northwest Natural Gas, ONE Gas, Inc., and Spire, Inc. Mr.
12 D'Ascendis included the same six companies in his Rebuttal Testimony ROE analysis.

13 **Q. IN GENERAL, WHAT IS THE STRUCTURE OF DCF MODELS?**

14 A. The DCF model uses publicly available data for the individual companies to estimate
15 growth rates, dividends paid, and common-equity prices for the constant-growth DCF
16 equation, which follows:

$$k = \frac{D_1}{P_0} + g$$

17
18
19 Where:

20 D₁ is the annual dividend one year from the present;

21 P₀ is the current price of a stock share;

22 g is the growth rate of the dividend; and

23 k is the discount rate and the fair rate of return on equity.

1 The first term on the right-hand side of the equation is the dividend yield and the second term
2 is the dividend growth rate. Together, they produce “k,” the estimated ROE for a company.

3 **Q. HOW DID YOU USE THE INFORMATION FOR THE COMPARISON GROUP**
4 **TO DETERMINE YOUR RECOMMENDED ROE FOR NSP?**

5 A. Using the DCF model, I estimated a mean growth rate for each company in the Comparison
6 Group. The mean growth rate is the equal-weighted average of the EPS growth rates from
7 Value Line, Zacks, and Yahoo! Finance. Next, I calculated the dividend yield for each
8 company, then adjusted for dividend growth to find the expected dividend yield. Finally, I
9 adjusted the expected dividend yield for flotation costs, then added that value to the mean
10 growth-rate estimate for each company to estimate individual ROEs.

11 **Q. PLEASE REVIEW THE ASSUMPTION UNDERLYING THE MULTISTAGE DCF**
12 **ANALYSIS.**

13 A. The multistage DCF model assumes that the current growth rates are not permanent. The
14 current rates are replaced by predicted different growth rates at a specified future stage.
15 Using U.S. Bureau of Economic Analysis and Federal Reserve Board data I showed that
16 the high short-term economic growth rates influencing the Value Line, Zacks, and Yahoo!
17 Finance EPS forecasts are unlikely to continue. These EPS growth rates are unsustainable
18 because the economy is restoring use of productive capacity that was idled by the COVID-
19 19 pandemic-related recession. As this slack in the economy is eliminated, the potential
20 growth level returns to long-run capacity growth rates. Since companies cannot sustain
21 growth faster than the growth rate of the economy over the long run, I used long-run GDP
22 growth rates as the second stage growth rate in my multistage analysis.

1 2. **Updated DCF Analysis**

2 **Q. WHAT ARE THE DATES OF THE GROWTH-RATE PROJECTIONS WITH**
3 **WHICH YOU CALCULATED THE GROWTH-RATE COMPONENTS OF THE**
4 **COMPARISON GROUP COMPANIES' ROES?**

5 A. My Value Line growth rates came from the Value Line Analyzer on April 14, 2022. I also
6 downloaded the Zacks and Yahoo! Finance EPS growth-rate forecasts that same day.⁴

7 **Q. WHAT ARE THE DATES OF THE EQUITY PRICES YOU USED TO**
8 **CALCULATE THE DIVIDEND-YIELD PORTION OF COMPARISON GROUP**
9 **COMPANIES' ROES?**

10 A. My equity prices were the average of closing prices on the 20 trading days for the period
11 from March 7, 2022 to April 1, 2022.⁵ This period is long enough to dampen any short-
12 term aberrations in the capital market and is close to the April 22, 2022, date of this
13 Testimony, making the prices timely.

14 **Q. WHAT ARE THE DATES OF THE DIVIDENDS YOU USED TO CALCULATE**
15 **THE DIVIDEND-YIELD PORTION OF COMPARISON GROUP COMPANIES'**
16 **ROES?**

17 A. I annualized the dividends reported on April 14, 2022, from Value Line and Zacks and
18 used the greater of the two. Value Line had the higher dividends for Atmos Energy, ONE
19 Gas, and Spire, while the dividends were identical from the two sources for the other three
20 utilities.⁶

⁴ Exhibit MFG-S-4, Schedule 1.

⁵ Exhibit MFG-S-2, pages 1-3.

⁶ Exhibit MFG-S-3.

1 **Q. WHAT ARE THE RESULTS OF YOUR DCF ROE ANALYSIS USING UPDATED**
2 **DATA?**

3 A. The mean ROE for the Comparison Group is 9.29 percent (adjusted for rounding).⁷ This
4 value is composed of a mean expected dividend growth rate of 6.21 percent and a mean
5 flotation-adjusted expected dividend yield of 3.29 percent.

6 **Q. DID YOU ALSO UPDATE YOUR MULTISTAGE DCF ANALYSIS FOR THE**
7 **COMPARISON GROUP?**

8 A. Yes. I updated the multistage DCF analysis, using the updated EPS growth rates, dividends,
9 and common-equity share prices for the six companies. I also updated Federal Reserve
10 Board Economic Projections. The update showed GDP growth decreasing from 5.5 percent
11 in 2021 to 2.0 percent in 2024, then dropping to 1.8 percent in the longer run.⁸ This decline
12 in the GDP growth rate was consistent with the conditions for applying a multistage
13 analysis: high current growth rates were predicted to not last as the economy returned to
14 lower long-term rates.

15 **Q. WHAT WERE THE LONG-RUN GDP VALUES YOU USED IN YOUR UPDATED**
16 **MULTISTAGE DCF ANALYSIS?**

17 A. The Energy Information Administration long-run GDP growth rate I used as an input was
18 unchanged from my Direct Testimony at 4.35 percent. The Social Security Administration
19 long-run GDP growth rate dropped 1 basis point to 3.94 percent.⁹

⁷ Exhibit MFG-S-4, Schedule 1.

⁸ Exhibit MFG-S-4, Schedule 2

⁹ Exhibit MFG-S-13, Schedule 5 and Exhibit MFG-13, Schedule 6.

1 **Q. WHAT WAS THE RESULT OF YOUR UPDATED MULTISTAGE DCF**
2 **ANALYSIS?**

3 A. The mean ROE for the Comparison Group from the updated multistage DCF analysis was
4 8.72 percent.¹⁰

5 **III. UPDATED CAPM RETURN ON EQUITY ANALYSIS**

6 **1. Review of the CAPM ROE Process**

7 **Q. PLEASE REVIEW THE CALCULATION OF A CAPM ROE.**

8 A. The CAPM is composed of the return on a risk-free asset and the market risk premium of
9 a well-diversified equity portfolio. The premium is what induces investors to accept the
10 level of risk associated with a given asset.

11 **Q. WHAT IS BETA.**

12 A. Beta is a measure of systematic risk for a given company. Systematic risk is the risk borne
13 by all companies in a market. The effects of government policies, broad economic forces,
14 and acts of nature are examples of systematic risk. Investors cannot avoid such risks when
15 they purchase a diversified portfolio because all the assets are subject to the cited risks.

16 **Q. ARE COMPANIES EQUALLY EXPOSED TO SYSTEMATIC RISK?**

17 A. No, companies are not equally subject to systematic risk. Beta measures the degree to
18 which a given company is subject to systematic risk relative to the systematic risk for the
19 broad market. Beta times the risk premium, therefore, captures how much any given
20 company can expect to participate in the returns to the broad market given the company's
21 systematic risk profile.

¹⁰ Exhibit MFG-S-4, Schedule 3.

1 **Q. WHAT THEN DOES THE REQUIRED RETURN PRODUCED BY**
2 **APPLICATION OF THE CAPM REFLECT?**

3 A. The CAPM required return is the sum of the return to the riskless asset, the return to this
4 asset at a given time that market conditions produce, plus the portion of the average return
5 to the broad market above the riskless asset return that a company must earn to attract
6 investors given its risk profile relative to the broad market systematic risk.

7 **Q. PLEASE SUMMARIZE THE CAPM YOU USED IN YOUR ROE ANALYSIS.**

8 A. I based my CAPM analysis on the version that the Federal Energy Regulatory Commission
9 (“FERC”) first adopted in Opinion 569¹¹ and revised in Opinion 569-A¹², where it
10 expanded the acceptable sources S&P 500 short-term EPS forecasts. This approach
11 addresses potential flaws in the CAPM. The FERC model is forward-looking and includes
12 rules and methods that remove analyst judgment that can cause CAPM analyses conducted
13 at the same time to vary widely. I do not adopt all the FERC procedures, but I follow its
14 outline.

15 **2. Updated CAPM Analysis**

16 **Q. DID YOU UPDATE THE CAPITAL ASSET PRICING MODEL (CAPM) ROE**
17 **ANALYSIS YOU PERFORMED IN YOUR DIRECT TESTIMONY?**

18 A. Yes. I updated the calculation of my CAPM ROE using the methods I employed in my
19 Direct Testimony.

¹¹ *Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569, 169 FERC ¶ 61,129 (2019). Issued November 21, 2019, pages 134, 138, 184-185.

¹² *See Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154, ¶¶ 58 (2020).

1 **Q. PLEASE REVIEW YOUR UPDATE OF YOUR CAPM ROE ANALYSIS.**

2 A. The updating process included using the average closing yield on a 30-year U.S. Treasury
3 bond from March 7, 2022 to April 1, 2022, as the risk-free return. As for the beta values,
4 none of those published in the Value Line Analyzer on April 14, 2022, were different from
5 the betas included in my Direct Testimony.¹³

6 **Q. PLEASE CONTINUE.**

7 A. To update the market risk premium, I downloaded I/B/E/S S&P 500 EPS forecasts
8 published by Yahoo! Finance on April 14, 2022, and Value Line S&P 500 EPS forecasts
9 from the Value Line Analyzer on the same date. I downloaded the dividend yields for the
10 S&P 500 companies from the Value Line Analyzer, also from April 14, 2022. I applied the
11 I/B/E/S EPS growth rates¹⁴ and Value Line growth rates¹⁵ to the dividend yields to find the
12 expected dividend yield, adding a full year's growth as I did in my Direct Testimony.

13 **Q. DID YOU EXCLUDE SAME S&P 500 COMPANIES IN FINDING THE MARKET
14 RETURNS?**

15 A. Yes. I applied the dividend-paying rule, and the minimum and maximum threshold rules
16 of less than 0 percent and greater than 20 percent to the sets of S&P 500 companies. The
17 companies that met the screens in the I/B/E/S and Value Line S&P 500 sets are different
18 from one another because the EPS forecasts vary from company to company within the
19 sets.¹⁶

¹³ Compare Exhibit MFG-13, Schedule 6 and Exhibit MFG-S-5, Schedule 6; and Exhibit MFG-13, Schedule 7 and Exhibit MFG-S-5, Schedule 7.

¹⁴ Exhibit MFG-S-5, Schedule 3.

¹⁵ Exhibit MFG-S-5, Schedule 4.

¹⁶ Exhibit MFG-S-5, Schedule 3 and Exhibit MFG-S-5, Schedule 4.

1 **Q. DID YOU WEIGHT COMPANIES BY THEIR MARKET CAPITALIZATIONS?**

2 A. Yes. As I did in my Direct Testimony, I weighted the remaining ROEs by the market
3 capitalization for each company. The sum of those individual ROEs is the market return.
4 The updated value for the I/B/E/S set was 13.38 percent.¹⁷ The market risk premium was
5 calculated by subtracting the 2.45 percent return on the 30-year Treasury from the market
6 return. The result of this operation was 10.93 percent for the I/B/E/S set. This amount is
7 multiplied by the beta for each Comparison Group company to find that company's CAPM
8 ROE.¹⁸ The corresponding values for the Value Line set are a market return of 13.10
9 percent,¹⁹ the same 2.45 percent risk-free rate of return, and a market risk premium of 10.65
10 percent. This amount is multiplied by the beta for each Comparison Group company to find
11 that company's CAPM ROE.²⁰

12 **Q. DID YOU UPDATE THE OUTLIER CAPM ROES?**

13 A. Yes. FERC applies Low-End and High-End Test to the CAPM adjusted ROEs. My Low-
14 End Test is the same as the minimum threshold for the DCF ROEs, the four-week average
15 of the Moody's 10-year Baa Corporate Bond Yield Index value plus 20 percent of the
16 CAPM risk premium. The dates for the Moody's 10-year Baa Corporate Bond Index yield
17 average were March 7, 2022-April 1, 2022. I combined the I/B/E/S and Value Line
18 analyses to find a mean Low-End Test of 6.50 percent.²¹ The High-End Test is 200 percent
19 of the median value of all companies included in the analysis. I note that Chesapeake

¹⁷ Exhibit MFG-S-5, Schedule 3.

¹⁸ Exhibit MFG-S-5, Schedule 6.

¹⁹ Exhibit MFG-14, Schedule 4.

²⁰ Exhibit MFG-S-5, Schedule 7.

²¹ Exhibit MFG-S-5, Schedule 8.

1 Utilities, South Jersey Industries, and Southwest Gas Holdings were excluded from the
2 CAPM ROE analyses.

3 **Q. WERE ANY COMPANIES EXCLUDED DUE TO THE OUTLIER TESTS?**

4 A. The values of the outlier tests are different in the I/B/E/S and Value Line analyses because
5 of the different market risk premiums produced. However, no CAPM ROEs were removed
6 due to the Low-End or High-End Tests in either of my analyses.

7 **Q. WHAT WERE THE RESULTS OF YOUR CAPM ANALYSES?**

8 A. The mean ROE for my I/B/E/S CAPM analysis was 11.77 percent.²² The mean ROE for
9 my Value Line CAPM analysis was 11.54 percent.²³ These values included a flotation-
10 cost adjustment of 3.4 basis points.

11 **IV. UPDATED RECOMMENDED ROE AND OVERALL RATE OF RETURN**

12 **Q. WHAT ROE DID YOU RECOMMEND FOR NSP?**

13 A. As in my Direct Testimony the DCF constant-growth and DCF multistage results were
14 within the range of authorized ROEs from 2019-2021 for U.S. natural gas utilities as
15 reported by Regulatory Research Associates (“RRA”) a unit of S&P Global IQ Pro.²⁴ On
16 the other hand, the I/B/E/S and Value Line CAPM ROE results were about 1.25 percent
17 and 1.00 percent, respectively, greater than the single highest ROE authorized for a
18 natural-gas utility in the United States in the 2019-2021 span. Therefore, I gave weights
19 of 40 percent to the two DCF model ROE results and weights of 10 percent to the two

²² Exhibit MFG-S-5, Schedule 6.

²³ Exhibit MFG-S-5, Schedule 7.

²⁴ Exhibit MFG-15.

1 CAPM ROE results. The product of the weightings was 9.54 percent.²⁵

2 **Q. WHAT CAPITAL STRUCTURE DID YOU RECOMMEND FOR THE**
3 **COMPANY?**

4 A. I continue to recommend a capital structure of 47.57 percent long-term debt, 0.43 percent
5 short-term debt, and 52.00 percent common equity for the Company.

6 **Q. WHAT OVERALL RATE OF RETURN DO YOU RECOMMEND FOR THE**
7 **COMPANY?**

8 A. Using my recommended ROE and capital structure, and the Company's costs of long-
9 term debt and short-term debt, I recommended an overall rate of return of 6.91 percent
10 for the Company.²⁶

11 **V. RESPONSE TO MR. D'ASCENDIS' CRITICISMS OF MY ROE ANALYSIS**

12 **Q. DOES MR. D'ASCENDIS MAKE CRITICISMS OF YOUR ROE ANALYSIS TO**
13 **WHICH YOU WANT TO RESPOND?**

14 A. Yes. I respond to Mr. D'Ascendis criticisms regarding:

- 15 1. The application of selection criteria for my proxy group;
- 16 2. The applicability of the multistage DCF models in my ROE analysis;
- 17 3. My use of the current yield for the U.S. Treasury 30-year bond as the risk-free rate
18 and the exclusion of S&P 500 companies that do not meet FERC screening criteria
19 for inclusion in calculating the market return estimate;
- 20 4. My limiting the number of Xcel Energy issuances included in the calculation of the
21 flotation-cost adjustment;
- 22 5. My exclusion of a firm-size adjustment; and

²⁵ Exhibit MFG-S-6, Schedule 1.

²⁶ Exhibit MFG-S-6, Schedule 2.

1 6. My proposed capital structure.

2 **1. Application of Comparison Group Selection Criteria**

3 **Q. MR. D'ASCENDIS ARGUED THAT CHESAPEAKE UTILITIES DOES NOT**
4 **MEET MY SCREEN REGARDING RATIO OF REGULATED INCOME. DO YOU**
5 **AGREE?**

6 A. Yes. As noted previously, Mr. D'Ascendis presented Rebuttal analysis that showed the net
7 income for Chesapeake Utilities' regulated natural gas distribution operations is less than
8 60 percent of the company's total net income, the standard I apply for inclusion in the
9 Comparison Group. Therefore, I excluded the company from my ROE analysis in this
10 Rebuttal Testimony.

11 **Q. DID MR. D'ASCENDIS REMOVE SOUTHWEST GAS HOLDINGS FROM HIS**
12 **PROXY GROUP?**

13 A. Yes. Also as noted, Mr. D'Ascendis removed Southwest Gas Holdings from his proxy
14 group because the company is the target of a takeover bid. I agreed with him that Southwest
15 Gas Holdings should be excluded from the ROE analysis and removed it from the
16 Comparison Group.

17 **2. Applicability of the Multistage DCF Model to My ROE Analysis**

18 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' CRITICISM OF YOUR**
19 **APPLICATION OF THE MULTISTAGE DCF MODEL.**

20 A. Mr. D'Ascendis asserts that multistage DCF model is applicable to only the
21 company/industry life cycle concept. The life cycle is composed of three stages: a growth
22 stage in which sales, profits and earnings expand rapidly; a transition stage characterized

1 by slower growth of sales, profits, and earnings; and a mature stage characterized by steady
2 growth in earnings, dividend payout ratios, and returns on equity.

3 **Q. IS THE MULTISTAGE DCF MODEL LIMITED TO APPLICATION IN THE LIFE**
4 **CYCLE SITUATION?**

5 A. No. The multi-stage model can be applied to other circumstances, such as when growth
6 rates are expected to be lower in the future for reasons other than the company/industry life
7 cycle. In my Direct Testimony I identified forecasts of high growth rates for U.S. gross
8 domestic product following the pandemic-related recession of 2020 and an ensuing return
9 to long-term growth rates as the basis for applying the multistage DCF model at this time.
10 I cited U.S. Bureau of Economic Analysis and Federal Reserve Board data as supporting
11 the logic that current short-term EPS growth-rate forecasts reflect the expected sharp
12 recovery and a return to lower EPS growth rates as the economic resources made idle by
13 the recession are returned to productive use, thus eliminating the opportunity for continued
14 fast growth.²⁷ The multistage DCF model is an approach that enables linking the two
15 periods of different EPS growth rates in the projected economy.

16 **Q. DID MR. D'ASCENDIS CITE INCREASES IN EPS FORECASTS AMONG**
17 **PROXY GROUP COMPANIES AS UNDERCUTTING YOUR REASONING?**

18 A. Yes. He cited increases in earnings per share for a majority of the proxy group from 2019
19 to 2020 and 2021 to 2022 as inconsistent with my reasoning.

20 **Q. DID YOU AGREE WITH MR. D'ASCENDIS ON THIS MATTER?**

21 A. No. Mr. D'Ascendis cites earnings per share, while my position was based on EPS
22 forecasts. My stance was not that earnings per share from one year to the next for a given

²⁷ Direct Testimony of Dr. Marlon F. Griffing (hereafter "Griffing Direct"), Docket No. PU-21-381, North Dakota Public Service Commission, pages 29-31.

1 set of companies would decline.²⁸ Rather, my argument was that the actual recorded decline
2 in the broad economy and the forecasts of high GDP growth rates that will taper off over
3 the short term were a combination that was causing the 3- to 5-year EPS forecasts from
4 Zacks, Yahoo! Finance, and Value Line to be higher than they would be across the
5 economy in the years after the economic activity returns to its long-term growth rates. This
6 short-term boost to EPS forecasts applied to utilities as well as other companies. The EPS
7 forecasts would decline as the economy returns to the long-term growth rates.

8 **Q. PLEASE DISCUSS THE USE OF LONG-TERM GDP GROWTH-RATE**
9 **ESTIMATES AS INPUTS IN MULTISTAGE DCF ANALYSIS.**

10 A. An industry's growth rate may exceed the growth-rate of the economy for a time, but the
11 growth rate of mature industries such as natural-gas distribution companies converge to the
12 growth rate of the economy. Thus, the long-term GDP growth estimates from the Social
13 Security Administration and Energy Information Administration were appropriate inputs
14 to my multistage DCF ROE analysis.

15 **Q. PLEASE DISCUSS MR. D'ASCENDIS' ASSERTION THAT YOUR**
16 **APPLICATION OF THE MULTISTAGE MODEL IS ONLY A WEIGHTED**
17 **AVERAGE OF EPS FORECASTS AND LONG-TERM GDP GROWTH RATES.**

18 A. As stated in my Direct Testimony, I relied on a method for applying the multistage DCF
19 model set forth by Roger A. Morin. I included an exhibit in which Dr. Morin explains the
20 weighting or blending of short-term EPS growth-rate forecasts and long-term GDP growth
21 rates is an acceptable application of the model.²⁹

²⁸ Regulated utilities such as natural-gas companies are often said to be recession-proof, so it is not surprising that most of the proxy-group companies showed increased earnings per share from 2019 to 2020. Nor is this fact grounds to dismiss my use of the multistage DCF model.

²⁹ Exhibit MFG-13, Schedule 2.

1 **Q. PLEASE DISCUSS MR. D'ASCENDIS' ASSERTION THAT YOUR**
2 **APPLICATION OF THE MULTISTAGE MODEL DOES NOT CONSIDER THE**
3 **YEAR THE MODEL TRANSITIONS FROM THE INITIAL AND FINAL**
4 **GROWTH STAGES.**

5 A. In my Direct Testimony, the EPS growth-rate forecasts applied to the short-term 5-year
6 period 2022-2026,³⁰ while the long-run GDP forecasts covered the span of 2027-2050.³¹
7 Thus, the transition year was 2027. In this Surrebuttal Testimony, the new EPS forecasts
8 cover 2023-2027, so I adjusted the long-run GDP forecasts to cover 2028-2050. Therefore,
9 the transition year is 2028.

10 **3. CAPM: Current Risk-Free Rate and Exclusions of Certain S&P 500**
11 **Companies from the Market Return Calculation**

12 **Q. MR. D'ASCENDIS STATED THAT YOUR USE OF THE CURRENT YIELD FOR**
13 **THE U.S. TREASURY 30-YEAR BOND DOES NOT CAPTURE INVESTORS'**
14 **EXPECTATIONS. PLEASE RESPOND.**

15 A. As I stated in my Direct Testimony, current yields on the 30-year U.S. Treasury bond do
16 capture investor expectations. Just as current common equity share prices reflect all
17 information about factors affecting the value of the shares, current bond yields reflect the
18 beliefs of investors as to where bond prices, and yields, are headed.

19 **Q. PLEASE DISCUSS THE COMPOSITION OF A BOND YIELD.**

20 A. Bond yields are composed of a coupon payment (the yield numerator) and the bond price
21 (the denominator). The coupon payment does not change over the life of the bond. The
22 bond price, on the other hand, fluctuates in accord with investors' beliefs regarding the

³⁰ Exhibit MFG-13, Schedule 8.

³¹ Exhibit MFG-13, Schedule 5 and Exhibit MFG-13, Schedule 6.

1 value of the bonds. Put briefly, if investors expect interest rates (the coupon payment) for
2 future bonds to rise, they will pay less in the present for an existing bond with a lower
3 coupon rate. The price falls until the current yield for the existing bond and the yield for
4 the anticipated bond are equal. The opposite is true if investors expect interest rates to fall.
5 Either way, the current yield, influenced by investors' beliefs, is forward-looking and does
6 reflect investor expectations.

7 **Q. MR. D'ASCENDIS ASSERTS THAT YOU SHOULD NOT HAVE APPLIED**
8 **DIVIDEND AND EPS GROWTH-RATE FORECAST SCREENS TO THE S&P 500**
9 **COMPANIES AS YOU CALCULATED YOUR CAPM MARKET RETURN.**
10 **PLEASE REVIEW THESE SCREENS.**

11 A. I applied the DCF constant-growth model to calculate the individual returns to the S&P
12 500 companies as I calculated my CAPM market return.³² As I showed in my Direct
13 Testimony, the DCF model requires dividends as an input.³³ If a company is not paying
14 dividends or has a record of cutting dividends, then its DCF analysis is not reliable.
15 Consequently, I eliminated non-dividend paying companies from my CAPM market return
16 analysis.

17 **Q. PLEASE ADDRESS WHY YOU EXCLUDED COMPANIES WITH EPS**
18 **GROWTH-RATE FORECASTS LESS THAN 0 PERCENT AND GREATER THAN**
19 **20 PERCENT FROM THE MARKET RETURN CALCULATION.**

20 A. I excluded companies with EPS growth-rate forecasts less than 0 percent and greater than
21 20 percent because neither growth rate is sustainable. Companies that persistently have

³² As did Mr. D'Ascendis for Measures 5 and 6 of his CAPM market risk premium analysis. (Exhibit (DWD-1), Schedule 7, Page 2 of 2. He does not indicate he removed companies not paying dividends from his analysis, so these MRPs are flawed.

³³ Griffing Direct, pages 48-49.

1 negative earnings per share will go out of business. Therefore, these companies should not
2 be included in the calculations. If they were included, they would drag down the market
3 return. On the other hand, companies do not maintain growth rates of 20 percent or greater
4 for long. Including such companies in the analysis distorts the market return upward.

5 **Q. MR. D'ASCENDIS ASSERTS THAT REMOVING COPMPANIES FROM THE**
6 **S&P 500 FOR THE MARKET RETURN CALCULATION MEANS THE**
7 **REMAINING COMPANIES DO NOT REPRESENT THE MARKET AS A**
8 **WHOLE. WHAT IS YOUR RESPONSE?**

9 A. Companies not paying dividends must be removed from the market return calculation
10 because it is not mathematically possible to calculate a meaningful DCF return for such
11 companies. Since I applied a constant-growth model to the S&P 500, I had to follow that
12 constraint of the model and remove those companies. As for companies with extreme EPS
13 growth-rate forecasts, I removed them because NSP would not be competing for capital
14 against such outliers. Therefore, it is not a shortcoming that the remaining companies may
15 not reflect the range of returns of the whole market.

16 **Q. MR. D'ASCENDIS ASSERTS THAT IF COMPANIES ARE REMOVED FROM**
17 **THE S&P 500 FOR THE MARKET RETURN CALCULATION, THEN THE**
18 **BETAS OF THE SUBJECT COMPANIES MUST BE RECALCULATED TO BE**
19 **VALID. WHAT IS YOUR RESPONSE?**

20 A. I did not recalculate the proxy group beta values or the beta values of the S&P 500
21 companies remaining after the dividend-paying screen and the extreme EPS growth-rate
22 forecast screen were applied. Following the Value Line approach to calculating beta, that
23 monumental operation would involve having access to 260 values (5 years times 52 weekly

1 observations)—for each company. Instead, I calculated the average betas of the S&P 500
2 for I/B/E/S and Value Line, and the average betas of the companies left after the screens
3 were applied. The results are shown below.
4

5 **Means and Standard Deviations of Betas**

	I/B/E/S S&P 500	Screened I/B/E/S S&P 500	Value Line S&P 500	Screened Value Line S&P 500
Mean	1.08	1.02	1.07	1.05
Standard Deviation	0.28		0.26	
Difference of Means/Standard Deviation	0.06/0.28 = 0.21		0.02/0.26 = 0.10	

6
7 **Q. PLEASE DISCUSS THE RESULTS.**

8 A. The mean beta value for the I/B/E/S S&P 500 companies was 1.08, while the mean value
9 of the I/B/E/S S&P 500 companies after the dividend-paying screen the extreme EPS
10 growth-rate screens were applied was 1.02. The corresponding beta means for the Value
11 Line S&P 500 companies were 1.07 and 1.05. The mean differences of 0.06 and 0.02
12 divided by the standard deviations of the respective S&P 500 sources were 0.21 and 0.10.
13 This standardization operation indicates that the screened sets of S&P 500 companies are
14 similar in risk to the full sets.

1 **4. Adjustment for Flotation Costs**

2 **Q. PLEASE DISCUSS YOUR DECISION TO INCLUDE ONLY RECENT**
3 **ISSUANCES OF XCEL ENERGY IN CALCULATING THE FLOTATION COST**
4 **ADJUSTMENT.**

5 A. Mr. D'Ascendis is correct that I accepted a higher flotation cost adjustment in Docket No.
6 PU-20-441, the rate case for NSP electric. In this docket I noticed a major difference in the
7 costs for Xcel Energy's equity issuances that I overlooked in the electric rate case docket.
8 This costs difference caused me to revise my recommended flotation cost adjustment in
9 this docket.

10 **Q. PLEASE DESCRIBE THE DIFFERENCE YOU NOTICED IN THE XCEL**
11 **ENERGY ISSUANCE COSTS.**

12 A. I noticed that there was a major difference in the issuance costs Xcel Energy in the data
13 provided by Mr. D'Ascendis for issuances made in 2010 and before and those made 2013
14 and after.³⁴ The costs for 2010 and prior ranged from about 2.50 percent to 7.95 percent,
15 whereas the costs for 2013 and after ranged from about 1.20 percent to 0.42 percent. The
16 2010 and 2013 issuance costs illustrate the size of the break. For 2010 the cost was 6.918
17 percent, while the 2013 cost was 1.179 percent. The trend of small issuance costs for Xcel
18 Energy continued in the three issuances made after 2013.

³⁴ Exhibit (DWD-1) Schedule 12.

1 **Q. WHY DID YOU DEPART FROM THE PRINCIPLE OF ALLOWING A**
2 **COMPANY TO RECOVER ALL PREVIOUS FLOTATION COSTS IN THIS**
3 **DOCKET?**

4 A. I agreed that the purpose of the flotation-cost adjustment is to allow a company to recover
5 its costs of issuing equity. However, public utility regulation is a substitute for the limits
6 that a competitive market imposes on companies. A company operating with competitors
7 would not be able to continue to pass on to customers issuance costs that were so much
8 higher than current issuance costs, as the issuance costs were with Xcel Energy. Something
9 happened with Xcel Energy between 2010 and 2013 that resulted in its issuance costs
10 dropping sharply. If Xcel Energy had a competitor, the reduced issuance costs would be
11 available to both companies. Competitive pressure would force both companies to pass
12 along only the lower issuance costs to their customers. Thus, applying the concept that
13 regulation is a substitute for market forces, I calculated the flotation-cost adjustment for
14 NSP based on the costs of the four issuances made in 2013 and after, which indicate NSP
15 is operating in a new equity issuance climate.

16 **5. Exclusion of a Size Adjustment**

17 **Q. PLEASE DISCUSS YOUR DECISION TO INCLUDE ONLY RECENT**
18 **ISSUANCES OF XCEL ENERGY IN CALCULATING THE FLOTATION COST**
19 **ADJUSTMENT.**

20 A. Mr. D'Ascendis is correct that I included a size adjustment in Docket No. PU-20-441, the
21 rate case for NSP electric. Since that docket, I have learned of studies that conclude the
22 size effect may be transitory, at best, and that returns to small companies are less than those
23 for larger companies. Therefore, I did not include a size adjustment in this docket.

1 **Q. HOW DID MR. D'ASCENDIS RESPOND?**

2 A. Mr. D'Ascendis asserts again that smaller companies face greater business risk than larger
3 companies. He cites the scenario that small companies are less able than large companies
4 to withstand the loss of a few large customers. This example would hold true if the largest
5 customers of all companies, large and small, were the same size. Then the proportion of a
6 smaller company's sales, revenues, and earnings such a customer represents would be
7 greater than the proportion for a larger company. However, no evidence is presented
8 regarding the proportion of sales, revenues, and earnings that large customers represent for
9 small companies. It can be asked, won't the largest customers of small companies also be
10 smaller than the largest customers of large companies, thus reducing the effect of the loss
11 of such a customer? Or is the proportion a large customer represents of a company best
12 evaluated on a case-by-case basis rather than assuming that large customers have more
13 effect on small companies?

14 **Q. DID MR. D'ASCENDIS PRESENT DATA HE ASSERTS LINK SIZE AND**
15 **VOLATILITY OF RETURNS?**

16 A. Mr. D'Ascendis did present data showing the largest losses and gains from 1981-January
17 2022 for size deciles determined by market capitalization³⁵ and his own studies showing
18 connecting net profit to market capitalization. However, one of the criticisms of the size
19 return to equity premium in the literature I read is that the size premium was not present
20 when indicators of size other than market capitalization were studied.³⁶ Hence, the results
21 could not be replicated with other size indicators like income or revenues, calling into

³⁵ D'Ascendis Rebuttal, page 32, line 17-page 33, line 9.

³⁶ Damodaran, Aswath, "The Small Cap Premium: Where is the Beef?" Business Valuation Review, Volume 34, Number 4 (2015), page 154.

1 question their validity. This point and others were why I removed a size premium from my
2 analysis.

3 **Q. WAS THERE ANOTHER POINT YOU WANTED TO MAKE REGARDING THE**
4 **SIZE PREMIUM?**

5 A. Yes. There was academic literature that did find a size premium. For example, Mr.
6 D'Ascendis cited a 1999 article by Michael A. Paschall and George B. Hawkins that
7 advocates the view that small company stocks are more risky than large company stocks.
8 This literature dates to about 1981. The literature I read is more recent (2015 and after).
9 These studies raised questions about the earlier studies. They found that, among other
10 matters, investors do not require a greater return for smaller companies, and that the earlier
11 studies did not get the result of a greater risk for small companies when the starting or
12 ending points of the data collected for the studies ended.

13 **6. Proposed Capital Structure**

14 **Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND FOR NSP?**

15 A. I continued to recommend the same capital structure for NSP that I recommended in my
16 Direct Testimony. Mr. D'Ascendis asserted that the Company's requested capital common
17 equity ratio of 52.54 percent fell within the range of common equity ratios for the
18 Comparison Group. The range of common equity for the Comparison Group is 32.88
19 percent to 55.17 percent. The wide range means many common equity ratios fell within it.
20 In contrast, I calculated mean common equity ratios for various combinations of
21 Comparison Group members (excluding different extreme ratios). These means were lower

1 than the Company's requested ratio. The highest of the means was 47.20 percent.³⁷

2 Therefore, my recommended common equity ratio of 52.00 percent is reasonable.

3 **VI. RESPONSE TO MR. D'ASCENDIS' REMARKS REGARDING INFLATION AND**
4 **ROE**

5 **Q. PLEASE SUMMARIZE MR. D'ASCENDIS' ASSERTIONS REGARDING**
6 **INFLATION AND ROE.**

7 A. Mr. D'Ascendis asserted that inflation is currently at levels that exceeded the 2 percent
8 upper value of the range that prevailed from 2011-2021. Therefore, he asserted, the Federal
9 Open Market Committee ("FOMC") would implement a monetary policy intended to curb
10 the inflation rate. The policy would be several increases in the federal funds target rate, the
11 tool the FOMC uses to affect short-term interest rates, that would raise the rate by 125 basis
12 points. Because of the higher federal funds target rate, ROEs for natural-gas utilities would
13 increase.

14 **Q. DID YOU AGREE WITH MR. D'ASCENDIS THAT ROES FOR NATURAL GAS**
15 **WOULD INCREASE DUE TO HIGHER INFLATION?**

16 A. I agreed with Mr. D'Ascendis that ROEs for natural-gas companies could increase due to
17 inflation, with an increase in short-term interest rates by the FOMC being one mechanism
18 that would promote such an increase.

³⁷ Exhibit MFG-16, Schedule 2.

1 **Q. DOES THE COMMISSION NEED TO RESPOND TO THE PROSPECT OF**
2 **HIGHER INFLATION AND HIGHER ROES?**

3 A. No. Investors were aware of the increased inflation rate. It already affected their decisions,
4 including the prices they paid for common equity shares.³⁸ Thus, inflation was reflected in,
5 to cite one example, the dividend yields for the Comparison Group companies that were
6 included in my ROE analysis in this Surrebuttal Testimony. It also was working its way
7 through the other elements of the DCF and CAPM ROE models. Thus, if ROEs were going
8 to be higher, the increases would be reflected in the models. The Commission does not
9 need to take other action as it considers the ROE for NSP.

10 **VII. SUMMARY**

11 **Q. DID THE ABSENCE OF A RESPONSE TO MATTERS RAISED BY MR.**
12 **D'ASCENDIS IN HIS REBUTTAL TESTIMONY INDICATE YOU AGREED**
13 **WITH HIM?**

14 A. No. I did not address all the matters raised by Mr. D'Ascendis in his Rebuttal Testimony.
15 The absence of a response in this Surrebuttal Testimony indicated I have the same position
16 on those issues that I did in my direct testimony. For example, I still opposed Mr.
17 D'Ascendis' use of a group of companies from non-regulated businesses as being a
18 standard for setting an ROE for NSP. Such companies attained credit ratings like those for
19 regulated utilities such as NSP only by having higher ROEs than did the regulated utilities.
20 They required the higher returns to offset the greater volatility in their returns compared
21 with the low volatility of returns for the utilities. Therefore, despite having similar credit

³⁸ Mr. D'Ascendis agreed that investors are pricing expectations of FOMC increases in the federal funds target rate into their decisions. D'Ascendis Rebuttal, page 11, lines 10-16.

1 ratings, the ROEs for the non-regulated companies were not comparable to the ROEs for
2 the regulated natural-gas utilities.

3 **Q. WHAT ARE THE CRITERIA THE COMMISSION SHOULD CONSIDER IN**
4 **SETTING THE COMPANY'S ROE AND ROR?**

5 A. The Commission should only consider whether the ROE and ROR meet the *Bluefield* and
6 *Hope* criteria for a fair return. Recounting, these criteria include returns commensurate with
7 returns earned on other investments with equivalent risks, rate of return sufficient to enable
8 the utility to attract capital, and returns sufficient to enable the regulated company to
9 maintain its credit rating and financial integrity. The interpretation of the *Hope* and
10 *Bluefield* criteria is that a company should be given the opportunity to earn an ROE and
11 ROR sufficient to meet these standards.

12 **Q. WHAT DOES YOUR ROE ANALYSIS REFLECT?**

13 A. My ROE analysis reflects the latest views of investors regarding the prospects of the
14 Comparison Group companies. I have shown that the outcome of my forward-looking ROE
15 analysis is compatible with recent ROEs authorized for natural gas utilities.

16 **Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY AND OVERALL**
17 **COST OF CAPITAL?**

18 A. I recommend a return on equity of 9.54 percent and an overall rate of return of 6.91 percent.

19 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

20 A. Yes.

Southwest Gas Calls Part Of Icahn's Letter To Its Shareholders Were 'Blatantly Untrue' -- MarketWatch

Tuesday, April 5, 2022 7:26 AM CT

Shares of Southwest Gas Holdings Inc. (SWX) fell 0.9% in premarket trading Tuesday, pulling back from the 3 1/2-year closing high in the previous session, after the natural gas company said the public letter from Carl Icahn was "false and misleading." The company, which recently rejected Icahn's increased buyout bid, said Icahn's claim that Southwest was "playing games" with the record date of its \$400 million equity offering was "blatantly untrue," as the board proceeded with the offering "with full knowledge" that the purchasers of the newly issued shares would not be able to vote at the annual meeting. Southwest also said Icahn "falsely" claimed that he offered to pay \$82.50 a share to buy the entire offering, as the "illusory" offer was made after the public offering had already commenced. Separately, Southwest said it would be "illegal" for Icahn to buy its stock in a financing, given his pending buyout offer. Southwest's stock, which closed Monday at the highest price since November 2019, has run up 15.3% year to date while the S&P 500 has slipped 3.9%.

-Tomi Kilgore

For more from MarketWatch: <http://www.marketwatch.com/newsviewer>

(END) Dow Jones Newswires

April 05, 2022 08:26 ET (12:26 GMT)

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**ROE and ROR Analysis for Northern States Power
Federal Reserve Board Summary of Economic Projections**

**Docket No. PU-21-381
Exhibit MFG-S-4, Schedule 2**

For release at 2:00 p.m., EST, December 15, 2021

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, December 2021

Percent															
Variable	Median ¹					Central Tendency ²					Range ³				
	2021	2022	2023	2024	Longer run	2021	2022	2023	2024	Longer run	2021	2022	2023	2024	Longer run
Change in real GDP	5.5	4.0	2.2	2.0	1.8	5.5	3.6-4.5	2.0-2.5	1.8-2.0	1.8-2.0	5.3-5.8	3.2-4.6	1.8-2.8	1.7-2.3	1.6-2.2
September projection	5.9	3.8	2.5	2.0	1.8	5.8-6.0	3.4-4.5	2.2-2.5	2.0-2.2	1.8-2.0	5.5-6.3	3.1-4.9	1.8-3.0	1.8-2.5	1.6-2.2
Unemployment rate	4.3	3.5	3.5	3.5	4.0	4.2-4.3	3.4-3.7	3.2-3.6	3.2-3.7	3.8-4.2	4.0-4.4	3.0-4.0	2.8-4.0	3.1-4.0	3.5-4.3
September projection	4.8	3.8	3.5	3.5	4.0	4.6-4.8	3.6-4.0	3.3-3.7	3.3-3.6	3.8-4.3	4.5-5.1	3.0-4.0	2.8-4.0	3.0-4.0	3.5-4.5
PCE inflation	5.3	2.6	2.3	2.1	2.0	5.3-5.4	2.2-3.0	2.1-2.5	2.0-2.2	2.0	5.3-5.5	2.0-3.2	2.0-2.5	2.0-2.2	2.0
September projection	4.2	2.2	2.2	2.1	2.0	4.0-4.3	2.0-2.5	2.0-2.3	2.0-2.2	2.0	3.4-4.4	1.7-3.0	1.9-2.4	2.0-2.3	2.0
Core PCE inflation ⁴	4.4	2.7	2.3	2.1		4.4	2.5-3.0	2.1-2.4	2.0-2.2		4.4-4.5	2.4-3.2	2.0-2.5	2.0-2.3	
September projection	3.7	2.3	2.2	2.1		3.6-3.8	2.0-2.5	2.0-2.3	2.0-2.2		3.5-4.2	1.9-2.8	2.0-2.3	2.0-2.4	
Memo: Projected appropriate policy path															
Federal funds rate	0.1	0.9	1.6	2.1	2.5	0.1	0.6-0.9	1.4-1.9	1.9-2.9	2.3-2.5	0.1	0.4-1.1	1.1-2.1	1.9-3.1	2.0-3.0
September projection	0.1	0.3	1.0	1.8	2.5	0.1	0.1-0.4	0.4-1.1	0.9-2.1	2.3-2.5	0.1	0.1-0.6	0.1-1.6	0.6-2.6	2.0-3.0

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 21-22, 2021. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 21-22, 2021, meeting, and one participant did not submit such projections in conjunction with the December 14-15, 2021, meeting.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

Atmos Energy (ATO)

Date	Close
3/7/2022	\$ 116.01
3/8/2022	\$ 113.40
3/9/2022	\$ 112.18
3/10/2022	\$ 113.29
3/11/2022	\$ 113.74
3/14/2022	\$ 112.86
3/15/2022	\$ 114.11
3/16/2022	\$ 114.35
3/17/2022	\$ 114.47
3/18/2022	\$ 112.73
3/21/2022	\$ 115.24
3/22/2022	\$ 114.16
3/23/2022	\$ 114.31
3/24/2022	\$ 115.67
3/25/2022	\$ 118.52
3/28/2022	\$ 117.79
3/29/2022	\$ 119.18
3/30/2022	\$ 120.37
3/31/2022	\$ 119.49
4/1/2022	\$ 121.41

\$ 115.66

Chesapeake Utilities (CPK)

Date	Close
3/7/2022	\$ 141.89
3/8/2022	\$ 138.70
3/9/2022	\$ 138.32
3/10/2022	\$ 141.00
3/11/2022	\$ 140.51
3/14/2022	\$ 137.51
3/15/2022	\$ 137.50
3/16/2022	\$ 135.32
3/17/2022	\$ 135.86
3/18/2022	\$ 131.24
3/21/2022	\$ 134.60
3/22/2022	\$ 132.61
3/23/2022	\$ 131.24
3/24/2022	\$ 132.10
3/25/2022	\$ 134.52
3/28/2022	\$ 134.14
3/29/2022	\$ 138.49
3/30/2022	\$ 138.24
3/31/2022	\$ 137.76
4/1/2022	\$ 140.57

\$ 136.61

New Jersey Resources (NJR)

Date	Close
3/7/2022	\$ 45.44
3/8/2022	\$ 45.55
3/9/2022	\$ 44.01
3/10/2022	\$ 44.62
3/11/2022	\$ 44.03
3/14/2022	\$ 43.54
3/15/2022	\$ 43.43
3/16/2022	\$ 43.57
3/17/2022	\$ 43.49
3/18/2022	\$ 43.46
3/21/2022	\$ 44.27
3/22/2022	\$ 44.18
3/23/2022	\$ 43.79
3/24/2022	\$ 44.26
3/25/2022	\$ 45.52
3/28/2022	\$ 45.89
3/29/2022	\$ 46.38
3/30/2022	\$ 46.36
3/31/2022	\$ 45.86
4/1/2022	\$ 47.17

\$ 44.74

NiSource (NI)

Date	Close
3/7/2022	\$ 30.11
3/8/2022	\$ 29.61
3/9/2022	\$ 29.65
3/10/2022	\$ 29.92
3/11/2022	\$ 29.79
3/14/2022	\$ 29.61
3/15/2022	\$ 29.85
3/16/2022	\$ 30.09
3/17/2022	\$ 30.14
3/18/2022	\$ 30.09
3/21/2022	\$ 30.36
3/22/2022	\$ 30.22
3/23/2022	\$ 30.25
3/24/2022	\$ 30.54
3/25/2022	\$ 31.14
3/28/2022	\$ 31.05
3/29/2022	\$ 31.43
3/30/2022	\$ 31.61
3/31/2022	\$ 31.80
4/1/2022	\$ 32.08

\$ 30.47

ROE and ROR Analysis for NSP
 Comparison Group
 Common Equity Share Prices
 Yahoo! Finance March 7, 2022-April 1, 2022

Northwest Natural Gas (NWN)

Date	Close
3/7/2022	\$ 55.81
3/8/2022	\$ 56.27
3/9/2022	\$ 55.39
3/10/2022	\$ 56.40
3/11/2022	\$ 55.00
3/14/2022	\$ 54.56
3/15/2022	\$ 53.10
3/16/2022	\$ 53.18
3/17/2022	\$ 52.75
3/18/2022	\$ 52.68
3/21/2022	\$ 53.34
3/22/2022	\$ 52.64
3/23/2022	\$ 52.66
3/24/2022	\$ 53.14
3/25/2022	\$ 55.05
3/28/2022	\$ 54.59
3/29/2022	\$ 55.48
3/30/2022	\$ 51.34
3/31/2022	\$ 51.72
4/1/2022	\$ 51.91

\$ 53.85

ONE Gas, Inc. (OGS)

Date	Close
3/7/2022	\$ 88.87
3/8/2022	\$ 88.47
3/9/2022	\$ 83.84
3/10/2022	\$ 86.07
3/11/2022	\$ 86.15
3/14/2022	\$ 85.83
3/15/2022	\$ 85.10
3/16/2022	\$ 83.45
3/17/2022	\$ 83.87
3/18/2022	\$ 82.50
3/21/2022	\$ 84.48
3/22/2022	\$ 83.56
3/23/2022	\$ 83.27
3/24/2022	\$ 84.20
3/25/2022	\$ 86.84
3/28/2022	\$ 87.20
3/29/2022	\$ 87.71
3/30/2022	\$ 88.50
3/31/2022	\$ 88.24
4/1/2022	\$ 89.53

\$ 85.88

South Jersey Industries

Date	Close
3/7/2022	\$ 34.83
3/8/2022	\$ 34.76
3/9/2022	\$ 35.05
3/10/2022	\$ 35.14
3/11/2022	\$ 34.86
3/14/2022	\$ 34.59
3/15/2022	\$ 34.32
3/16/2022	\$ 34.58
3/17/2022	\$ 34.40
3/18/2022	\$ 34.01
3/21/2022	\$ 33.97
3/22/2022	\$ 33.94
3/23/2022	\$ 33.91
3/24/2022	\$ 34.01
3/25/2022	\$ 34.14
3/28/2022	\$ 34.13
3/29/2022	\$ 34.45
3/30/2022	\$ 34.41
3/31/2022	\$ 34.55
4/1/2022	\$ 34.85

\$ 34.44

Southwest Gas (SWX)

Date	Close
3/7/2022	\$ 74.30
3/8/2022	\$ 72.40
3/9/2022	\$ 70.75
3/10/2022	\$ 72.31
3/11/2022	\$ 72.59
3/14/2022	\$ 77.41
3/15/2022	\$ 76.96
3/16/2022	\$ 77.94
3/17/2022	\$ 76.51
3/18/2022	\$ 78.61
3/21/2022	\$ 78.15
3/22/2022	\$ 76.21
3/23/2022	\$ 76.42
3/24/2022	\$ 78.06
3/25/2022	\$ 79.09
3/28/2022	\$ 79.31
3/29/2022	\$ 78.50
3/30/2022	\$ 79.01
3/31/2022	\$ 78.29
4/1/2022	\$ 80.04

\$ 76.64

**ROE and ROR Analysis for NSP
Comparison Group
Common Equity Share Prices
Yahoo! Finance March 7, 2022-April 1, 2022**

**Docket No. PU-21-381
Exhibit MFG-S-2
Page 3 of 61**

ROE and ROR Analysis for NSP
Comparison Group
Common Equity Share Prices
Yahoo! Finance March 7, 2022-April 1, 2022

Spire Inc. (SR)

<u>Date</u>	<u>Close</u>
3/7/2022	\$ 71.55
3/8/2022	\$ 70.21
3/9/2022	\$ 68.60
3/10/2022	\$ 68.23
3/11/2022	\$ 68.63
3/14/2022	\$ 67.93
3/15/2022	\$ 67.79
3/16/2022	\$ 67.09
3/17/2022	\$ 67.36
3/18/2022	\$ 66.35
3/21/2022	\$ 67.67
3/22/2022	\$ 67.27
3/23/2022	\$ 66.88
3/24/2022	\$ 67.13
3/25/2022	\$ 69.20
3/28/2022	\$ 69.47
3/29/2022	\$ 70.98
3/30/2022	\$ 71.76
3/31/2022	\$ 71.76
4/1/2022	\$ 72.63
Mean	\$ 68.92

**ROE and ROR Analysis for Northern States Power
Comparison Group
Dividends**

**Docket No. PU-21-381
Exhibit MFG-S-3**

Name	Value Line	Zacks	Highest
Atmos Energy Corporation	\$ 2.82	\$ 2.72	\$ 2.82
Chesapeake Utilities	\$ 2.04	\$ 1.92	\$ 2.04
New Jersey Resources Corporation	\$ 1.45	\$ 1.45	\$ 1.45
NiSource	\$ 0.94	\$ 0.94	\$ 0.94
Northwest Natural Holding Company	\$ 1.93	\$ 1.93	\$ 1.93
ONE Gas, Inc.	\$ 2.52	\$ 2.48	\$ 2.52
South Jersey Industries	\$ 1.25	\$ 1.24	\$ 1.25
Southwest Gas	\$ 2.48	\$ 2.38	\$ 2.48
Spire, Inc.	\$ 2.77	\$ 2.74	\$ 2.77

Value Line Gas dividends taken from Analyzer April 14, 2022

Zacks Gas dividends taken from website on April 14, 2022.

ROE and ROR Analysis for Northern States Power
Comparison Group
Discounted Cash Flow Model Analysis
Common Equity Share Prices--March 7-April 1, 2022
Zacks, Yahoo! Finance, and Value Line EPS Growth-Rate Estimates--April 2022

Docket No. PU-21-381
Exhibit MFG-S-4, Schedule 1

Company Name	A	B	C	D	E	F
	Zacks EPS Growth Rate (%)	Yahoo! Finance EPS Growth Rates (%)	Value Line EPS Growth Rates (%)	Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)	Average of Closing Prices	Annualized Dividend
Atmos Energy Corporation	7.28%	7.30%	7.50%	7.36%	\$ 115.66	\$ 2.82
Chesapeake Utilities	NA	7.00%	8.00%	7.50%	\$ 136.61	\$ 2.04
New Jersey Resources Corporation	6.00%	6.00%	4.50%	5.50%	\$ 44.74	\$ 1.45
NiSource, Inc.	7.19%	3.52%	9.00%	6.57%	\$ 30.47	\$ 0.94
Northwest Natural Holding Company	4.53%	4.60%	5.50%	4.88%	\$ 53.85	\$ 1.93
ONE Gas, Inc.	5.00%	2.90%	6.00%	4.63%	\$ 85.88	\$ 2.52
South Jersey Industries	NA	5.20%	10.00%	7.60%	\$ 34.44	\$ 1.25
Southwest Gas	5.00%	4.00%	8.00%	5.67%	\$ 76.64	\$ 2.48
Spire Inc.	5.30%	4.30%	9.00%	6.20%	\$ 68.92	\$ 2.77
Mean	5.76%	4.98%	7.50%	6.21%		

Company Name	G	H	I	J	K
	Dividend Yield (Rate/Price)	Expected Dividend Yield	Adjusted Dividend Yield	Required Rate of Return on Equity	Exceeds 6.50% Mean of Value Line and IBES Low-End Tests
Atmos Energy Corporation	2.44%	2.62%	2.64%	10.00%	Yes
Chesapeake Utilities	1.49%	1.61%	1.62%	9.12%	Yes
New Jersey Resources Corporation	3.24%	3.42%	3.45%	8.95%	Yes
NiSource, Inc.	3.09%	3.29%	3.32%	9.89%	Yes
Northwest Natural Holding Company	3.59%	3.76%	3.80%	8.67%	Yes
ONE Gas, Inc.	2.93%	3.07%	3.10%	7.73%	Yes
South Jersey Industries	3.63%	3.90%	3.94%	11.54%	Yes
Southwest Gas	3.24%	3.42%	3.45%	9.12%	Yes
Spire Inc.	4.02%	4.27%	4.31%	10.51%	Yes

Excluded	Mean	Median	Flotation Percentage
	3.07%	3.26%	Average of issuance costs 2013-2019
		3.29%	0.925%
		9.50%	
		9.12%	
		9.29%	
		9.42%	

A: Zacks website, April 14, 2022
B: Yahoo! Finance website: April 14, 2022
C: Value Line Analyzer, April 14, 2022
E: Yahoo! Finance website: March 7-April 1, 2022. See Exhibit MFG-S-2, Pages 1-3.
F: Higher of Value Line Analyzer, April 14, 2022; or Zacks website, April 14, 2022. See Exhibit MFG-S-3.
K: See Exhibit MFG-S-5, Schedule 8.

D: $(A + B + C)/3$

G: F/E

H: $G*(1+D)$

I: $H/(1 - 0.00925)$

J: $D + I$

w/o CPK, SJI, SWX

Table VI.G6.—Selected Economic Variables, Calendar Years 2020-2095
 [GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ^a	Average wage index	Taxable payroll ^b	Gross domestic product	Compound new-issue interest factor ^c	Compound effective trust-fund interest factor ^d
Intermediate:						
2020	97.03	\$55,576.9400	\$7,705	\$20,937	0.9902	0.9870
2021	100.00	\$59,064.6700	8,155	22,382	1.0000	1.0123
2022	102.40	\$61,600.9000	8,572	23,714	1.0154	1.0363
2023	104.85	\$63,849.6700	9,005	24,815	1.0340	1.0594
2024	107.37	\$66,000.8600	9,415	25,895	1.0550	1.0821
2025	109.95	\$68,383.1500	9,826	27,041	1.0804	1.1049
2026	115.33	70,300.71	10,282	28,709	1.2229	1.1809
2027	118.09	73,036.06	10,720	29,917	1.2776	1.2142
2028	120.93	75,872.79	11,176	31,179	1.3364	1.2501
2029	123.83	78,696.64	11,629	32,475	1.3989	1.2888
2030	123.79	\$81,801.3400	12,021	33,151	1.3210	1.2547
2035	139.38	\$97,827.8300	14,555	40,505	1.6663	1.5109
2040	156.92	\$116,851.6200	17,515	49,247	2.1020	1.9025
2045	176.68	\$138,872.1900	21,098	59,903	2.6517	2.3997
2050	198.92	\$164,898.7100	25,500	73,006	3.3450	3.0272
2055	223.97	\$196,130.9000	30,932	89,182	4.2196	3.8188
2060	252.17	\$233,491.3000	37,570	108,977	5.3230	4.8173
2065	283.91	\$278,165.3100	45,583	132,996	6.7148	6.0768
2070	319.66	\$331,313.4200	55,224	162,027	8.4705	7.6658
2075	359.90	\$394,448.3300	66,921	197,375	10.6853	9.6701
2080	405.21	\$469,352.3500	81,281	241,032	13.4792	12.1986
2085	456.23	\$558,173.4500	99,039	295,310	17.0037	15.3882
2090	513.67	\$664,200.3200	120,985	362,422	21.4497	19.4118
2095	578.34	\$790,959.9900	147,837	444,359	27.0582	24.4875
Growth Rate 2028-2050*				3.94%		

Source: Social Security 2021 Trustees' Report

* = (2050/2028)^(1/22) - 1

ROE and ROR Analysis for Northern States Power
 U.S Energy Information Administration Long-Term Growth Rate

Docket No. PU-21-381
 Exhibit MFG-S-4
 Schedule 4

Source: U.S. Energy Information Administration, Annual Energy Outlook 2021

Table 20. Macroeconomic Indicators

(Billions 2012 chain-weighted dollars unless otherwise noted)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Real Gross Domestic Product													
Reference case	18,171	18,739	19,535	20,170	20,683	21,193	21,654	22,078	22,477	22,858	23,289		
Price Indices													
GDP Chain-type Price Index (2012=1.000)													
Reference case	1.13	1.15	1.16	1.17	1.19	1.22	1.25	1.28	1.31	1.35	1.38		
	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040			
Real Gross Domestic Product													
Reference case	23,760	24,257	24,770	25,311	25,842	26,332	26,809	27,308	27,826	28,371			
Price Indices													
GDP Chain-type Price Index (2012=1.000)													
Reference case	1.42	1.45	1.49	1.52	1.55	1.59	1.62	1.65	1.69	1.72			
	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050		Growth	
Real Gross Domestic Product												Rate 2028-	
Reference case	28,925	29,509	30,116	30,723	31,317	31,909	32,502	33,120	33,746	34,365		2050	
												<u>1.95%</u>	
Price Indices													
GDP Chain-type Price Index (2012=1.000)													
Reference case	1.76	1.80	1.84	1.88	1.93	1.98	2.03	2.09	2.15	2.21		<u>2.40%</u>	
											Total	4.35%	

ROE and ROR Analysis for Northern States Power
 DCF Analysis
 Common Equity Share Prices: January 1-28, 2022
 Multistage DCF with Zacks, Yahoo! Finance, and Value Line EPS Growth-Rate
 Estimates; 2021 SSA and 2021 EIA long-term growth rates

Docket No. PU-21-381
 Exhibit MFG-S-4
 Schedule 5

Company Name	A	B	C	D	E	F	G	H	I
	Zacks EPS Growth Rate (%)	Yahoo! Finance EPS Growth Rates (%)	Value Line EPS Growth Rates (%)	Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)	Average of Closing Prices	Annualized Dividend	Dividend Yield (Rate/Price)	Expected Dividend Yield	Adjusted Dividend Yield
Atmos Energy Corporation	7.28%	7.30%	7.50%	7.36%	\$ 115.66	\$ 2.82	2.44%	2.62%	2.64%
Chesapeake Utilities	NA	7.00%	8.00%	7.50%	\$ 136.61	\$ 2.04	1.49%	1.61%	1.62%
New Jersey Resources Corporation	6.00%	6.00%	4.50%	5.50%	\$ 44.74	\$ 1.45	3.24%	3.42%	3.45%
NiSource, Inc.	7.19%	3.52%	9.00%	6.57%	\$ 30.47	\$ 0.94	3.09%	3.29%	3.32%
Northwest Natural Holding Company	4.53%	4.60%	5.50%	4.88%	\$ 53.85	\$ 1.93	3.59%	3.76%	3.80%
ONE Gas, Inc.	5.00%	2.90%	6.00%	4.63%	\$ 85.88	\$ 2.52	2.93%	3.07%	3.10%
South Jersey Industries	NA	5.20%	10.00%	7.60%	\$ 34.44	\$ 1.25	3.63%	3.90%	3.94%
Southwest Gas	5.00%	4.00%	8.00%	5.67%	\$ 76.64	\$ 2.48	3.24%	3.42%	3.45%
Spire Inc.	5.30%	4.30%	9.00%	6.20%	\$ 68.92	\$ 2.77	4.02%	4.27%	4.31%
Mean	5.76%	4.98%	7.50%	6.21%			3.07%	3.26%	

Company Name	I	J	K	L	M	N	O	P
	SSA Long-Run Projected EPS Growth Rate 3.94%	SSA Long-Run Weighted EPS Growth Rate 3.95%	SSA Weighted Cost of Equity, Long-Run Rate	EIA Long-Run Projected Growth Rate, 4.35%	EIA Long-Run Weighted Projected Growth Rate 4.35%	EIA Weighted Cost of Equity, Long-Run Rate	Multistage Mean Cost of Equity	Exceeds 6.50% Mean of Value Line and IBES Low-End Tests
Atmos Energy Corporation	3.94%	6.22%	8.86%	4.35%	6.36%	9.00%	8.93%	Yes
Chesapeake Utilities	3.94%	6.31%	7.93%	4.35%	6.45%	8.07%	8.00%	Yes
New Jersey Resources Corporation	3.94%	4.98%	8.43%	4.35%	5.12%	8.57%	8.50%	Yes
NiSource, Inc.	3.94%	5.69%	9.01%	4.35%	5.83%	9.15%	9.08%	Yes
Northwest Natural Holding Company	3.94%	4.56%	8.36%	4.35%	4.70%	8.50%	8.43%	Yes
ONE Gas, Inc.	3.94%	4.40%	7.50%	4.35%	4.54%	7.64%	7.57%	Yes
South Jersey Industries	3.94%	6.38%	10.32%	4.35%	6.52%	10.46%	10.39%	Yes
Southwest Gas	3.94%	5.09%	8.54%	4.35%	5.23%	8.68%	8.61%	Yes
Spire Inc.	3.94%	5.45%	9.75%	4.35%	5.58%	9.89%	9.82%	Yes
Excluded	Mean	5.45%	8.75%		5.59%	8.88%	8.81%	Mean
	Median		8.54%			8.68%	8.61%	Median
			8.65%			8.79%	8.72%	w/o CPK, SJI,
			8.65%			8.78%	8.71%	SWX

A: Zacks website, April 14, 2022

B: Yahoo! Finance website: April 14, 2022

C: Value Line Analyzer, April 14, 2022

E: Yahoo! Finance website: March 7-April 1, 2022. See Exhibit MFG-11.

F: Higher of Value Line Investment report, February 25, 2022; or Zacks website, February 21, 2022. See Exhibit ____ (MFG-12).

I: U.S. Social Security Administration, The 2021 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, (OASDI Trustees Report), Table VIG6. See Exhibit MFG-S-4, Schedule 3.

L: U.S. Energy Information Administration, *Annual Energy Outlook 2021, Macroeconomic Indicators* (Real GDP Growth + GDP Chain-Type Index Increase 2018-2050), <https://www.eia.gov/analysis/projection-data.php#annualproj>. See Exhibit MFG-S-4, Schedule 4.

P: See Exhibit MFG-S-5, Schedule 8.

D: = (A + B + C)/3

G: = F/E

H: = G*(1+D)

J: = 2/3*D + 1/3*I

M: = 2/3*D + 1/3*L

O: = (K + N)/2

I: = H/(1 - 0.00925)

K: = H + J

N: = H + M

ROE and ROR Analysis for Northern States Power
 CAPM Analysis
 Risk-Free Rate Analysis

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 1

Daily Treasury Yield Curve Rates

March 7, 2022-April 1, 2022

Date	1 mo	2 mo	3 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
4/1/2022	0.15	0.37	0.53	1.09	1.72	2.44	2.61	2.55	2.50	2.39	2.60	2.44
3/31/2022	0.17	0.35	0.52	1.06	1.63	2.28	2.45	2.42	2.40	2.32	2.59	2.44
3/30/2022	0.16	0.33	0.55	1.04	1.64	2.31	2.49	2.44	2.43	2.35	2.63	2.48
3/29/2022	0.18	0.34	0.55	1.06	1.67	2.35	2.54	2.49	2.50	2.41	2.68	2.53
3/28/2022	0.19	0.36	0.59	1.08	1.69	2.35	2.55	2.54	2.55	2.46	2.72	2.57
3/25/2022	0.17	0.32	0.55	1.01	1.67	2.30	2.51	2.55	2.56	2.48	2.74	2.60
3/24/2022	0.16	0.31	0.52	0.96	1.55	2.13	2.35	2.37	2.39	2.34	2.63	2.51
3/23/2022	0.15	0.27	0.50	0.93	1.52	2.13	2.32	2.34	2.37	2.32	2.65	2.52
3/22/2022	0.20	0.30	0.51	0.96	1.59	2.18	2.38	2.39	2.42	2.38	2.71	2.60
3/21/2022	0.22	0.33	0.54	0.95	1.40	2.14	2.34	2.33	2.36	2.32	2.67	2.55
3/18/2022	0.19	0.28	0.42	0.83	1.29	1.97	2.15	2.14	2.17	2.14	2.53	2.42
3/17/2022	0.20	0.30	0.40	0.81	1.30	1.94	2.14	2.17	2.22	2.20	2.60	2.50
3/16/2022	0.24	0.30	0.44	0.86	1.35	1.95	2.14	2.18	2.22	2.19	2.56	2.46
3/15/2022	0.22	0.31	0.46	0.86	1.28	1.85	2.04	2.10	2.16	2.15	2.57	2.49
3/14/2022	0.23	0.32	0.45	0.86	1.28	1.87	2.04	2.10	2.16	2.14	2.56	2.47
3/11/2022	0.17	0.28	0.40	0.78	1.22	1.75	1.91	1.96	2.01	2.00	2.45	2.36
3/10/2022	0.19	0.28	0.39	0.75	1.19	1.72	1.88	1.92	1.98	1.98	2.45	2.38
3/9/2022	0.18	0.26	0.38	0.75	1.15	1.68	1.83	1.87	1.92	1.94	2.38	2.29
3/8/2022	0.16	0.24	0.36	0.72	1.12	1.63	1.78	1.80	1.85	1.86	2.34	2.24
3/7/2022	0.17	0.23	0.38	0.75	1.07	1.55	1.68	1.71	1.77	1.78	2.29	2.19
											Mean	2.45

ROE and ROR Analysis for Northern States Power
CAPM Analysis
Beta calculation for Comparison Group
Value Line Analyzer April 14, 2022

Docket No. PU-21-381
Exhibit MFG-S-2, Schedule 2

<u>Company Name</u>	<u>Value Line Betas-- Comparison Group</u>
Atmos Energy Corporation	0.80
Chesapeake Utilities	0.80
New Jersey Resources Corporation	1.00
NiSource, Inc.	0.85
Northwest Natural Holding Company	0.80
ONE Gas, Inc.	0.80
South Jersey Industries	1.00
Southwest Gas	0.95
Spire Inc.	0.85

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Constant-Growth DCF Analysis for S&P 500--IBES

All companies shown

A: Yahoo! Finance, April 14, 2022

B and E: Value Line Analyzer, April 14, 2022

$C = B * (1 + A/100)$

$D = A + C$

$F = E / (\text{Sum of } E)$

$G = D * F$

Companies Excluded

Companies not paying dividends

Companies with EPS \leq 0%

Companies with EPS $>$ 20%

EPS

Market

Return

%

13.38

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market Cap \$	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	(Mil)	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity		Weight	Return on	
				(%)		Factor	Equity (%)	

Companies not paying dividends

ABIOMED Inc.	10.48	0.00			12,441.98			1.05
Adobe Inc.	15.35	0.00			203,988.75			0.75
Advanced Micro Dev.	35.32	0.00			132,480.31			1.15
Akamai Technologies	12.00	0.00			16,060.49			0.65
Alaska Air Group	-23.40	0.00			7,028.07			1.50
Align Techn.	43.25	0.00			38,058.70			1.35
Alphabet Inc.	21.00	0.00			1,696,069.25			0.90
Alphabet Inc. 'A'	21.00	0.00			1,703,649.25			0.90
Amazon.com	36.00	0.00			1,474,338.88			0.70
Amer. Airlines	-105.10	0.00			10,774.02			1.60
ANSYS, Inc.	11.42	0.00			25,878.41			0.90
Aptiv PLC	49.34	0.00			36,045.99			1.25
Arista Networks	17.66	0.00			36,358.66			1.05

Risk and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU- 1
 Exhibit MFG-S-5, Schedule 3
 Page 13 of 61

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%) Beta
Autodesk, Inc.	28.83	0.00			46,026.20		0.95
AutoZone Inc.	14.00	0.00			37,094.95		0.95
Bio-Rad Labs. 'A'	17.80	0.00			17,125.66		0.75
Biogen	-9.20	0.00			30,734.76		0.85
Boeing	20.17	0.00			115,675.09		1.80
Booking Holdings	211.41	0.00			101,418.63		1.15
Boston Scientific	15.06	0.00			62,275.12		1.10
Cadence Design Sys.	18.20	0.00			39,043.63		0.90
CarMax, Inc.	16.40	0.00			16,243.86		1.25
Carnival Corp.	9.95	0.00			22,958.56		1.70
Catalent, Inc.	15.80	0.00			16,864.72		1.00
CBRE Group	11.00	0.00			32,142.46		1.45
Centene Corp.	10.80	0.00			47,467.73		1.05
Ceridian HCM Holding Inc	12.00	0.00			9,917.94		1.10
Charles River	15.56	0.00			14,308.94		1.20
Charter Communic.	36.94	0.00			98,566.01		0.85
Chipotle Mex. Grill	44.64	0.00			40,123.23		0.95
Copart, Inc.	22.30	0.00			27,937.55		1.05
Coterra Energy Inc	73.31	0.00					-
DaVita Inc.	14.44	0.00			10,948.90		1.00
Delta Air Lines	-23.70	0.00			25,722.16		1.55
DexCom Inc.	18.50	0.00			36,464.44		0.95
Discovery Communic. 'C'	20.00	0.00			13,689.57		1.10
Discovery, Inc.	3.54	0.00			14,274.26		1.05
Dish Network 'A'	-25.56	0.00			14,578.30		1.30
Disney (Walt)	37.88	0.00			259,794.47		1.00
Dollar Tree, Inc.	14.90	0.00			30,639.01		0.75

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 3
 Page 14 of 61

	A	B	C	D	E	F	G
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted
	Growth	Yield	Dividend	Return on	Cap \$	Cap	Rate of
Company Name	Rate (%)	(%)	Yield (%)	Equity	(Mil)	Weight	Return on
				(%)		Factor	Equity (%)
							Beta
DXC Technology	28.40	0.00			8,456.71		1.55
Edwards Lifesciences	15.31	0.00			65,736.45		1.05
Enphase Energy	28.50	0.00			17,066.36		0.95
Etsy, Inc.	40.30	0.00			14,738.98		1.15
Expedia Group	22.80	0.00			30,081.92		1.30
F5, Inc.	12.80	0.00			11,813.15		0.95
Fiserv Inc.	18.73	0.00			61,116.00		1.00
FLEETCOR Technologies	16.35	0.00			19,071.79		1.05
Fortinet Inc.	16.83	0.00			46,488.94		0.90
Gartner Inc.	21.60	0.00			22,688.80		1.20
Gen'l Motors	15.20	0.00			67,337.27		1.30
Generac Holdings	8.00	0.00			17,267.21		1.05
Hilton Worldwide Hldgs.	272.65	0.00			39,959.94		1.10
Hologic, Inc.	4.10	0.00			17,851.94		1.00
Host Hotels & Resorts	28.40	0.00			12,937.04		1.10
IDEXX Labs.	24.30	0.00			40,290.84		1.00
Illumina Inc.	5.50	0.00			49,498.96		1.10
Incyte Corp.	15.00	0.00			15,047.89		0.75
Intuitive Surgical	17.21	0.00			98,904.05		1.25
IPG Photonics	31.50	0.00			7,189.25		0.90
IQVIA Holdings	22.13	0.00			42,519.05		1.20
Keysight Technologies	12.00	0.00			28,245.38		0.85
Laboratory Corp.	-9.00	0.00			25,720.38		1.10
Las Vegas Sands	265.70	0.00			34,494.60		1.05
Live Nation Entertain.	80.30	0.00			25,476.44		1.30
Marriott Int'l	232.23	0.00			54,707.83		1.30
Match Group	29.60	0.00			28,986.74		1.00

Risk and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Meta Platforms	21.35	0.00			543,951.50			0.95
Mettler-Toledo Int'l	17.80	0.00			31,538.19			0.95
Moderna, Inc.	16.80	0.00			54,970.65			0.45
Mohawk Inds.	23.60	0.00			9,440.75			1.40
Monster Beverage	14.21	0.00			42,018.38			0.85
Netflix, Inc.	42.61	0.00			163,138.66			0.70
Norwegian Cruise Line	-24.13	0.00			7,137.92			1.85
NVR, Inc.	4.80	0.00			15,982.29			1.10
O'Reilly Automotive	12.30	0.00			42,760.00			0.95
Organon & Co.	-5.50	0.00			9,000.85			-
Paycom Software	26.45	0.00			18,262.68			1.10
PayPal Holdings	20.43	0.00			118,245.28			0.95
Penn Nat'l Gaming	239.50	0.00			7,418.81			1.80
PTC Inc.	16.45	0.00			12,451.33			1.10
Qorvo Inc.	14.50	0.00			14,143.14			1.05
Regeneron Pharmac.	13.00	0.00			66,180.29			0.60
Royal Caribbean	58.70	0.00			20,395.86			1.70
salesforce.com	10.02	0.00			187,491.38			0.85
Schein (Henry)	16.57	0.00			11,657.70			1.10
ServiceNow, Inc.	26.29	0.00			104,412.66			0.85
Southwest Airlines	-21.00	0.00			26,059.20			1.05
SVB Fin'l Group	8.00	0.00			34,342.48			1.20
Synopsys, Inc.	14.90	0.00			43,759.19			1.00
T-Mobile US	42.60	0.00			151,704.55			0.75
Take-Two Interactive	13.61	0.00			18,200.75			0.60
Teledyne Technologies	23.27	0.00			18,975.11			1.15
Tesla, Inc.	72.95	0.00			767,096.19			1.30

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
TransDigm Group	25.90	0.00			34,755.62			1.20
Trimble Inc.	10.00	0.00			16,234.68			1.20
Twitter Inc.	80.00	0.00			26,192.44			1.00
Tyler Technologies	10.00	0.00			19,133.14			0.75
Ulta Beauty	62.03	0.00			19,234.14			1.30
Under Armour 'A'	27.80	0.00			7,517.41			1.30
Under Armour 'C'	21.80	0.00			6,593.81			1.30
United Airlines Hldgs.	-129.10	0.00			14,198.94			1.60
United Rentals	21.23	0.00			21,668.36			1.50
VeriSign Inc.	8.00	0.00			22,583.77			0.90
Vertex Pharmac.	10.25	0.00			59,104.16			0.75
Viatis Inc.	-0.35	0.00			17,318.31			-
Waters Corp.	10.60	0.00			18,750.13			0.95
Western Digital	20.00	0.00			16,269.74			1.30
Wynn Resorts	-116.20	0.00			10,084.31			1.50
Zebra Techn. 'A'	10.00	0.00			21,328.07			1.00

Companies with EPS < 0%

Allstate Corp.	-5.00	2.76			35,504.64			1.00
AMETEK, Inc.	-1.20	0.70			28,904.47			1.15
AT&T Inc.	-0.92	8.85			167,886.41			0.80
Celanese Corp.	-2.22	2.09			15,121.43			1.15
Chevron Corp.	-4.90	4.19			261,297.81			1.30

Rid ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Citizens Fin'l Group	-2.76	3.09			22,098.47			1.45
Clorox Co.	-1.74	3.14			18,142.26			0.40
Comerica Inc.	-10.70	2.91			12,212.79			1.30
ConocoPhillips	-1.80	2.09			114,896.89			1.30
Exelon Corp.	-0.47	3.30			40,081.69			0.95
Fifth Third Bancorp	-2.98	2.67			32,537.39			1.45
FirstEnergy Corp.	-6.60	3.99			21,569.92			0.85
Hess Corp.	-23.40	1.07			29,095.76			1.40
Huntington Bancshs.	-2.15	4.05			22,130.85			1.30
Kimberly-Clark	-0.96	3.52			44,430.00			0.70
Kraft Heinz Co.	-2.44	3.99			49,202.70			0.85
Linde plc	-	1.61			149,199.66			0.95
Lumen Technologies	-11.70	10.40			9,918.80			0.95
Marathon Oil Corp.	-2.40	1.75			17,152.86			1.50
MGM Resorts Int'l	-383.00	0.02			19,954.05			1.80
Newmont Corp.	-	3.22			54,736.50			0.60
News Corp. 'B'	-	0.93			12,598.98			1.15
Phillips 66	-11.15	4.44			36,791.64			1.35
PNC Financial Serv.	-4.26	2.51			84,181.23			1.20
PPL Corp.	-16.20	3.07			19,838.84			1.10
Progressive Corp.	-10.10	0.38			61,202.70			0.75
Prologis	-6.05	1.93			104,075.27			1.00
PVH Corp.	-6.04	0.15			6,853.93			1.85
Quest Diagnostics	-7.78	2.05			15,878.07			0.80
Starbucks Corp.	-	2.23			103,240.93			1.00
UDR, Inc.	-34.21	2.90			15,972.56			1.00
Valero Energy	-13.80	4.54			35,301.70			1.60

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Ventas, Inc.	-19.70	3.82			19,221.19			1.30
ViacomCBS B	-6.27	2.60			23,800.00			1.45
Visa Inc.	-	0.72			413,760.22			
Zions Bancorp.	-32.40	2.18			10,911.71			1.20

Companies with EPS > 20%

Albemarle Corp.	29.83	0.86			21,289.63			1.25
Amer. Express	23.07	1.10			147,003.11			1.30
Amer. Int'l Group	30.69	2.08			51,434.89			1.50
Ameriprise Fin'l	26.39	1.55			32,770.76			1.40
APA Corp.	26.50	1.62			11,653.74			1.95
Baker Hughes	50.90	2.48			24,953.95			1.30
BorgWarner	27.80	1.61			10,144.96			1.20
Capital One Fin'l	45.20	1.61			64,328.30			1.45
Caterpillar Inc.	21.06	2.38			100,977.65			1.15
CF Industries	62.70	1.75			15,953.24			1.15
Chubb Ltd.	28.83	1.59			86,782.73			1.10
Corning Inc.	22.14	2.68			33,672.51			1.15
Corteva, Inc.	24.87	1.15			36,631.49			0.90
Danaher Corp.	22.30	0.32			187,477.67			0.80
Darden Restaurants	30.10	3.19			17,760.02			1.50
Dentsply Sirona	24.97	0.79			12,114.81			1.10
Devon Energy	25.00	1.20			36,253.35			1.60
Diamondback Energy	56.96	1.54			23,423.28			1.60

Revised ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-1
 Exhibit MFG-S-5, Schedule 3
 Page 19 of 61

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%) Beta
Digital Realty Trust	24.30	3.71			37,062.75		0.75
Discover Fin'l Svcs.	55.60	1.67			35,377.10		1.70
Dow Inc.	56.01	5.00			44,090.84		1.10
Eastman Chemical	20.40	2.55			15,996.32		1.25
Eaton Corp. plc	21.24	2.04			59,514.96		1.25
Electronic Arts	27.01	0.60			35,749.87		0.60
EOG Resources	71.10	2.72			64,542.06		1.25
Equinix, Inc.	37.00	1.85			61,056.63		0.80
Everest Re Group Ltd.	62.29	2.15			11,816.85		1.00
Ford Motor	77.67	2.36			69,715.35		1.30
Fortive Corp.	39.23	0.45			22,434.02		1.15
Fortune Brands Home	20.00	1.33			11,430.16		1.25
Freep't-McMoRan Inc.	28.90	1.41			67,978.46		1.55
Global Payments	20.26	0.75			38,732.41		1.20
Halliburton Co.	60.10	1.51			28,385.28		1.70
Howmet Aerospace	33.55	0.24			14,444.24		1.65
Hunt (J.B.)	23.00	0.85			19,822.44		0.95
Ingersoll Rand Inc.	21.77	0.15			21,191.09		1.20
Invesco Ltd.	21.30	3.78			9,749.77		1.45
L3Harris Technologies	41.80	1.89			42,564.79		1.00
Lennar Corp.	23.70	1.82			24,652.40		1.30
Lincoln Nat'l Corp.	43.93	2.70			12,019.00		1.95
LKQ Corp.	33.50	2.20			13,294.18		1.50
LyondellBasell Inds.	47.01	4.59			32,848.92		1.35
Marathon Petroleum	43.80	3.06			47,097.84		1.70
Martin Marietta	20.05	0.67			22,800.34		1.15
MasterCard Inc.	26.18	0.54			355,450.31		1.10

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 3
 Page 20 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
McDonald's Corp.	21.60	2.26			185,159.84			0.95
Micron Technology	23.80	0.46			97,787.20			1.15
Monolithic Power Sys.	25.00	0.69			19,884.12			1.00
Morgan Stanley	145.20	2.99			168,287.84			1.30
NRG Energy	43.10	3.80			9,017.66			1.15
Nucor Corp.	34.99	1.70			33,718.45			1.20
NVIDIA Corp.	39.37	0.07			560,122.75			1.15
NXP Semi. NV	21.74	1.83			51,929.94			1.15
Occidental Petroleum	37.40	0.21			36,135.73			1.65
Old Dominion Freight	29.29	0.43			32,488.30			0.95
PACCAR Inc.	28.25	3.13			31,692.42			1.10
PerkinElmer Inc.	37.90	0.16			21,879.29			0.90
Pfizer, Inc.	100.10	3.41			262,987.59			0.80
Pioneer Natural Res.	77.75	6.46			54,993.36			1.30
PulteGroup, Inc.	23.70	1.34			11,440.33			1.40
Qualcomm Inc.	25.62	1.68			181,822.50			1.00
Ralph Lauren	74.89	2.13			9,191.92			1.25
Raytheon Technologies	22.80	2.21			137,652.53			-
Regions Financial	25.20	3.07			22,356.03			1.40
ResMed Inc.	23.30	0.72			34,101.03			0.90
Robert Half Int'l	31.00	1.49			12,831.38			1.20
Ross Stores	93.74	1.36			31,132.15			1.30
SBA Communications	189.32	0.92			31,896.99			0.80
Schlumberger Ltd.	36.40	1.26			55,770.40			1.40
Schwab (Charles)	22.70	0.97			155,936.22			1.10
Seagate Technology plc	21.87	2.67			23,006.41			1.00
Synchrony Financial	38.40	2.26			21,916.13			1.55

Risk and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Sysco Corp.	53.09	2.24			42,645.48			1.30
Textron, Inc.	23.57	0.12			15,153.88			1.45
TJX Companies	134.40	1.66			74,641.31			1.20
Trane Technologies plc	22.29	1.80			35,037.00			1.05
V.F. Corp.	45.74	3.50			22,213.11			1.25
Wells Fargo	115.86	1.85			215,633.88			1.20
West Pharmac. Svcs.	27.60	0.20			26,490.01			0.80
WestRock Co.	20.62	2.22			11,849.26			1.10

Qualifying Companies

Abbott Labs.	13.12	1.60	1.81	14.93	207,331.66	0.00970	0.1449	0.90
AbbVie Inc.	4.48	3.84	4.01	8.49	259,443.38	0.01214	0.1031	0.95
Accenture Plc	11.36	1.28	1.43	12.79	198,115.64	0.00927	0.1186	0.95
Activision Blizzard	16.45	0.64	0.75	17.20	62,854.29	0.00294	0.0506	0.65
Advance Auto Parts	16.70	3.05	3.56	20.26	12,203.37	0.00057	0.0116	1.15
AES Corp.	8.60	3.07	3.33	11.93	13,700.97	0.00064	0.0077	1.10
Aflac Inc.	3.90	2.68	2.78	6.68	40,822.90	0.00191	0.0128	1.30
Agilent Technologies	12.39	0.67	0.75	13.14	38,078.21	0.00178	0.0234	0.90
Air Products & Chem.	12.96	2.76	3.12	16.08	52,030.33	0.00244	0.0392	0.90
Alexandria Real Estate	0.10	2.48	2.48	2.58	25,390.17	0.00119	0.0031	0.90
Allegion plc	10.37	1.50	1.66	12.03	9,827.09	0.00046	0.0055	1.15
Alliant Energy	6.10	3.11	3.30	9.40	14,016.53	0.00066	0.0062	0.85
Altria Group	5.17	6.93	7.29	12.46	95,517.34	0.00447	0.0557	0.95

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 3
 Page 22 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
Amcors plc	6.28	4.13	4.39	10.67	17,782.27	0.00083	0.0089	1.05
Amer. Elec. Power	5.50	3.74	3.95	9.45	42,622.08	0.00199	0.0188	0.75
Amer. Tower 'A'	16.01	2.56	2.97	18.98	103,582.78	0.00485	0.0920	0.85
Amer. Water Works	8.30	1.76	1.91	10.21	26,636.78	0.00125	0.0127	0.85
Ameren Corp.	7.90	2.82	3.04	10.94	21,584.95	0.00101	0.0111	0.80
AmerisourceBergen	11.57	1.32	1.47	13.04	29,154.95	0.00136	0.0178	0.90
Amgen	5.92	3.63	3.84	9.76	123,384.30	0.00577	0.0564	0.75
Amphenol Corp.	14.40	1.09	1.25	15.65	44,056.72	0.00206	0.0323	1.05
Analog Devices	14.71	1.76	2.02	16.73	81,893.56	0.00383	0.0641	0.95
Anthem, Inc.	12.88	1.16	1.31	14.19	106,990.93	0.00501	0.0711	1.20
Aon plc	14.21	0.73	0.83	15.04	62,047.35	0.00290	0.0437	0.95
Apple Inc.	10.28	0.57	0.63	10.91	2,615,680.25	0.12242	1.3355	0.95
Applied Materials	16.53	0.75	0.87	17.40	114,051.12	0.00534	0.0929	1.25
Archer Daniels Midl'd	10.00	2.23	2.45	12.45	42,059.16	0.00197	0.0245	1.00
Assurant Inc.	17.70	1.66	1.95	19.65	9,415.83	0.00044	0.0087	0.90
Atmos Energy	7.20	2.68	2.87	10.07	14,272.44	0.00067	0.0067	0.80
Automatic Data Proc.	14.03	2.23	2.54	16.57	82,520.32	0.00386	0.0640	1.05
AvalonBay Communities	2.54	2.85	2.92	5.46	32,702.34	0.00153	0.0084	1.15
Avery Dennison	7.77	1.69	1.82	9.59	14,490.98	0.00068	0.0065	1.20
Ball Corp.	14.78	0.90	1.03	15.81	28,766.50	0.00135	0.0213	0.95
Bank of America	15.11	1.88	2.16	17.27	369,042.91	0.01727	0.2984	1.25
Bank of New York Mellon	13.56	2.55	2.90	16.46	44,057.55	0.00206	0.0339	1.10
Bath & Body Works	14.22	1.59	1.82	16.04	13,083.20	0.00061	0.0098	1.60
Baxter Int'l Inc.	11.38	1.31	1.46	12.84	42,925.48	0.00201	0.0258	0.75
Becton, Dickinson	9.10	1.31	1.43	10.53	76,506.57	0.00358	0.0377	0.75
Berkley (W.R.)	9.00	0.58	0.63	9.63	15,782.70	0.00074	0.0071	1.10
Best Buy Co.	7.90	3.16	3.41	11.31	21,607.99	0.00101	0.0114	1.15

R and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS		Expected	Rate of		Market	Weighted	
	Growth	Dividend	Dividend	Return on	Market Cap \$	Cap	Rate of	
Company Name	Rate (%)	Yield (%)	Yield (%)	Equity	(Mil)	Weight	Return on	Beta
				(%)		Factor	Equity (%)	
Bio-Techne Corp.	15.00	0.34	0.39	15.39	15,427.59	0.00072	0.0111	0.85
BlackRock, Inc.	7.34	2.66	2.86	10.20	111,329.69	0.00521	0.0531	1.20
Boston Properties	7.00	3.38	3.62	10.62	18,437.13	0.00086	0.0092	1.20
Bristol-Myers Squibb	5.25	3.18	3.35	8.60	147,815.66	0.00692	0.0595	0.85
Broadcom Inc.	14.74	2.90	3.33	18.07	232,858.25	0.01090	0.1969	1.10
Broadridge Fin'l	11.80	1.82	2.03	13.83	16,455.95	0.00077	0.0107	0.85
Brown & Brown	13.22	0.64	0.72	13.94	18,140.61	0.00085	0.0118	0.95
C.H. Robinson	12.39	2.38	2.67	15.06	12,049.35	0.00056	0.0085	0.75
Campbell Soup	0.84	3.31	3.34	4.18	14,428.41	0.00068	0.0028	0.55
Cardinal Health	4.34	3.70	3.86	8.20	14,805.65	0.00069	0.0057	1.05
Carrier Global	12.01	1.37	1.53	13.54	37,991.08	0.00178	0.0241	-
Choe Global Markets	7.47	1.68	1.81	9.28	12,214.89	0.00057	0.0053	0.90
CDW Corp.	13.10	1.18	1.33	14.43	23,031.42	0.00108	0.0156	1.05
CenterPoint Energy	1.80	2.64	2.69	4.49	16,660.17	0.00078	0.0035	1.15
Cerner Corp.	13.52	1.16	1.32	14.84	27,598.33	0.00129	0.0192	0.90
Church & Dwight	7.75	1.09	1.17	8.92	23,357.08	0.00109	0.0098	0.60
Cigna Corp.	11.02	1.99	2.21	13.23	74,600.90	0.00349	0.0462	1.25
Cincinnati Financial	14.39	2.25	2.57	16.96	19,725.08	0.00092	0.0157	1.15
Cintas Corp.	11.90	1.04	1.16	13.06	37,724.36	0.00177	0.0231	1.20
Cisco Systems	6.55	2.79	2.97	9.52	225,980.45	0.01058	0.1007	0.90
Citigroup Inc.	19.00	3.23	3.84	22.84	125,445.36	0.00587	0.1341	1.45
Citrix Sys.	6.50	1.46	1.55	8.05	12,680.19	0.00059	0.0048	0.65
CME Group	5.14	1.70	1.79	6.93	84,465.69	0.00395	0.0274	0.95
CMS Energy Corp.	5.62	2.97	3.14	8.76	17,967.89	0.00084	0.0074	0.80
Coca-Cola	9.68	2.86	3.14	12.82	266,007.19	0.01245	0.1596	0.90
Cognizant Technology	13.98	1.28	1.46	15.44	44,441.25	0.00208	0.0321	1.00
Colgate-Palmolive	6.12	2.29	2.43	8.55	66,281.65	0.00310	0.0265	0.65

ROE and ROR Analysis for NSP
CAPM Analysis—IBES EPS
Standard and Poor's 500 Adjusted

Docket No. PU-21-381
Exhibit MFG-S-5, Schedule 3
Page 24 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	Beta
Company Name				(%)		Factor	Equity (%)	
Comcast Corp.	18.10	2.39	2.82	20.92	204,584.66	0.00958	0.2003	0.80
Conagra Brands	2.24	3.58	3.66	5.90	17,144.40	0.00080	0.0047	0.70
Consol. Edison	2.00	3.74	3.81	5.81	29,877.60	0.00140	0.0081	0.75
Constellation Brands	9.45	1.47	1.61	11.06	39,844.68	0.00186	0.0206	1.20
Cooper Cos.	10.00	0.01	0.01	10.01	19,495.69	0.00091	0.0091	1.00
Costco Wholesale	9.98	0.64	0.70	10.68	219,615.13	0.01028	0.1098	0.60
Crown Castle Int'l	17.90	3.73	4.40	22.30	69,089.76	0.00323	0.0721	0.85
CSX Corp.	17.55	1.20	1.41	18.96	74,080.63	0.00347	0.0657	1.05
Cummins Inc.	18.52	2.82	3.34	21.86	29,330.77	0.00137	0.0300	1.15
CVS Health	5.71	2.15	2.27	7.98	135,059.05	0.00632	0.0505	0.95
Deere & Co.	12.44	1.24	1.39	13.83	103,978.10	0.00487	0.0673	1.15
Dollar General	6.62	0.89	0.95	7.57	43,639.51	0.00204	0.0155	0.65
Dominion Energy	6.90	3.44	3.68	10.58	62,888.40	0.00294	0.0311	0.85
Domino's Pizza	12.00	1.08	1.21	13.21	14,702.42	0.00069	0.0091	0.55
Dover Corp.	14.73	1.29	1.48	16.21	22,304.72	0.00104	0.0169	1.25
DTE Energy	6.72	3.02	3.22	9.94	22,718.77	0.00106	0.0106	0.95
Duke Energy	2.50	4.07	4.17	6.67	75,108.23	0.00352	0.0235	0.85
Duke Realty Corp.	6.00	2.18	2.31	8.31	19,480.34	0.00091	0.0076	0.90
DuPont de Nemours	13.73	1.76	2.00	15.73	38,409.99	0.00180	0.0283	1.15
eBay Inc.	12.49	1.47	1.65	14.14	34,555.47	0.00162	0.0229	1.00
Ecolab Inc.	18.39	1.18	1.40	19.79	49,593.29	0.00232	0.0459	1.15
Edison Int'l	5.80	4.81	5.09	10.89	22,420.93	0.00105	0.0114	0.95
Emerson Electric	10.69	2.27	2.51	13.20	54,000.54	0.00253	0.0334	1.25
Entergy Corp.	6.00	3.89	4.12	10.12	21,050.12	0.00099	0.0100	0.95
Equifax, Inc.	13.60	0.75	0.85	14.45	25,395.52	0.00119	0.0172	1.00
Equity Residential	6.50	2.88	3.07	9.57	31,172.85	0.00146	0.0140	1.05
Essex Property Trust	7.90	2.74	2.96	10.86	20,396.03	0.00095	0.0104	1.10

R and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS		Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Dividend	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)	Yield (%)	Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
Evergy, Inc.	5.12	3.87	4.07	9.19	13,803.92	0.00065	0.0059	0.95
Eversource Energy	6.70	3.20	3.41	10.11	27,398.79	0.00128	0.0130	0.90
Expeditors Int'l	7.80	1.14	1.23	9.03	17,244.11	0.00081	0.0073	0.95
Extra Space Storage	6.00	3.21	3.40	9.40	24,512.71	0.00115	0.0108	0.90
Exxon Mobil Corp.	1.00	4.59	4.64	5.64	325,044.19	0.01521	0.0857	1.20
Fastenal Co.	6.33	2.50	2.66	8.99	28,554.57	0.00134	0.0120	0.95
Federal Rlty. Inv. Trust	6.70	3.72	3.97	10.67	8,884.22	0.00042	0.0044	1.15
FedEx Corp.	17.56	1.68	1.98	19.54	56,925.94	0.00266	0.0520	1.05
Fidelity Nat'l Info.	15.04	2.04	2.35	17.39	57,656.25	0.00270	0.0469	1.00
First Republic Bank	15.98	0.59	0.68	16.66	27,856.86	0.00130	0.0217	1.00
FMC Corp.	7.36	1.85	1.99	9.35	14,537.07	0.00068	0.0064	1.15
Fox Corp. 'A'	6.40	1.17	1.24	7.64	23,117.94	0.00108	0.0083	1.05
Fox Corp. 'B'	9.20	1.28	1.40	10.60		0.00000	0.0000	1.05
Franklin Resources	9.49	4.00	4.38	13.87	14,588.13	0.00068	0.0095	1.15
Gallagher (Arthur J.)	12.20	1.35	1.51	13.71	31,443.26	0.00147	0.0202	1.00
Garmin Ltd.	10.78	2.66	2.95	13.73	21,146.43	0.00099	0.0136	1.00
Gen'l Dynamics	8.55	2.20	2.39	10.94	60,041.09	0.00281	0.0307	1.15
Gen'l Electric	7.00	0.34	0.36	7.36	101,742.38	0.00476	0.0351	1.35
Gen'l Mills	4.63	3.07	3.21	7.84	40,480.75	0.00189	0.0149	0.60
Genuine Parts	4.60	3.01	3.15	7.75	16,935.06	0.00079	0.0061	1.25
Gilead Sciences	1.32	4.76	4.82	6.14	76,994.25	0.00360	0.0221	0.55
Globe Life Inc.	10.31	0.76	0.84	11.15	10,440.68	0.00049	0.0054	1.20
Goldman Sachs	17.28	2.35	2.76	20.04	114,227.68	0.00535	0.1071	1.20
Grainger (W.W.)	15.38	1.43	1.65	17.03	23,822.33	0.00111	0.0190	1.05
Hanesbrands	16.13	3.70	4.30	20.43	5,700.00	0.00027	0.0054	0.85
Hartford Fin'l Svcs.	11.58	2.22	2.48	14.06	23,723.30	0.00111	0.0156	1.15
Hasbro, Inc.	17.70	3.04	3.58	21.28	12,708.59	0.00059	0.0127	1.20

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 3
 Page 26 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
HCA Healthcare	15.71	0.93	1.08	16.79	75,798.52	0.00355	0.0596	1.20
Healthpeak Properties	2.90	3.89	4.00	6.90	16,625.95	0.00078	0.0054	1.00
Henry (Jack) & Assoc.	14.00	1.17	1.33	15.33	12,225.25	0.00057	0.0088	0.85
Hershey Co.	9.13	1.78	1.94	11.07	41,929.56	0.00196	0.0217	0.85
Hewlett Packard Ent.	17.76	2.89	3.40	21.16	21,522.90	0.00101	0.0213	1.35
Home Depot	13.70	2.46	2.80	16.50	322,638.72	0.01510	0.2491	1.00
Honeywell Int'l	11.44	2.19	2.44	13.88	123,196.05	0.00577	0.0800	1.20
Hormel Foods	7.10	2.18	2.33	9.43	25,878.97	0.00121	0.0114	0.55
Horton D.R.	10.60	1.15	1.27	11.87	27,686.82	0.00130	0.0154	1.15
HP Inc.	17.29	2.89	3.39	20.68	37,717.68	0.00177	0.0365	1.20
Humana Inc.	13.00	0.76	0.86	13.86	53,292.70	0.00249	0.0346	1.20
Huntington Ingalls	0.70	2.52	2.54	3.24	7,495.60	0.00035	0.0011	1.10
IDEX Corp.	12.00	1.16	1.30	13.30	14,122.82	0.00066	0.0088	1.05
IHS Markit	11.12	0.76	0.84	11.96	42,110.92	0.00197	0.0236	1.10
Illinois Tool Works	13.92	2.29	2.61	16.53	67,014.51	0.00314	0.0518	1.05
Int'l Business Mach.	6.90	5.37	5.74	12.64	109,472.38	0.00512	0.0648	1.00
Int'l Flavors & Frag.	4.49	2.44	2.55	7.04	33,953.36	0.00159	0.0112	0.95
Int'l Paper	19.20	4.10	4.89	24.09	17,466.59	0.00082	0.0197	1.10
Intel Corp.	3.16	3.27	3.37	6.53	181,725.50	0.00851	0.0556	0.80
Intercontinental Exch.	11.42	1.23	1.37	12.79	69,513.78	0.00325	0.0416	0.95
Interpublic Group	17.40	3.24	3.80	21.20	14,112.00	0.00066	0.0140	1.20
Intuit Inc.	17.40	0.58	0.68	18.08	127,594.67	0.00597	0.1080	1.05
Iron Mountain	6.44	5.87	6.25	12.69	12,230.42	0.00057	0.0073	0.90
Jacobs Engineering	13.03	0.78	0.88	13.91	15,176.77	0.00071	0.0099	1.10
Johnson & Johnson	8.19	2.63	2.85	11.04	424,409.25	0.01986	0.2192	0.85
Johnson Ctrls. Int'l plc	19.33	2.13	2.54	21.87	44,859.73	0.00210	0.0459	1.10
JPMorgan Chase	10.57	2.69	2.97	13.54	439,418.50	0.02057	0.2786	1.15

Revised ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS		Expected	Rate of	Market	Market	Weighted	
	Growth	Dividend	Dividend	Return on	Cap \$	Cap	Rate of	
Company Name	Rate (%)	Yield (%)	Yield (%)	Equity	(Mil)	Weight	Return on	Beta
				(%)		Factor	Equity (%)	
Juniper Networks	9.35	2.53	2.77	12.12	10,673.91	0.00050	0.0061	1.00
Kellogg	3.15	3.52	3.63	6.78	22,666.27	0.00106	0.0072	0.60
KeyCorp	14.60	3.16	3.62	18.22	22,956.52	0.00107	0.0196	1.45
Kimco Realty	4.60	3.45	3.61	8.21	10,025.79	0.00047	0.0039	1.25
Kinder Morgan Inc.	7.39	6.44	6.92	14.31	38,024.16	0.00178	0.0255	1.15
KLA Corp.	19.63	1.22	1.46	21.09	51,858.19	0.00243	0.0512	1.20
Kroger Co.	6.58	1.89	2.01	8.59	32,863.14	0.00154	0.0132	0.40
Lam Research	16.06	1.11	1.29	17.35	76,083.76	0.00356	0.0618	1.35
Lamb Weston Holdings	11.30	1.50	1.67	12.97	9,605.04	0.00045	0.0058	1.10
Lauder (Estee)	14.71	0.82	0.94	15.65	104,522.42	0.00489	0.0766	1.00
Legget & Platt	5.20	4.70	4.94	10.14	4,800.00	0.00022	0.0023	1.25
Leidos Hldgs.	9.60	1.58	1.73	11.33	12,747.00	0.00060	0.0068	1.10
Lilly (Eli)	7.08	1.64	1.76	8.84	228,075.06	0.01067	0.0943	0.75
Lockheed Martin	4.80	2.93	3.07	7.87	105,391.91	0.00493	0.0388	1.00
Loews Corp.	14.03	0.42	0.48	14.51	15,264.08	0.00071	0.0104	1.15
Lowe's Cos.	16.70	1.63	1.90	18.60	147,551.73	0.00691	0.1285	1.15
M&T Bank Corp.	14.20	2.65	3.03	17.23	23,270.07	0.00109	0.0188	1.20
MarketAxess Holdings	4.72	0.76	0.80	5.52	14,009.54	0.00066	0.0036	0.70
Marsh & McLennan	12.90	1.44	1.63	14.53	75,183.01	0.00352	0.0511	0.95
Masco Corp.	15.40	2.03	2.34	17.74	13,411.98	0.00063	0.0111	1.10
McCormick & Co.	6.80	1.53	1.63	8.43	25,825.59	0.00121	0.0102	0.80
McKesson Corp.	11.73	0.70	0.78	12.51	40,190.80	0.00188	0.0235	0.95
Medtronic plc	11.46	2.65	2.95	14.41	138,561.13	0.00649	0.0935	1.00
Merck & Co.	15.33	3.64	4.20	19.53	191,520.48	0.00896	0.1750	0.80
MetLife Inc.	8.35	2.91	3.15	11.50	57,470.41	0.00269	0.0309	1.40
Microchip Technology	18.30	1.44	1.70	20.00	39,086.03	0.00183	0.0366	1.15
Microsoft Corp.	16.53	0.88	1.03	17.56	2,102,025.25	0.09838	1.7272	0.85

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 3
 Page 28 of 61

A	B	C	D	E	F	G		
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Mid-America Apartment	7.00	2.15	2.30	9.30	23,082.96	0.00108	0.0100	1.00
Molson Coors Beverage	3.48	2.68	2.77	6.25	11,020.69	0.00052	0.0032	1.05
Mondelez Int'l	8.80	2.11	2.30	11.10	92,452.77	0.00433	0.0480	0.85
Moody's Corp.	12.52	0.88	0.99	13.51	59,281.65	0.00277	0.0375	1.10
Mosaic Company	7.00	1.00	1.07	8.07	17,142.87	0.00080	0.0065	1.25
Motorola Solutions	14.14	1.52	1.73	15.87	35,111.93	0.00164	0.0261	0.90
MSCI Inc.	19.50	0.89	1.06	20.56	41,998.50	0.00197	0.0404	0.95
Nasdaq, Inc.	13.20	1.28	1.45	14.65	28,122.55	0.00132	0.0193	1.05
NetApp, Inc.	8.80	2.38	2.59	11.39	18,752.07	0.00088	0.0100	1.15
Newell Brands	4.22	3.77	3.93	8.15	10,390.71	0.00049	0.0040	1.20
News Corp. 'A'	19.40	0.94	1.12	20.52	12,626.76	0.00059	0.0121	1.10
NextEra Energy	9.95	2.35	2.58	12.53	141,891.86	0.00664	0.0832	0.95
Nielsen Hldgs. plc	5.30	1.45	1.53	6.83	5,961.78	0.00028	0.0019	1.05
NIKE, Inc. 'B'	15.64	0.89	1.03	16.67	216,601.88	0.01014	0.1690	1.15
NiSource Inc.	3.52	3.33	3.45	6.97	11,076.06	0.00052	0.0036	0.85
Norfolk Southern	17.64	1.96	2.31	19.95	61,726.89	0.00289	0.0576	1.10
Northern Trust Corp.	18.66	2.46	2.92	21.58	23,598.60	0.00110	0.0238	1.15
Northrop Grumman	6.00	1.63	1.73	7.73	60,267.48	0.00282	0.0218	0.85
NortonLifeLock Inc.	12.70	1.88	2.12	14.82	15,446.28	0.00072	0.0107	0.70
Omnicom Group	9.50	3.62	3.96	13.46	17,313.48	0.00081	0.0109	1.00
ONEOK Inc.	9.86	6.42	7.05	16.91	27,103.87	0.00127	0.0215	1.50
Oracle Corp.	9.64	1.77	1.94	11.58	193,567.38	0.00906	0.1049	0.75
Otis Worldwide	11.98	1.28	1.43	13.41	31,728.31	0.00149	0.0199	-
Packaging Corp.	16.40	2.75	3.20	19.60	13,799.70	0.00065	0.0127	0.95
Parker-Hannifin	11.16	1.42	1.58	12.74	37,248.34	0.00174	0.0222	1.45
Paychex, Inc.	12.37	2.54	2.85	15.22	40,985.60	0.00192	0.0292	1.10
Pentair plc	17.60	1.51	1.78	19.38	9,220.43	0.00043	0.0084	1.25

Risk and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS		Expected	Rate of	Market	Market	Weighted	
	Growth	Dividend	Dividend	Return on	Cap \$	Cap	Rate of	
Company Name	Rate (%)	Yield (%)	Yield (%)	Equity	(Mil)	Weight	Return on	Beta
				(%)		Factor	Equity (%)	
People's United Fin'l	10.74	3.52	3.90	14.64	8,868.29	0.00042	0.0061	1.05
PepsiCo, Inc.	9.75	2.64	2.90	12.65	230,532.27	0.01079	0.1365	0.75
Philip Morris Int'l	11.03	4.60	5.11	16.14	168,332.95	0.00788	0.1271	0.95
Pinnacle West Capital	0.10	5.03	5.04	5.14	7,666.98	0.00036	0.0018	0.90
Pool Corp.	17.00	0.77	0.90	17.90	16,650.03	0.00078	0.0139	0.85
PPG Inds.	16.60	1.68	1.96	18.56	33,170.88	0.00155	0.0288	1.05
Price (T. Rowe) Group	12.20	3.44	3.86	16.06	31,600.25	0.00148	0.0238	1.05
Principal Fin'l Group	16.47	3.68	4.29	20.76	18,509.91	0.00087	0.0180	1.50
Procter & Gamble	6.93	2.23	2.38	9.31	373,846.41	0.01750	0.1630	0.70
Prudential Fin'l	8.46	4.33	4.70	13.16	42,021.10	0.00197	0.0259	1.50
Public Serv. Enterprise	3.27	3.40	3.51	6.78	32,039.28	0.00150	0.0102	0.90
Public Storage	17.00	2.32	2.71	19.71	61,706.01	0.00289	0.0569	0.80
Quanta Services	15.43	0.28	0.32	15.75	13,677.49	0.00064	0.0101	1.25
Raymond James Fin'l	8.54	1.27	1.38	9.92	22,178.11	0.00104	0.0103	1.15
Realty Income Corp.	5.45	4.54	4.79	10.24	23,575.02	0.00110	0.0113	1.10
Regency Centers Corp.	9.10	3.83	4.18	13.28	11,068.22	0.00052	0.0069	1.15
Republic Services	10.60	1.59	1.76	12.36	36,828.90	0.00172	0.0213	0.90
Rockwell Automation	12.41	1.75	1.97	14.38	29,885.61	0.00140	0.0201	1.15
Rollins, Inc.	8.20	1.32	1.43	9.63	14,914.01	0.00070	0.0067	0.85
Roper Tech.	11.90	0.58	0.65	12.55	45,271.00	0.00212	0.0266	1.00
S&P Global	9.34	0.90	0.98	10.32	89,982.17	0.00421	0.0435	1.00
Sealed Air	11.30	1.15	1.28	12.58	16,114.34	0.00075	0.0095	1.05
Sempra Energy	4.30	3.46	3.61	7.91	42,631.16	0.00200	0.0158	0.95
Sherwin-Williams	12.87	1.00	1.13	14.00	67,729.34	0.00317	0.0444	0.90
Simon Property Group	8.60	5.00	5.43	14.03	44,041.05	0.00206	0.0289	1.50
Skyworks Solutions	12.55	1.68	1.89	14.44	21,941.01	0.00103	0.0148	1.05
Smith (A.O.)	8.00	1.65	1.78	9.78	10,703.06	0.00050	0.0049	0.85

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
Company Name	Growth	Yield (%)	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)		Yield (%)	Equity	(Mil)	Weight	Return on	
				(%)		Factor	Equity (%)	
Smucker (J.M.)	1.61	2.98	3.03	4.64	14,834.89	0.00069	0.0032	0.65
Snap-on Inc.	10.10	2.79	3.07	13.17	10,932.50	0.00051	0.0067	1.15
Southern Co.	6.20	4.30	4.57	10.77	66,598.08	0.00312	0.0336	0.95
Stanley Black & Decker	11.64	2.03	2.27	13.91	27,531.41	0.00129	0.0179	1.50
State Street Corp.	13.82	2.73	3.11	16.93	31,924.70	0.00149	0.0253	1.25
STERIS plc	10.00	0.76	0.84	10.84	22,519.97	0.00105	0.0114	1.05
Stryker Corp.	13.33	1.10	1.25	14.58	95,665.46	0.00448	0.0653	1.20
Tapestry Inc.	8.80	2.55	2.77	11.57	10,338.24	0.00048	0.0056	1.50
Target Corp.	14.80	1.90	2.18	16.98	91,323.86	0.00427	0.0726	0.70
TE Connectivity	10.36	1.45	1.60	11.96	45,111.80	0.00211	0.0253	1.15
Teleflex Inc.	11.00	0.42	0.47	11.47	15,445.40	0.00072	0.0083	1.20
Teradyne Inc.	16.76	0.40	0.47	17.23	18,258.95	0.00085	0.0147	1.15
Texas Instruments	10.00	2.78	3.06	13.06	152,976.34	0.00716	0.0935	0.85
The Gap	4.90	4.25	4.46	9.36	6,700	0.00031	0.0029	1.60
Thermo Fisher Sci.	11.80	0.20	0.22	12.02	208,285.88	0.00975	0.1172	0.85
Tractor Supply	11.65	1.92	2.14	13.79	21,853.70	0.00102	0.0141	0.85
Travelers Cos.	8.55	2.07	2.25	10.80	41,854.45	0.00196	0.0212	1.00
Truist Fin'l	4.60	3.17	3.32	7.92	80,894.45	0.00379	0.0300	1.35
Tyson Foods 'A'	7.50	2.02	2.17	9.67	33,392.37	0.00156	0.0151	0.75
U.S. Bancorp	13.06	3.30	3.73	16.79	83,994.45	0.00393	0.0660	1.15
Union Pacific	16.68	1.93	2.25	18.93	157,763.72	0.00738	0.1398	1.10
United Parcel Serv.	17.48	2.97	3.49	20.97	177,631.78	0.00831	0.1743	0.80
UnitedHealth Group	14.17	1.26	1.44	15.61	432,502.41	0.02024	0.3160	1.10
Universal Health 'B'	8.21	0.60	0.65	8.86	10,715.86	0.00050	0.0044	1.25
Verisk Analytics	9.95	0.70	0.77	10.72	28,670.53	0.00134	0.0144	0.85
Verizon Communic.	3.79	4.79	4.97	8.76	221,126.17	0.01035	0.0907	0.60
Vornado R'lty Trust	17.33	5.07	5.95	23.28	8,018.02	0.00038	0.0087	1.25

ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Vulcan Materials	19.15	0.91	1.08	20.23	23,263.01	0.00109	0.0220	1.10
Wabtec Corp.	7.30	0.66	0.71	8.01	17,079.12	0.00080	0.0064	1.30
Walgreens Boots	2.93	4.20	4.32	7.25	39,270.26	0.00184	0.0133	0.85
Walmart Inc.	8.10	1.66	1.79	9.89	375,168.88	0.01756	0.1737	0.55
Waste Management	15.37	1.64	1.89	17.26	58,811.02	0.00275	0.0475	0.80
WEC Energy Group	6.60	3.35	3.57	10.17	27,865.53	0.00130	0.0133	0.80
Welltower Inc.	13.00	3.16	3.57	16.57	33,763.57	0.00158	0.0262	1.00
Western Union	8.16	4.96	5.36	13.52	7,366.00	0.00034	0.0047	-
Weyerhaeuser Co.	5.00	1.93	2.03	7.03	27,924.10	0.00131	0.0092	1.35
Whirlpool Corp.	8.50	3.61	3.92	12.42	11,844.37	0.00055	0.0069	1.40
Williams Cos.	2.00	5.64	5.75	7.75	36,565.68	0.00171	0.0133	1.20
Xcel Energy Inc.	6.90	2.99	3.20	10.10	34,962.14	0.00164	0.0165	0.80
Xylem Inc.	18.76	1.45	1.72	20.48	15,893.44	0.00074	0.0152	1.10
Yum! Brands	15.21	1.88	2.17	17.38	35,747.46	0.00167	0.0291	1.05
Zimmer Biomet Hldgs.	9.75	0.78	0.86	10.61	25,606.96	0.00120	0.0127	1.15
Zoetis Inc.	13.57	0.69	0.78	14.35	88,549.34	0.00414	0.0595	1.00
			Qualifying Companies	Totals	21,365,829	1.00	13.38	1.02
			All Companies			Mean		1.08
						Standard Deviation		0.28

ROE and ROR Analysis for NSP
 CAPM Analysis—IBES EPS
 Standard and Poor's 500 Adjusted

Company Name	A EPS Growth Rate (%)	B Dividend Yield (%)	C Expected Dividend Yield (%)	D Rate of Return on Equity (%)	E Market Cap \$ (Mil)	F Market Cap Weight Factor	G Weighted Rate of Return on Equity (%)	Beta
						Means differenc e/standar d deviation		0.21

Constant-Growth DCF Analysis for S&P 500--Value Line

All companies shown

A, B, and E: Value Line Analyzer, April 14, 2022

$C = B * (1 + A/100)$

$D = A + C$

$F = E / (\text{Sum of E})$

$G = D * F$

Companies Excluded

Companies not paying dividends

Companies with EPS < 0%

Companies with EPS > 20%

EPS
 Market 13.10
 Return
 %

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta

Companies not paying dividends

ABIOMED Inc.	7.50	0.00			12,441.98			1.05
Adobe Inc.	15.50	0.00			203,988.75			0.75
Advanced Micro Dev.	30.50	0.00			132,480.31			1.15
Akamai Technologies	9.50	0.00			16,060.49			0.65
Alaska Air Group	65.50	0.00			7,028.07			1.50
Align Techn.	26.50	0.00			38,058.70			1.35
Alphabet Inc.	23.50	0.00			1,696,069.25			0.90
Alphabet Inc. 'A'	-	0.00			1,703,649.25			0.90
Amazon.com	26.50	0.00			1,474,338.88			0.70
Amer. Airlines	-	0.00			10,774.02			1.60
ANSYS, Inc.	8.50	0.00			25,878.41			0.90
Aptiv PLC	21.50	0.00			36,045.99			1.25
Arista Networks	10.00	0.00			36,358.66			1.05

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Autodesk, Inc.	18.00	0.00			46,026.20			0.95
AutoZone Inc.	16.50	0.00			37,094.95			0.95
Berkshire Hathaway 'B'	-	0.00						0.95
Bio-Rad Labs. 'A'	9.50	0.00			17,125.66			0.75
Biogen	-2.50	0.00			30,734.76			0.85
Boeing	-	0.00			115,675.09			1.80
Booking Holdings	14.00	0.00			101,418.63			1.15
Boston Scientific	15.00	0.00			62,275.12			1.10
Cadence Design Sys.	12.00	0.00			39,043.63			0.90
CarMax, Inc.	13.50	0.00			16,243.86			1.25
Carnival Corp.	-	0.00			22,958.56			1.70
Catalent, Inc.	21.00	0.00			16,864.72			1.00
CBRE Group	10.00	0.00			32,142.46			1.45
Centene Corp.	10.50	0.00			47,467.73			1.05
Ceridian HCM Holding Inc	-	0.00			9,917.94			1.10
Charles River	6.50	0.00			14,308.94			1.20
Charter Communic.	29.50	0.00			98,566.01			0.85
Chipotle Mex. Grill	20.00	0.00			40,123.23			0.95
Copart, Inc.	12.00	0.00			27,937.55			1.05
Coterra Energy Inc	-	0.00						-
DaVita Inc.	11.50	0.00			10,948.90			1.00
Delta Air Lines	40.50	0.00			25,722.16			1.55
DexCom Inc.	34.00	0.00			36,464.44			0.95
Discovery Communic. 'C'	-	0.00			13,689.57			1.10
Discovery, Inc.	13.50	0.00			14,274.26			1.05
Dish Network 'A'	4.00	0.00			14,578.30			1.30

Rid ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
	Growth	Yield	Dividend	Return on	Cap \$	Cap	Rate of	
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	(Mil)	Weight	Return on	Beta
						Factor	Equity (%)	
Disney (Walt)	37.50	0.00			259,794.47			1.00
Dollar Tree, Inc.	10.00	0.00			30,639.01			0.75
DXC Technology	6.00	0.00			8,456.71			1.55
Edwards Lifesciences	12.50	0.00			65,736.45			1.05
Enphase Energy	36.00	0.00			17,066.36			0.95
EPAM Systems	23.50	0.00			23,716.99			1.00
Etsy, Inc.	28.50	0.00			14,738.98			1.15
Expedia Group	-	0.00			30,081.92			1.30
F5, Inc.	8.50	0.00			11,813.15			0.95
Fiserv Inc.	13.00	0.00			61,116.00			1.00
FLEETCOR Technologies	11.00	0.00			19,071.79			1.05
Fortinet Inc.	24.00	0.00			46,488.94			0.90
Gartner Inc.	19.00	0.00			22,688.80			1.20
Gen'l Motors	10.50	0.00			67,337.27			1.30
Generac Holdings	23.50	0.00			17,267.21			1.05
Hilton Worldwide Hldgs.	32.50	0.00			39,959.94			1.10
Hologic, Inc.	8.50	0.00			17,851.94			1.00
Host Hotels & Resorts	10.00	0.00			12,937.04			1.10
IDEXX Labs.	14.00	0.00			40,290.84			1.00
Illumina Inc.	8.50	0.00			49,498.96			0.95
Incyte Corp.	25.50	0.00			15,047.89			0.75
Intuitive Surgical	13.00	0.00			98,904.05			1.25
IPG Photonics	12.50	0.00			7,189.25			0.90
IQVIA Holdings	14.50	0.00			42,519.05			1.20
Keysight Technologies	12.50	0.00			28,245.38			0.85
Laboratory Corp.	6.00	0.00			25,720.38			1.10

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 4
 Page 36 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market Cap \$	Market	Weighted	
Company Name	Growth	Yield	Dividend	Return on	(Mil)	Cap	Rate of	Beta
	Rate (%)	(%)	Yield (%)	Equity (%)		Weight	Return on	
						Factor	Equity (%)	
Las Vegas Sands	13.50	0.00			34,494.60			1.05
Live Nation Entertain.	-	0.00			25,476.44			1.30
Marriott Int'l	19.00	0.00			54,707.83			1.30
Match Group	18.50	0.00			28,986.74			1.00
Meta Platforms	21.50	0.00			543,951.50			0.95
Mettler-Toledo Int'l	13.50	0.00			31,538.19			0.95
Moderna, Inc.	-	0.00			54,970.65			0.45
Mohawk Inds.	10.50	0.00			9,440.75			1.40
Monster Beverage	13.00	0.00			42,018.38			0.85
Netflix, Inc.	23.50	0.00			163,138.66			0.70
Norwegian Cruise Line	-	0.00			7,137.92			1.85
NVR, Inc.	9.00	0.00			15,982.29			1.10
O'Reilly Automotive	13.00	0.00			42,760.00			0.95
Organon & Co.	-	0.00			9,000.85			
Paycom Software	20.00	0.00			18,262.68			1.10
PayPal Holdings	16.00	0.00			118,245.28			0.95
Penn Nat'l Gaming	28.00	0.00			7,418.81			1.80
PTC Inc.	47.50	0.00			12,451.33			1.10
Qorvo Inc.	27.00	0.00			14,143.14			1.05
Regeneron Pharmac.	5.00	0.00			66,180.29			0.60
Royal Caribbean	-	0.00			20,395.86			1.70
salesforce.com	20.00	0.00			187,491.38			0.85
Schein (Henry)	7.00	0.00			11,657.70			1.10
ServiceNow, Inc.	44.50	0.00			104,412.66			0.85
SolarEdge Tech.	19.50	0.00			12,400.26			1.15
Southwest Airlines	-	0.00			26,059.20			1.05

Risk and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
	Growth	Yield	Dividend	Return on	Cap \$	Cap	Rate of	
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	(Mil)	Weight	Return on	Beta
						Factor	Equity (%)	
SVB Fin'l Group	6.00	0.00			34,342.48			1.20
Synopsys, Inc.	13.00	0.00			43,759.19			1.00
T-Mobile US	8.50	0.00			151,704.55			0.75
Take-Two Interactive	15.00	0.00			18,200.75			0.60
Teledyne Technologies	13.50	0.00			18,975.11			1.15
Tesla, Inc.	-	0.00			767,096.19			1.30
TransDigm Group	18.00	0.00			34,755.62			1.20
Trimble Inc.	14.50	0.00			16,234.68			1.20
Twitter Inc.	38.00	0.00			26,192.44			1.00
Tyler Technologies	13.50	0.00			19,133.14			0.75
Ulta Beauty	15.50	0.00			19,234.14			1.30
Under Armour 'A'	43.00	0.00			7,517.41			1.30
Under Armour 'C'	-	0.00			6,593.81			1.30
United Airlines Hldgs.	-	0.00			14,198.94			1.60
United Rentals	14.00	0.00			21,668.36			1.50
VeriSign Inc.	8.50	0.00			22,583.77			0.90
Vertex Pharmac.	16.00	0.00			59,104.16			0.75
Viatis Inc.	-	0.00			17,318.31			
Waters Corp.	18.00	0.00			18,750.13			0.95
Western Digital	24.50	0.00			16,269.74			1.30
Wynn Resorts	-	0.00			10,084.31			1.50
Zebra Techn. 'A'	10.50	0.00			21,328.07			1.00

Companies with EPS < 0%

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 4
 Page 38 of 61

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Baker Hughes	-	2.48			24,953.95			1.30
Boston Properties	-2.00	3.38			18,437.13			1.20
Carrier Global	-	1.37			37,991.08			
Corteva, Inc.	-	1.15			36,631.49			0.90
Diamondback Energy	-	1.54			23,423.28			1.60
Dow Inc.	-	5.00			44,090.84			1.10
Duke Realty Corp.	-2.00	2.18			19,480.34			0.90
DuPont de Nemours	-	1.76			38,409.99			1.15
Equity Residential	-	2.88			31,172.85			1.05
Essex Property Trust	-0.50	2.74			20,396.03			1.10
Fox Corp. 'B'	-	1.28						1.05
Healthpeak Properties	-12.00	3.89			16,625.95			1.00
Hess Corp.	-	1.07			29,095.76			1.40
Ingersoll Rand Inc.	-	0.15			21,191.09			
L3Harris Technologies	-	1.89			42,564.79			1.00
Linde plc	-	1.61			149,199.66			0.95
Marathon Petroleum	-	3.06			47,097.84			1.70
MGM Resorts Int'l	-	0.02			19,954.05			1.80
Newell Brands	-	3.77			10,390.71			1.20
News Corp. 'A'	-	0.94			12,626.76			1.10
News Corp. 'B'	-	0.93			12,598.98			1.15
Nielsen Hldgs. plc	-	1.45			5,961.78			1.05
Otis Worldwide	-	1.28			31,728.31			
Pinnacle West Capital	-	5.03			7,666.98			0.90
PPL Corp.	-3.50	3.07			19,838.84			1.10

Revised ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Trane Technologies plc	-	1.80			35,037.00			
Vornado R'lty Trust	-22.50	5.07			8,018.02			1.25
Welltower Inc.	-1.50	3.16			33,763.57			1.00

Companies with EPS > 20%

Amer. Int'l Group	31.50	2.08			51,434.89			1.50
APA Corp.	74.50	1.62			11,653.74			1.95
Ball Corp.	21.00	0.90			28,766.50			0.95
Bath & Body Works	26.50	1.59			13,083.20			1.60
Bristol-Myers Squibb	51.00	3.18			147,815.66			0.85
Broadcom Inc.	27.00	2.90			232,858.25			1.10
Chevron Corp.	26.00	4.19			261,297.81			1.30
Corning Inc.	20.00	2.68			33,672.51			1.15
Danaher Corp.	22.00	0.32			187,477.67			0.80
Devon Energy	29.50	1.20			36,253.35			1.60
Edison Int'l	23.50	4.81			22,420.93			0.95
Exxon Mobil Corp.	27.50	4.59			325,044.19			1.20
Fidelity Nat'l Info.	34.50	2.04			57,656.25			1.00
Ford Motor	41.50	2.36			69,715.35			1.30
Freep't-McMoRan Inc.	37.50	1.41			67,978.46			1.55
KLA Corp.	21.00	1.22			51,858.19			1.20
Loews Corp.	22.00	0.42			15,264.08			1.15
Marathon Oil Corp.	83.00	1.75			17,152.86			1.50

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 4
 Page 40 of 61

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market Cap \$	Market	Weighted	
Company Name	Growth	Yield	Dividend	Return on	(Mil)	Cap	Rate of	Beta
	Rate (%)	(%)	Yield (%)	Equity (%)		Weight	Return on	
						Factor	Equity (%)	
Micron Technology	22.50	0.46			97,787.20			1.15
Molson Coors Beverage	41.00	2.68			11,020.69			1.05
Monolithic Power Sys.	20.50	0.69			19,884.12			1.00
Mosaic Company	56.50	1.00			17,142.87			1.25
NIKE, Inc. 'B'	27.50	0.89			216,601.88			1.15
NVIDIA Corp.	20.00	0.07			560,122.75			1.15
Occidental Petroleum	30.50	0.21			36,135.73			1.65
Pioneer Natural Res.	23.00	6.46			54,993.36			1.30
Qualcomm Inc.	23.50	1.68			181,822.50			1.00
SBA Communications	42.50	0.92			31,896.99			0.80
Weyerhaeuser Co.	22.50	1.93			27,924.10			1.35

Qualifying Companies

3M Company	6.00	4.13	4.38	10.38	83,199.41	0.00335	0.0348	0.95
Abbott Labs.	10.00	1.60	1.76	11.76	207,331.66	0.00835	0.0982	0.90
AbbVie Inc.	6.50	3.84	4.09	10.59	259,443.38	0.01045	0.1106	0.95
Accenture Plc	12.00	1.28	1.43	13.43	198,115.64	0.00798	0.1072	0.95
Activision Blizzard	15.00	0.64	0.74	15.74	62,854.29	0.00253	0.0398	0.65
Advance Auto Parts	15.50	3.05	3.52	19.02	12,203.37	0.00049	0.0093	1.15
AES Corp.	17.50	3.07	3.61	21.11	13,700.97	0.00055	0.0116	1.10
Aflac Inc.	11.00	2.68	2.97	13.97	40,822.90	0.00164	0.0230	1.30

Risk and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU- 1
 Exhibit MFG-S-5, Schedule 4
 Page 41 of 61

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Agilent Technologies	11.50	0.67	0.75	12.25	38,078.21	0.00153	0.0188	0.90
Air Products & Chem.	12.50	2.76	3.11	15.61	52,030.33	0.00210	0.0327	0.90
Albemarle Corp.	6.50	0.86	0.92	7.42	21,289.63	0.00086	0.0064	1.25
Alexandria Real Estate	12.00	2.48	2.78	14.78	25,390.17	0.00102	0.0151	0.90
Allegion plc	9.50	1.50	1.64	11.14	9,827.09	0.00040	0.0044	1.15
Alliant Energy	5.50	3.11	3.28	8.78	14,016.53	0.00056	0.0050	0.85
Allstate Corp.	4.50	2.76	2.88	7.38	35,504.64	0.00143	0.0106	1.00
Altria Group	5.50	6.93	7.31	12.81	95,517.34	0.00385	0.0493	0.95
Amtcor plc	15.00	4.13	4.75	19.75	17,782.27	0.00072	0.0141	1.05
Amer. Elec. Power	6.50	3.74	3.98	10.48	42,622.08	0.00172	0.0180	0.75
Amer. Express	12.00	1.10	1.23	13.23	147,003.11	0.00592	0.0783	1.30
Amer. Tower 'A'	9.00	2.56	2.79	11.79	103,582.78	0.00417	0.0492	0.85
Amer. Water Works	8.00	1.76	1.90	9.90	26,636.78	0.00107	0.0106	0.85
Ameren Corp.	6.50	2.82	3.00	9.50	21,584.95	0.00087	0.0083	0.80
Ameriprise Fin'l	15.00	1.55	1.78	16.78	32,770.76	0.00132	0.0221	1.40
AmerisourceBergen	9.00	1.32	1.44	10.44	29,154.95	0.00117	0.0123	0.90
AMETEK, Inc.	11.50	0.70	0.78	12.28	28,904.47	0.00116	0.0143	1.15
Amgen	5.50	3.63	3.83	9.33	123,384.30	0.00497	0.0464	0.75
Amphenol Corp.	12.00	1.09	1.22	13.22	44,056.72	0.00177	0.0235	1.05
Analog Devices	11.00	1.76	1.95	12.95	81,893.56	0.00330	0.0427	0.95
Anthem, Inc.	12.50	1.16	1.31	13.81	106,990.93	0.00431	0.0595	1.20
Aon plc	7.00	0.73	0.78	7.78	62,047.35	0.00250	0.0194	0.95
Apple Inc.	16.00	0.57	0.66	16.66	2,615,680.25	0.10534	1.7551	0.95
Applied Materials	16.50	0.75	0.87	17.37	114,051.12	0.00459	0.0798	1.25
Archer Daniels Midl'd	12.50	2.23	2.51	15.01	42,059.16	0.00169	0.0254	1.00
Assurant Inc.	15.50	1.66	1.92	17.42	9,415.83	0.00038	0.0066	0.90

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

A	B	C	D	E	F	G		
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
AT&T Inc.	1.50	8.85	8.98	10.48	167,886.41	0.00676	0.0709	0.80
Atmos Energy	7.50	2.68	2.88	10.38	14,272.44	0.00057	0.0060	0.80
Automatic Data Proc.	9.00	2.23	2.43	11.43	82,520.32	0.00332	0.0380	1.05
AvalonBay Communities	1.50	2.85	2.89	4.39	32,702.34	0.00132	0.0058	1.15
Avery Dennison	12.00	1.69	1.89	13.89	14,490.98	0.00058	0.0081	1.20
Bank of America	7.50	1.88	2.02	9.52	369,042.91	0.01486	0.1415	1.25
Bank of New York Mellon	5.00	2.55	2.68	7.68	44,057.55	0.00177	0.0136	1.10
Baxter Int'l Inc.	9.50	1.31	1.43	10.93	42,925.48	0.00173	0.0189	0.75
Becton, Dickinson	6.00	1.31	1.39	7.39	76,506.57	0.00308	0.0228	0.75
Berkley (W.R.)	17.50	0.58	0.68	18.18	15,782.70	0.00064	0.0116	1.10
Best Buy Co.	9.50	3.16	3.46	12.96	21,607.99	0.00087	0.0113	1.15
Bio-Techne Corp.	17.50	0.34	0.40	17.90	15,427.59	0.00062	0.0111	0.85
BlackRock, Inc.	11.00	2.66	2.95	13.95	111,329.69	0.00448	0.0626	1.20
BorgWarner	8.00	1.61	1.74	9.74	10,144.96	0.00041	0.0040	1.20
Broadridge Fin'l	9.00	1.82	1.98	10.98	16,455.95	0.00066	0.0073	0.85
Brown & Brown	10.50	0.64	0.71	11.21	18,140.61	0.00073	0.0082	0.95
Brown-Forman 'B'	13.00	1.17	1.32	14.32	31,203.55	0.00126	0.0180	0.90
C.H. Robinson	8.50	2.38	2.58	11.08	12,049.35	0.00049	0.0054	0.75
Campbell Soup	5.50	3.31	3.49	8.99	14,428.41	0.00058	0.0052	0.55
Capital One Fin'l	6.50	1.61	1.71	8.21	64,328.30	0.00259	0.0213	1.45
Cardinal Health	5.00	3.70	3.89	8.89	14,805.65	0.00060	0.0053	1.05
Caterpillar Inc.	8.00	2.38	2.57	10.57	100,977.65	0.00407	0.0430	1.15
Cboe Global Markets	12.00	1.68	1.88	13.88	12,214.89	0.00049	0.0068	0.90
CDW Corp.	11.00	1.18	1.31	12.31	23,031.42	0.00093	0.0114	1.05
Celanese Corp.	11.50	2.09	2.33	13.83	15,121.43	0.00061	0.0084	1.15
CenterPoint Energy	4.50	2.64	2.76	7.26	16,660.17	0.00067	0.0049	1.15

Risk and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU- 1
 Exhibit MFG-S-5, Schedule 4
 Page 45 of 61

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Eversource Energy	5.50	3.20	3.38	8.88	27,398.79	0.00110	0.0098	0.90
Exelon Corp.	2.50	3.30	3.38	5.88	40,081.69	0.00161	0.0095	0.95
Expeditors Int'l	11.50	1.14	1.27	12.77	17,244.11	0.00069	0.0089	0.95
Extra Space Storage	5.50	3.21	3.39	8.89	24,512.71	0.00099	0.0088	0.90
FactSet Research	10.00	0.88	0.97	10.97	14,882.17	0.00060	0.0066	0.95
Fastenal Co.	9.50	2.50	2.74	12.24	28,554.57	0.00115	0.0141	0.95
Federal Rlty. Inv. Trust	2.00	3.72	3.79	5.79	8,884.22	0.00036	0.0021	1.15
FedEx Corp.	10.50	1.68	1.86	12.36	56,925.94	0.00229	0.0283	1.05
Fifth Third Bancorp	11.50	2.67	2.98	14.48	32,537.39	0.00131	0.0190	1.45
First Republic Bank	13.50	0.59	0.67	14.17	27,856.86	0.00112	0.0159	1.00
FirstEnergy Corp.	10.00	3.99	4.39	14.39	21,569.92	0.00087	0.0125	0.85
FMC Corp.	10.50	1.85	2.04	12.54	14,537.07	0.00059	0.0073	1.15
Fortive Corp.	11.50	0.45	0.50	12.00	22,434.02	0.00090	0.0108	1.15
Fortune Brands Home	11.00	1.33	1.48	12.48	11,430.16	0.00046	0.0057	1.25
Fox Corp. 'A'	10.50	1.17	1.29	11.79	23,117.94	0.00093	0.0110	1.05
Franklin Resources	11.00	4.00	4.44	15.44	14,588.13	0.00059	0.0091	1.15
Gallagher (Arthur J.)	14.50	1.35	1.55	16.05	31,443.26	0.00127	0.0203	1.00
Garmin Ltd.	10.00	2.66	2.93	12.93	21,146.43	0.00085	0.0110	1.00
Gen'l Dynamics	8.00	2.20	2.38	10.38	60,041.09	0.00242	0.0251	1.15
Gen'l Electric	15.00	0.34	0.39	15.39	101,742.38	0.00410	0.0631	1.35
Gen'l Mills	3.50	3.07	3.18	6.68	40,480.75	0.00163	0.0109	0.60
Genuine Parts	8.50	3.01	3.27	11.77	16,935.06	0.00068	0.0080	1.25
Gilead Sciences	15.50	4.76	5.50	21.00	76,994.25	0.00310	0.0651	0.55
Global Payments	16.50	0.75	0.87	17.37	38,732.41	0.00156	0.0271	1.20
Globe Life Inc.	7.00	0.76	0.81	7.81	10,440.68	0.00042	0.0033	1.20
Goldman Sachs	10.00	2.35	2.59	12.59	114,227.68	0.00460	0.0579	1.20

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

Docket No. PU-21-381
 Exhibit MFG-S-5, Schedule 4
 Page 46 of 61

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Grainger (W.W.)	6.50	1.43	1.52	8.02	23,822.33	0.00096	0.0077	1.05
Halliburton Co.	9.50	1.51	1.65	11.15	28,385.28	0.00114	0.0128	1.70
Hartford Fin'l Svcs.	6.50	2.22	2.36	8.86	23,723.30	0.00096	0.0085	1.15
Hasbro, Inc.	11.50	3.04	3.39	14.89	12,708.59	0.00051	0.0076	1.20
HCA Healthcare	12.50	0.93	1.05	13.55	75,798.52	0.00305	0.0414	1.20
Henry (Jack) & Assoc.	10.50	1.17	1.29	11.79	12,225.25	0.00049	0.0058	0.85
Hershey Co.	6.00	1.78	1.89	7.89	41,929.56	0.00169	0.0133	0.85
Hewlett Packard Ent.	6.00	2.89	3.06	9.06	21,522.90	0.00087	0.0079	1.35
Home Depot	11.00	2.46	2.73	13.73	322,638.72	0.01299	0.1784	1.00
Honeywell Int'l	10.50	2.19	2.42	12.92	123,196.05	0.00496	0.0641	1.20
Hormel Foods	6.50	2.18	2.32	8.82	25,878.97	0.00104	0.0092	0.55
Horton D.R.	11.00	1.15	1.28	12.28	27,686.82	0.00112	0.0137	1.15
Howmet Aerospace	12.50	0.24	0.27	12.77	14,444.24	0.00058	0.0074	1.65
HP Inc.	13.50	2.89	3.28	16.78	37,717.68	0.00152	0.0255	1.20
Humana Inc.	10.50	0.76	0.84	11.34	53,292.70	0.00215	0.0243	1.20
Hunt (J.B.)	11.00	0.85	0.94	11.94	19,822.44	0.00080	0.0095	0.95
Huntington Bancshs.	12.00	4.05	4.54	16.54	22,130.85	0.00089	0.0147	1.30
Huntington Ingalls	10.00	2.52	2.77	12.77	7,495.60	0.00030	0.0039	1.10
IDEX Corp.	9.00	1.16	1.26	10.26	14,122.82	0.00057	0.0058	1.05
IHS Markit	10.50	0.76	0.84	11.34	42,110.92	0.00170	0.0192	1.10
Illinois Tool Works	10.00	2.29	2.52	12.52	67,014.51	0.00270	0.0338	1.05
Int'l Business Mach.	0.50	5.37	5.40	5.90	109,472.38	0.00441	0.0260	1.00
Int'l Flavors & Frag.	6.00	2.44	2.59	8.59	33,953.36	0.00137	0.0117	0.95
Int'l Paper	11.50	4.10	4.57	16.07	17,466.59	0.00070	0.0113	1.10
Intel Corp.	7.00	3.27	3.50	10.50	181,725.50	0.00732	0.0768	0.80
Intercontinental Exch.	8.00	1.23	1.33	9.33	69,513.78	0.00280	0.0261	0.95

R and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Interpublic Group	12.00	3.24	3.63	15.63	14,112.00	0.00057	0.0089	1.20
Intuit Inc.	18.50	0.58	0.69	19.19	127,594.67	0.00514	0.0986	1.05
Invesco Ltd.	16.00	3.78	4.38	20.38	9,749.77	0.00039	0.0080	1.45
Iron Mountain	10.00	5.87	6.46	16.46	12,230.42	0.00049	0.0081	0.90
Jacobs Engineering	14.00	0.78	0.89	14.89	15,176.77	0.00061	0.0091	1.10
Johnson & Johnson	8.00	2.63	2.84	10.84	424,409.25	0.01709	0.1853	0.85
Johnson Ctrl. Int'l plc	14.00	2.13	2.43	16.43	44,859.73	0.00181	0.0297	1.10
JPMorgan Chase	7.00	2.69	2.88	9.88	439,418.50	0.01770	0.1748	1.15
Juniper Networks	7.00	2.53	2.71	9.71	10,673.91	0.00043	0.0042	1.00
Kellogg	3.50	3.52	3.64	7.14	22,666.27	0.00091	0.0065	0.60
KeyCorp	9.50	3.16	3.46	12.96	22,956.52	0.00092	0.0120	1.45
Kimberly-Clark	4.50	3.52	3.68	8.18	44,430.00	0.00179	0.0146	0.70
Kimco Realty	10.50	3.45	3.81	14.31	10,025.79	0.00040	0.0058	1.25
Kinder Morgan Inc.	19.00	6.44	7.66	26.66	38,024.16	0.00153	0.0408	1.15
Kraft Heinz Co.	1.50	3.99	4.05	5.55	49,202.70	0.00198	0.0110	0.85
Kroger Co.	6.50	1.89	2.01	8.51	32,863.14	0.00132	0.0113	0.40
Lam Research	17.50	1.11	1.30	18.80	76,083.76	0.00306	0.0576	1.35
Lamb Weston Holdings	6.00	1.50	1.59	7.59	9,605.04	0.00039	0.0029	1.10
Lauder (Estee)	11.50	0.82	0.91	12.41	104,522.42	0.00421	0.0523	1.00
Leidos Hldgs.	8.50	1.58	1.71	10.21	12,747.00	0.00051	0.0052	1.10
Lennar Corp.	12.50	1.82	2.05	14.55	24,652.40	0.00099	0.0144	1.30
Lilly (Eli)	12.00	1.64	1.84	13.84	228,075.06	0.00919	0.1271	0.75
Lincoln Nat'l Corp.	9.00	2.70	2.94	11.94	12,019.00	0.00048	0.0058	1.95
LKQ Corp.	14.00	2.20	2.51	16.51	13,294.18	0.00054	0.0088	1.50
Lockheed Martin	6.50	2.93	3.12	9.62	105,391.91	0.00424	0.0408	1.00
Lowe's Cos.	16.50	1.63	1.90	18.40	147,551.73	0.00594	0.1093	1.15

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

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Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Lumen Technologies	4.50	10.40	10.87	15.37	9,918.80	0.00040	0.0061	0.95
LyondellBasell Inds.	5.50	4.59	4.84	10.34	32,848.92	0.00132	0.0137	1.35
M&T Bank Corp.	8.00	2.65	2.86	10.86	23,270.07	0.00094	0.0102	1.20
MarketAxess Holdings	13.00	0.76	0.86	13.86	14,009.54	0.00056	0.0078	0.70
Marsh & McLennan	12.00	1.44	1.61	13.61	75,183.01	0.00303	0.0412	0.95
Martin Marietta	10.50	0.67	0.74	11.24	22,800.34	0.00092	0.0103	1.15
Masco Corp.	10.00	2.03	2.23	12.23	13,411.98	0.00054	0.0066	1.10
MasterCard Inc.	13.00	0.54	0.61	13.61	355,450.31	0.01432	0.1948	1.10
McCormick & Co.	6.00	1.53	1.62	7.62	25,825.59	0.00104	0.0079	0.80
McDonald's Corp.	10.00	2.26	2.49	12.49	185,159.84	0.00746	0.0931	0.95
McKesson Corp.	10.00	0.70	0.77	10.77	40,190.80	0.00162	0.0174	0.95
Medtronic plc	8.50	2.65	2.88	11.38	138,561.13	0.00558	0.0635	1.00
Merck & Co.	7.50	3.64	3.91	11.41	191,520.48	0.00771	0.0880	0.80
MetLife Inc.	6.50	2.91	3.10	9.60	57,470.41	0.00231	0.0222	1.40
Microchip Technology	11.50	1.44	1.61	13.11	39,086.03	0.00157	0.0206	1.15
Microsoft Corp.	17.50	0.88	1.03	18.53	2,102,025.25	0.08466	1.5690	0.85
Mid-America Apartment	9.00	2.15	2.34	11.34	23,082.96	0.00093	0.0105	1.00
Mondelez Int'l	8.00	2.11	2.28	10.28	92,452.77	0.00372	0.0383	0.85
Moody's Corp.	9.50	0.88	0.96	10.46	59,281.65	0.00239	0.0250	1.10
Morgan Stanley	10.50	2.99	3.30	13.80	168,287.84	0.00678	0.0936	1.30
Motorola Solutions	8.50	1.52	1.65	10.15	35,111.93	0.00141	0.0144	0.90
MSCI Inc.	15.50	0.89	1.03	16.53	41,998.50	0.00169	0.0280	0.95
Nasdaq, Inc.	7.50	1.28	1.38	8.88	28,122.55	0.00113	0.0101	1.05
NetApp, Inc.	8.00	2.38	2.57	10.57	18,752.07	0.00076	0.0080	1.15
Newmont Corp.	12.00	3.22	3.61	15.61	54,736.50	0.00220	0.0344	0.60
NextEra Energy	11.00	2.35	2.61	13.61	141,891.86	0.00571	0.0778	0.95

**R and ROR Analysis for NSP
CAPM Analysis—Value Line EPS
Standard and Poor's 500 Adjusted**

	A	B	C	D	E	F	G	
	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
NiSource Inc.	9.00	3.33	3.63	12.63	11,076.06	0.00045	0.0056	0.85
Norfolk Southern	10.00	1.96	2.16	12.16	61,726.89	0.00249	0.0302	1.10
Northern Trust Corp.	7.50	2.46	2.64	10.14	23,598.60	0.00095	0.0096	1.15
Northrop Grumman	7.50	1.63	1.75	9.25	60,267.48	0.00243	0.0225	0.85
NortonLifeLock Inc.	11.00	1.88	2.09	13.09	15,446.28	0.00062	0.0081	
NRG Energy	0.50	3.80	3.82	4.32	9,017.66	0.00036	0.0016	1.15
Nucor Corp.	10.00	1.70	1.87	11.87	33,718.45	0.00136	0.0161	1.20
NXP Semi. NV	11.00	1.83	2.03	13.03	51,929.94	0.00209	0.0273	1.15
Old Dominion Freight	12.00	0.43	0.48	12.48	32,488.30	0.00131	0.0163	0.95
Omnicom Group	6.00	3.62	3.84	9.84	17,313.48	0.00070	0.0069	1.00
ONEOK Inc.	11.00	6.42	7.13	18.13	27,103.87	0.00109	0.0198	1.50
Oracle Corp.	10.00	1.77	1.95	11.95	193,567.38	0.00780	0.0931	0.75
PACCAR Inc.	7.50	3.13	3.36	10.86	31,692.42	0.00128	0.0139	1.10
Packaging Corp.	9.00	2.75	3.00	12.00	13,799.70	0.00056	0.0067	0.95
Paramount Global	5.50	3.38	3.57	9.07	18,346.40	0.00074	0.0067	1.45
Parker-Hannifin	13.50	1.42	1.61	15.11	37,248.34	0.00150	0.0227	1.45
Paychex, Inc.	9.00	2.54	2.77	11.77	40,985.60	0.00165	0.0194	1.10
Pentair plc	13.50	1.51	1.71	15.21	9,220.43	0.00037	0.0056	1.25
People's United Fin'l	2.50	3.52	3.61	6.11	8,868.29	0.00036	0.0022	1.05
PepsiCo, Inc.	6.50	2.64	2.81	9.31	230,532.27	0.00928	0.0865	0.75
PerkinElmer Inc.	10.00	0.16	0.18	10.18	21,879.29	0.00088	0.0090	0.90
Pfizer, Inc.	11.50	3.41	3.80	15.30	262,987.59	0.01059	0.1621	0.80
Philip Morris Int'l	7.00	4.60	4.92	11.92	168,332.95	0.00678	0.0808	0.95
Phillips 66	17.00	4.44	5.19	22.19	36,791.64	0.00148	0.0329	1.35
PNC Financial Serv.	11.50	2.51	2.80	14.30	84,181.23	0.00339	0.0485	1.20
Pool Corp.	19.00	0.77	0.92	19.92	16,650.03	0.00067	0.0134	0.85

ROE and ROR Analysis for NSP
 CAPM Analysis—Value Line EPS
 Standard and Poor's 500 Adjusted

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market Cap	Market	Weighted	
Company Name	Growth	Yield	Dividend	Return on	Cap \$	Cap	Rate of	Beta
	Rate (%)	(%)	Yield (%)	Equity (%)	(Mil)	Weight	Return on	
						Factor	Equity (%)	
PPG Inds.	10.00	1.68	1.85	11.85	33,170.88	0.00134	0.0158	1.05
Price (T. Rowe) Group	12.50	3.44	3.87	16.37	31,600.25	0.00127	0.0208	1.05
Principal Fin'l Group	6.00	3.68	3.90	9.90	18,509.91	0.00075	0.0074	1.50
Procter & Gamble	7.00	2.23	2.39	9.39	373,846.41	0.01506	0.1413	0.70
Progressive Corp.	4.50	0.38	0.40	4.90	61,202.70	0.00246	0.0121	0.75
Prologis	8.50	1.93	2.09	10.59	104,075.27	0.00419	0.0444	1.00
Prudential Fin'l	5.50	4.33	4.57	10.07	42,021.10	0.00169	0.0170	1.50
Public Serv. Enterprise	4.00	3.40	3.54	7.54	32,039.28	0.00129	0.0097	0.90
Public Storage	6.50	2.32	2.47	8.97	61,706.01	0.00249	0.0223	0.80
PulteGroup, Inc.	13.00	1.34	1.51	14.51	11,440.33	0.00046	0.0067	1.40
PVH Corp.	14.00	0.15	0.17	14.17	6,853.93	0.00028	0.0039	1.85
Quanta Services	18.50	0.28	0.33	18.83	13,677.49	0.00055	0.0104	1.25
Quest Diagnostics	7.00	2.05	2.19	9.19	15,878.07	0.00064	0.0059	0.80
Ralph Lauren	12.50	2.13	2.40	14.90	9,191.92	0.00037	0.0055	1.25
Raymond James Fin'l	13.50	1.27	1.44	14.94	22,178.11	0.00089	0.0133	1.15
Raytheon Technologies	7.50	2.21	2.38	9.88	137,652.53	0.00554	0.0547	
Realty Income Corp.	3.50	4.54	4.70	8.20	23,575.02	0.00095	0.0078	1.10
Regency Centers Corp.	16.00	3.83	4.44	20.44	11,068.22	0.00045	0.0091	1.15
Regions Financial	10.50	3.07	3.39	13.89	22,356.03	0.00090	0.0125	1.40
Republic Services	10.50	1.59	1.76	12.26	36,828.90	0.00148	0.0182	0.90
ResMed Inc.	13.50	0.72	0.82	14.32	34,101.03	0.00137	0.0197	0.90
Robert Half Int'l	12.00	1.49	1.67	13.67	12,831.38	0.00052	0.0071	1.20
Rockwell Automation	10.00	1.75	1.93	11.93	29,885.61	0.00120	0.0144	1.15
Rollins, Inc.	10.50	1.32	1.46	11.96	14,914.01	0.00060	0.0072	0.85
Roper Tech.	8.50	0.58	0.63	9.13	45,271.00	0.00182	0.0166	1.00
Ross Stores	14.00	1.36	1.55	15.55	31,132.15	0.00125	0.0195	1.30

**R and ROR Analysis for NSP
CAPM Analysis—Value Line EPS
Standard and Poor's 500 Adjusted**

**Docket No. PU-11
Exhibit MFG-S-5, Schedule 4
Page 51 of 61**

	A	B	C	D	E	F	G	
	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Weighted Rate of Return on Equity (%)	Beta
Company Name								
S&P Global	10.50	0.90	0.99	11.49	89,982.17	0.00362	0.0417	1.00
Schlumberger Ltd.	11.50	1.26	1.40	12.90	55,770.40	0.00225	0.0290	1.40
Schwab (Charles)	8.50	0.97	1.05	9.55	155,936.22	0.00628	0.0600	1.10
Seagate Technology plc	16.50	2.67	3.11	19.61	23,006.41	0.00093	0.0182	1.00
Sealed Air	13.50	1.15	1.31	14.81	16,114.34	0.00065	0.0096	1.05
Sempra Energy	10.00	3.46	3.81	13.81	42,631.16	0.00172	0.0237	0.95
Sherwin-Williams	10.50	1.00	1.11	11.61	67,729.34	0.00273	0.0317	0.90
Signature Bank	13.00	0.68	0.77	13.77	20,101.05	0.00081	0.0111	1.20
Simon Property Group	1.50	5.00	5.08	6.58	44,041.05	0.00177	0.0117	1.50
Skyworks Solutions	16.00	1.68	1.95	17.95	21,941.01	0.00088	0.0159	1.05
Smith (A.O.)	11.00	1.65	1.83	12.83	10,703.06	0.00043	0.0055	0.85
Smucker (J.M.)	4.00	2.98	3.10	7.10	14,834.89	0.00060	0.0042	0.65
Snap-on Inc.	5.50	2.79	2.94	8.44	10,932.50	0.00044	0.0037	1.15
Southern Co.	5.50	4.30	4.54	10.04	66,598.08	0.00268	0.0269	0.95
Stanley Black & Decker	9.00	2.03	2.21	11.21	27,531.41	0.00111	0.0124	1.50
Starbucks Corp.	16.50	2.23	2.60	19.10	103,240.93	0.00416	0.0794	1.00
State Street Corp.	8.00	2.73	2.95	10.95	31,924.70	0.00129	0.0141	1.25
STERIS plc	11.50	0.76	0.85	12.35	22,519.97	0.00091	0.0112	1.05
Stryker Corp.	8.50	1.10	1.19	9.69	95,665.46	0.00385	0.0373	1.20
Synchrony Financial	9.50	2.26	2.47	11.97	21,916.13	0.00088	0.0106	1.55
Sysco Corp.	17.50	2.24	2.63	20.13	42,645.48	0.00172	0.0346	1.30
Tapestry Inc.	12.50	2.55	2.87	15.37	10,338.24	0.00042	0.0064	1.50
Target Corp.	15.00	1.90	2.19	17.19	91,323.86	0.00368	0.0632	0.70
TE Connectivity	10.50	1.45	1.60	12.10	45,111.80	0.00182	0.0220	1.15
Teleflex Inc.	13.50	0.42	0.48	13.98	15,445.40	0.00062	0.0087	1.20
Teradyne Inc.	14.00	0.40	0.46	14.46	18,258.95	0.00074	0.0106	1.15

**ROE and ROR Analysis for NSP
CAPM Analysis—Value Line EPS
Standard and Poor's 500 Adjusted**

**Docket No. PU-21-381
Exhibit MFG-S-5, Schedule 4
Page 52 of 61**

	A	B	C	D	E	F	G	
	EPS	Dividend	Expected	Rate of	Market	Market	Weighted	
	Growth	Yield	Dividend	Return on	Cap \$	Cap	Rate of	
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	(Mil)	Weight	Return on	Beta
						Factor	Equity (%)	
Texas Instruments	9.00	2.78	3.03	12.03	152,976.34	0.00616	0.0741	0.85
Textron, Inc.	8.50	0.12	0.13	8.63	15,153.88	0.00061	0.0053	1.45
Thermo Fisher Sci.	15.50	0.20	0.23	15.73	208,285.88	0.00839	0.1320	0.85
TJX Companies	19.50	1.66	1.98	21.48	74,641.31	0.00301	0.0646	1.20
Tractor Supply	11.00	1.92	2.13	13.13	21,853.70	0.00088	0.0116	0.85
Travelers Cos.	8.00	2.07	2.24	10.24	41,854.45	0.00169	0.0173	1.00
Truist Fin'l	7.00	3.17	3.39	10.39	80,894.45	0.00326	0.0339	1.35
Tyson Foods 'A'	5.00	2.02	2.12	7.12	33,392.37	0.00134	0.0096	0.75
U.S. Bancorp	5.50	3.30	3.48	8.98	83,994.45	0.00338	0.0304	1.15
UDR, Inc.	6.00	2.90	3.07	9.07	15,972.56	0.00064	0.0058	1.10
Union Pacific	9.00	1.93	2.10	11.10	157,763.72	0.00635	0.0705	1.10
United Parcel Serv.	11.00	2.97	3.30	14.30	177,631.78	0.00715	0.1023	0.80
UnitedHealth Group	11.50	1.26	1.40	12.90	432,502.41	0.01742	0.2248	1.10
Universal Health `B'	9.50	0.60	0.66	10.16	10,715.86	0.00043	0.0044	1.25
V.F. Corp.	9.50	3.50	3.83	13.33	22,213.11	0.00089	0.0119	1.25
Valero Energy	12.50	4.54	5.11	17.61	35,301.70	0.00142	0.0250	1.60
Ventas, Inc.	4.50	3.82	3.99	8.49	19,221.19	0.00077	0.0066	1.30
Verisk Analytics	10.50	0.70	0.77	11.27	28,670.53	0.00115	0.0130	0.85
Verizon Communic.	2.50	4.79	4.91	7.41	221,126.17	0.00891	0.0660	0.60
Visa Inc.	12.00	0.72	0.81	12.81	413,760.22	0.01666	0.2134	1.00
Vulcan Materials	10.00	0.91	1.00	11.00	23,263.01	0.00094	0.0103	1.10
Wabtec Corp.	9.00	0.66	0.72	9.72	17,079.12	0.00069	0.0067	1.30
Walgreens Boots	5.00	4.20	4.41	9.41	39,270.26	0.00158	0.0149	0.85
Walmart Inc.	7.50	1.66	1.78	9.28	375,168.88	0.01511	0.1403	0.55
Waste Management	7.50	1.64	1.76	9.26	58,811.02	0.00237	0.0219	0.80
WEC Energy Group	6.50	3.35	3.57	10.07	27,865.53	0.00112	0.0113	0.80

ROE and ROR Analysis for Northern States Power
 CAPM Analysis
 Moody's 10-Year Baa Corporate Bonds Index March 7-April 1, 2022
 Downloaded April 7, 2022

Docket No. PU-21-381
 Exhibit MFG-S-5
 Schedule 5

S&P Global
 Market Intelligence

Chart Builder

Entities: Moodys Bond Yield Avg - BAA Rated Corporates
 Metrics: Index Value

SERIES NAME	CATEGORY	HIGH	LOW	AVERAGE
Moodys Bond Yield Avg - BAA Rated Corporates-Index Value (Daily)	Market Data	4.51	4.10	4.34

Pricing Date	Moodys Bond Yield Avg - BAA Rated Corporates-Index Value (Daily)
4/1/2022	4.20
3/31/2022	4.25
3/30/2022	4.28
3/29/2022	4.32
3/28/2022	4.40
3/25/2022	4.44
3/24/2022	4.35
3/23/2022	4.35
3/22/2022	4.43
3/21/2022	4.39
3/18/2022	4.28
3/17/2022	4.37
3/16/2022	4.42
3/15/2022	4.51
3/14/2022	4.47
3/11/2022	4.35
3/10/2022	4.36
3/9/2022	4.26
3/8/2022	4.21
3/7/2022	4.10

**ROE and ROR Analysis for Northern States Power
CAPM ROE Analysis--IBES
Calculation for Proxy Group**

**Docket No. PU-21-381
Exhibit MFG-S-5
Schedule 6**

	A	B	C	D	E	F	G	H
	Market Return	Rf	MRP	Beta	RP	CAPM ROE	Flotation Adjusted	Filtered Results
Atmos Energy Corporation	13.38%	2.45%	10.93%	0.80	8.74%	11.19%	11.23%	11.23%
Chesapeake Utilities	13.38%	2.45%	10.93%	0.80	8.74%	11.19%	11.23%	11.23%
New Jersey Resources Corporation	13.38%	2.45%	10.93%	1.00	10.93%	13.38%	13.41%	13.41%
NiSource, Inc.	13.38%	2.45%	10.93%	0.85	9.29%	11.74%	11.77%	11.77%
Northwest Natural Holding Company	13.38%	2.45%	10.93%	0.80	8.74%	11.19%	11.23%	11.23%
ONE Gas, Inc.	13.38%	2.45%	10.93%	0.80	8.74%	11.19%	11.23%	11.23%
South Jersey Industries	13.38%	2.45%	10.93%	1.00	10.93%	13.38%	13.41%	13.41%
Southwest Gas	13.38%	2.45%	10.93%	0.95	10.38%	12.83%	12.87%	12.87%
Spire Inc.	13.38%	2.45%	10.93%	0.85	9.29%	11.74%	11.77%	11.77%

Excluded		Mean	11.98%	12.02%	12.02%
		Median	11.74%	11.77%	11.77%
	w/o CPK, SJI, SWX	Mean	11.74%	11.77%	
		Median	11.47%	11.50%	

A: MFG-S-5, Sch 3

E: C * D

B: MFG-S-5, Sch 1

F: B + E

C: A - B

G: Flotation adjustment of 3.4 basis points added to Column

D: MFG-S-5, Sch 2

H: Low-end test < Column F < High-end test

Low-End Test:

Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence, Exhibit MFG-S-5, Schedule	4.34%
CAPM Risk Premium, Column C	10.93%
20 percent of CAPM risk premium	2.19%
Moody's 10-Year Baa Public Corporate Bond Index + 20 percent of CAPM risk premium	5.77%

High-End Test:

Proxy Group median, Column F	11.74%
200 percent of Proxy Group median	23.48%

ROE and ROR Analysis for Northern States Power
 CAPM ROE Analysis--Value Line
 Calculation for Proxy Group

Docket No. PU-21-381
 Exhibit MFG-S-5
 Schedule 7

	A Market Return	B Rf	C MRP	D Beta	E RP	F CAPM ROE	G Flotation Adjusted	H Filtered Results
Atmos Energy Corporation	13.10%	2.45%	10.65%	0.80	8.52%	10.97%	11.00%	11.00%
Chesapeake Utilities	13.10%	2.45%	10.65%	0.80	8.52%	10.97%	11.00%	11.00%
New Jersey Resources Corporati	13.10%	2.45%	10.65%	1.00	10.65%	13.10%	13.13%	13.13%
NiSource, Inc.	13.10%	2.45%	10.65%	0.85	9.05%	11.50%	11.54%	11.54%
Northwest Natural Holding Com	13.10%	2.45%	10.65%	0.80	8.52%	10.97%	11.00%	11.00%
ONE Gas, Inc.	13.10%	2.45%	10.65%	0.80	8.52%	10.97%	11.00%	11.00%
South Jersey Industries	13.10%	2.45%	10.65%	1.00	10.65%	13.10%	13.13%	13.13%
Southwest Gas	13.10%	2.45%	10.65%	0.95	10.12%	12.57%	12.60%	12.60%
Spire Inc.	13.10%	2.45%	10.65%	0.85	9.05%	11.50%	11.54%	11.54%

Excluded	Mean	11.74%	11.77%	11.77%
	Median	11.50%	11.54%	11.54%
	Mean	11.50%	11.54%	
	Median	11.24%	11.27%	

w/o CPK, SJI, SWX

A: MFG-S-5, Sch 4

E: C * D

B: MFG-S-5, Sch 1

F: B + E

C: A - B

G: Flotation adjustment of 3.4 basis points added to Column

D: MFG-S-5, Sch 2

H: Low-end test < Column F < High-end test

Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence, Exhibit MFG-S-5, Schedule 5	4.34%
	CAPM Risk Premium, Column C	10.65%
	20 percent of CAPM risk premium	2.13%
	Moody's 10-Year Baa Corporate Bond Index + 20 percent of CAPM risk premium	6.47%
High-End Test:	Proxy Group median, Column F	11.50%
	200 percent of Proxy Group median	23.01%

ROE and ROR Analysis for Northern States Power
CAPM ROE Analysis
Average of Low-End Tests for Value Line and IBES

Docket No. PU-21-381
Exhibit MFG-S-5
Schedule 8

Value Line Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence. See MFG-14, Schedule 5	4.34%
	CAPM Risk Premium, Value Line, MFG-14, Schedule 7	10.65%
	20 percent of CAPM risk premium	2.13%
	Moody's 10-Year Baa Public Corporate Bond Index + 20 percent of CAPM risk premium	6.47%
IBES Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence. MFG-14, Schedule 5	4.34%
	CAPM Risk Premium, IBES, MFG-14, Schedule 6	10.92%
	20 percent of CAPM risk premium	2.18%
	Moody's 10-Year Baa Public Corporate Bond Index + 20 percent of CAPM risk premium	6.52%
Mean of Value Line and IBES Low-End Tests		6.50%

**ROE and ROR Analysis for Northern States Power
Summary of ROE Analyses and Recommended ROE**

**Docket No. PU-21-381
Exhibit MFG-S-6
Schedule 1**

Analysis	Weight	ROE		Exhibit	
			Full Group	w/o CPK, SJL, SWX	
Constant-Growth DCF	40.00%	Mean	9.50%	9.29%	Exhibit MFG-S-4, Schedule 1
		Median	9.12%	9.42%	
Multistage DCF	40.00%	Mean	8.81%	8.72%	Exhibit MFG-S-4, Schedule 7
		Median	8.61%	8.71%	
CAPM S&P 500 IBES	10.00%	Mean	11.98%	11.77%	Exhibit MFG-S-5, Schedule 6
		Median	11.74%	11.50%	
CAPM S&P 500 Value Line	10.00%	Mean	11.77%	11.54%	Exhibit MFG-S-5, Schedule 7
		Median	11.54%	11.27%	
Weighted average of models		Mean	9.70%	9.54%	
		Median	9.42%	9.53%	
			2019	2020	2021
Recently awarded ROEs	Mean	9.72	9.46	9.56	Exhibit MFG-15
	Median	9.72	9.50	9.60	
	Range	9.00-10.25	8.80-10.00	8.80-10.24	
	Cases	n = 30	n = 34	n = 42	
		Overall			
	Mean	9.57			
	Median	9.57			
	Range	8.80-10.24			
	Cases	n = 106			

Recommended ROE for Northern States Power 9.54%

**ROE and ROR Analysis for Northern States Power
Recommended ROE and ROR
Based on ROE Inputs from March-April 2022**

**Docket No. PU-21-381
Exhibit MFG-S-6
Schedule 2**

Rate of Return NDPSC Staff

		DCF	
	Ratio	Cost	WACC
Long-Term Debt	47.57%	4.10%	1.948%
Short-Term Debt	0.43%	1.09%	0.005%
Common Equity	52.00%	9.54%	4.961%
Overall Rate of Return	100.00%		6.91%

The recommended common equity cost of 9.54 percent is taken from Exhibit MFG-S-3, Schedule 1. The capital structure is taken from Exhibit MFG-16, Schedule 2. The cost of long-term debt and cost of short-term debt are taken from NSP-MN Regulated Capital Structure, C1. Cost of Capital Schedule, Page 1 of 2.

Rate of Return NSP

		DCF	
	Ratio	Cost	WACC
Long-Term Debt	47.03%	4.10%	1.926%
Short-Term Debt	0.43%	1.09%	0.005%
Common Equity	52.54%	10.50%	5.517%
Overall Rate of Return	100%		7.45%

The common equity cost of 10.50 percent is taken from Rebuttal Exhibit (DWD-2), Schedule 1, Page 2 of 36 of NSP witness Dylan D'Ascendis. The cost of long-term debt and cost of short-term debt are taken from NSP-MN Regulated Capital Structure, C1. Cost of Capital Schedule, Page 1 of 2.

